

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. Incorrect re-assembly may result in 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 battery, please follow required spec to select appropriate cable size.
7. Be very cautious when working with metal tools on or around batteries. A potential 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, at least 2 sets of LPBR24V for inverter larger than 3KVA, and at least 2 sets of LPBR48V for inverter larger than 6KVA in parallel connection.
10. **GROUNDING INSTRUCTIONS** - This System should be connected to a permanent grounded wiring system. Be sure to comply with local requirements.
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 away from water, high temperature mechanical force and flames.
14. Do not install the battery in any environment of temperature below 0°C or over 55°C, 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. 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

The battery system main using Solar power system for Family house. It also have a with to controller the battery easily and protect our Household application timely.

2.1 Features

- Iron phosphate-lithium power battery
- Long warranty period:2 years
- 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 Over View

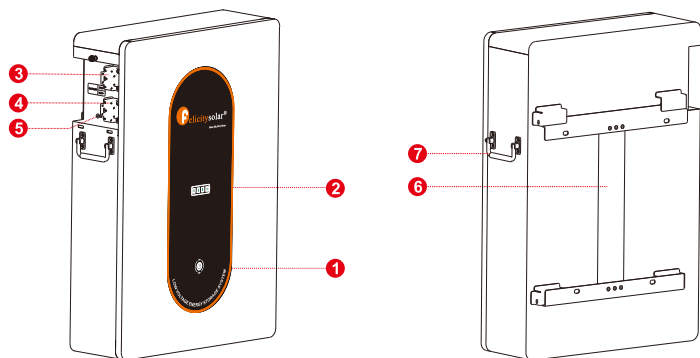


24V Front view

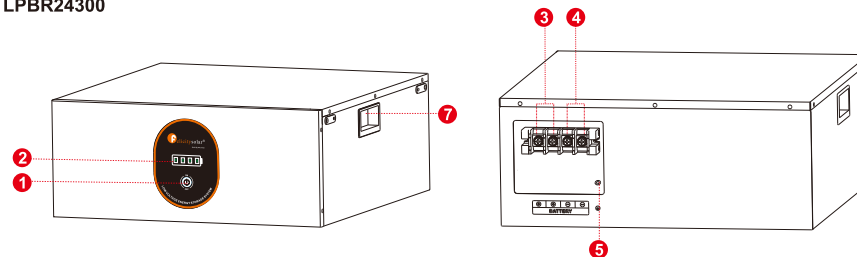


48V Front view

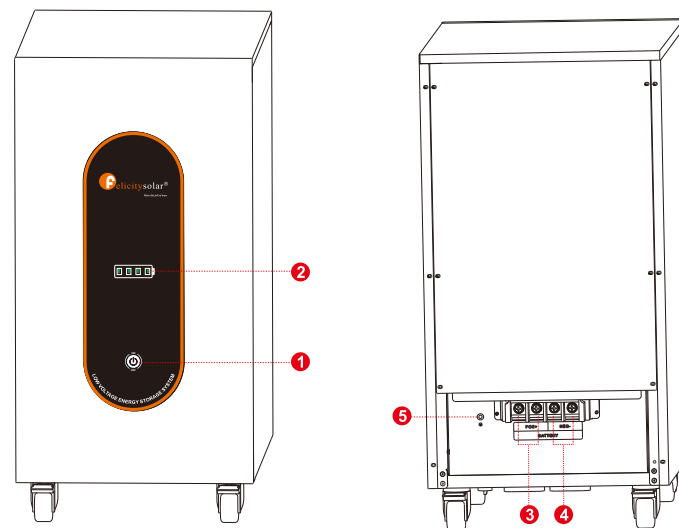
LPBR24150-P&LPBR48150-P



LPBR24300



LPBR48300



- 1.Power On/Charging indicator
- 4.Battery Negative -
- 5. Earth wire

- 2. LED display
- 5. Earth wire

- 3.Battery Positive +
- 6.Wall mounted fixing

2.3 Specifications

Model	LPBR24150-P	LPBR48150-P	LPBR24300	LPBR48300
Usable Capacity	3.75KWH	7.5KWH	7.5KWH	15KWH
Nominal Voltage	25.6	51.2	25.6	51.2
