



# USERGUIDE

LiFePO<sub>4</sub> 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 wiring 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 all 10 spark or short circuit batteries or other electrical parts and could cause an explosion or fire.
8. Please strictly follow installation procedure.
9. **GROUNDING INSTRUCTIONS** — This System should be connected to a permanent grounded wiring system e sure to comply with local requirements.
10. NEVER cause AC output and DC input short circuited: Do not connect to the mains when DC input short circuits.
11. Warning! Only qualified service persons are able to service this device.
12. Battery should be installed indoor and kept away from water. High temperature mechanical force and flames.
13. Do not install the battery in any environment of temperature below 0 °C or over 55 °C, and humidity over 80%.
14. Do not put any heavy objects on the battery.

## 1.4 Connected in parallel

1. Batteries can be used in parallel, but not in series.
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 can not 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

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



### 2.1 Feature

- Iron phosphate-lithium power battery.
- Long warranty period: 5 years.
- Higher energy density, smaller volume for household.
- Support connected in parallel mode for expansion.
- Photovoltaic system: This battery packs 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

Front-view	Back-view
	

### Side interface

		<p>Battery Negative -</p>		<p>Battery Positive +</p>
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## 2.3 Specifications

Mode	LFP-24100
Usable Capacity	2.56kWh
Nominal Voltage	25.6V
Voltage Range	20V-29.2V
Recommend Charge Cut-off Voltage	29.2V
Recommend Discharge Cut-off Voltage	20V
MAX. Charge Current	100A
MAX. Discharge Current	100A
Recommend Charge & Discharge Current	≤100A
DOD	≥95%
Ingress Protection	IP21
Cycle life	≥3000 @ 0.5C, 25°C, 80%DOD
Working Temperature Range	Discharge: -20°C to + 55°C Charge: +0°C to +45°C
Net Weight (KG)	22KG
Product Dimension (mm)	552*239*218mm

## 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	Screw	Mounting screw	
②	Guarantee card	Guarantee card	

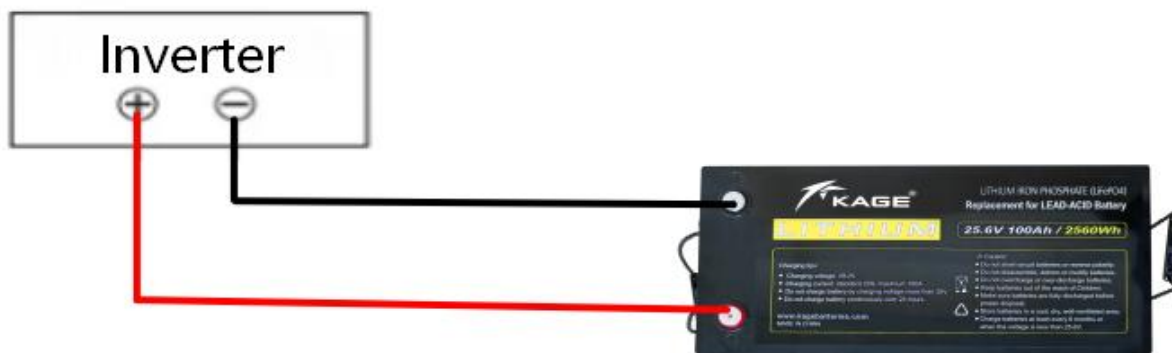
### 3.2 Fixation of Battery

Install the fixing component on the battery, then mark the position of the fixing component on the wall and install the expansion screw.

### 3.3 Connection between Battery and Inverter

The positive pole of the battery (connected with a red wire) is connected to the corresponding positive pole of the inverter (battery+), and the negative pole of the battery (connected with a black wire) is connected to the corresponding negative pole of the inverter (battery-). The connection of the communication line needs to be done according to the instructions of the inverter. Please contact the battery manufacturer or distributor for debugging and installation. If the

batteries need to be connected in parallel, a matching junction box is required for connection.



### 3.4 Button