Voltage Range	21-28.2	42-56.4	21-28.2	42-56.4
MAX. Charge & Discharge Current	120A @30S		150A @30S	
Recommend Charge Current	≤45A		≤90A	
Recommend Discharge Current	≤60A		≤100A	
MAX. Output Power	3000W	6000W	3750W	7500W
Recommend Output Power	1500W	3000W	2500W	5000W
DOD	≥95%			
Modules Connection	1~6in parallel			
Ingress Protection	IP21			
Cycle Life	≥2500,@25°C,@DOD80%			
Working Temperature Range	Discharge: -20°C to +60°C, Charge: +0°C to +55°C			
Net Weight(KG)	50KG	88.5KG	73.2KG	151.0KG
Gross Weight(KG)	53KG	93.1KG	78.4KG	162.6KG
Product Dimension(MM)	510*450*213MM	800*545*213MM	578*578*235MM	380*563*758MM
Package Dimension(MM)	622*562*292MM	912*657*292MM	690*690*347MM	475*668*925MM

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	LPBR24150-P	LPBR24300	LPBR481500-P	LPBR48300
Max. Charging Voltage	28.2V		56.4V	
Floating charging Voltage	28.2V		56.4V	
Recommend Charge Current	45A*N	90A*N	45A*N	90A*N
Cut-off voltage	24V		48V	

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

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	User manual	User manual	
②	Guarantee card	Guarantee card	
③	Cables	Used for battery parallel connection	
④	Screw	Mounting screw	
⑤	Wall mount	Wall mount bracket	

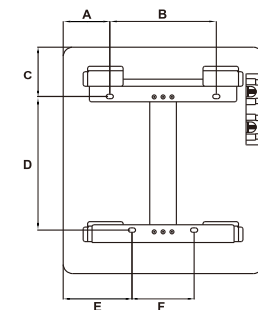
NOTE: ① ② ③ in LPBR24300&LPBR48300 ① ② ③ ④ ⑤ in LPBR24150-P&LPBR48150-P

3.2 Mounting the Unit

Consider the following points before selecting where to install:

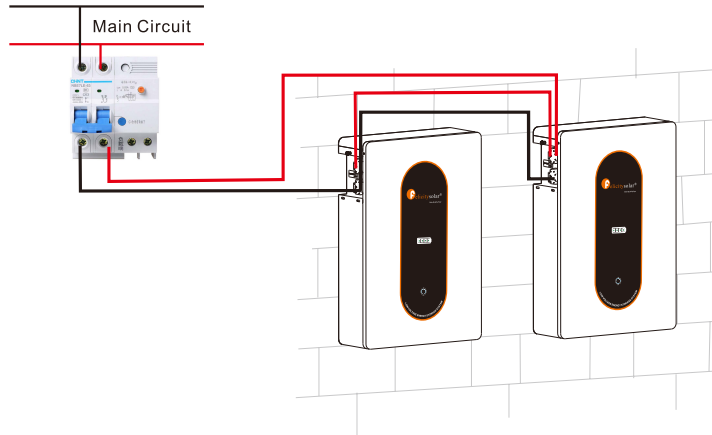
- Do not mount the battery on flammable construction materials.
- The ambient temperature should be between 0°C and 45°C to ensure optimal operation.
- The recommended installation position is to be adhered to the wall vertically.
- Be sure to keep other objects and surfaces as shown in the right diagram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

	LPBR24150-P	LPBR48150-P
A	105	92.5
B	240	320
C	111	232.5
D	301	401
E	155	132.5
F	140	240

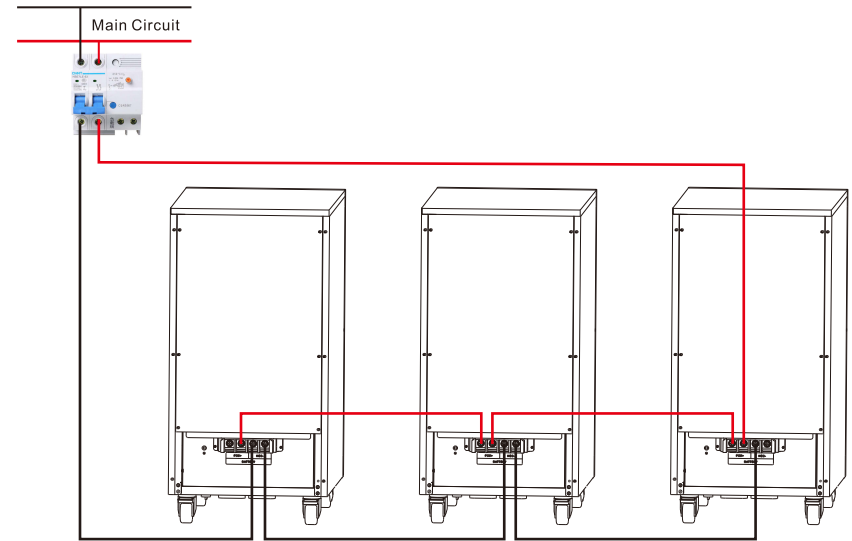


3.3 Connection for Parallel Mode

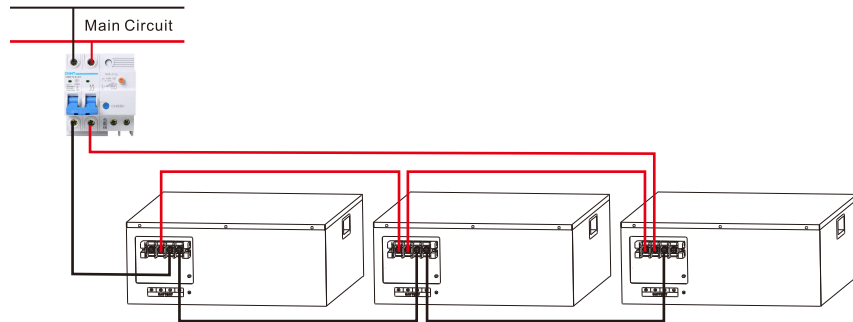
The eStrong LPBR series battery support to be connected in parallel for expansion. If you need one more battery bank work in parallel mode, connect the battery as shown in PIC 2



Schematic diagram of parallel connection of battery packs(LPBR24150-P&LPBR48150-P)



Schematic diagram of parallel connection of battery packs(LPBR48300)



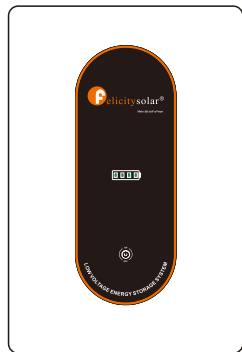
Schematic diagram of parallel connection of battery packs(LPBR24300)

4. OPERATION

Once the batteries are connected well, simply press On/Off button to enable the output of the battery pack.



24V Front view



48V Front view

4.1 Switch On / Off

1. Switch on: When the On/Off button pops up, the battery will turn on and there will be current output. The LED will show the SOC.
2. Switch off: Press the On/Off button (recessed state), the battery will shut down and no output current.

4.2 Description for LED

The SOC of the battery is shown by the LED.

100%	75%	50%	25%

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

4.3 ON / OFF or SOC Led (Mode or SOC)

LED Indicator		Messages
On/Off	Green	On
	Red	Flashing
		<p>Working in discharge mode</p> <p>When the following faults occur:</p> <ol style="list-style-type: none"> 1. Battery voltage is too low; 2. Cell voltage is too low; 3. Cell temperature is too high; 4. Cell temperature is too low; 5. BMS temperature is too high;

5. EMERGENCY SITUATIONS

Felicity 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 actions 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, Felicity 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.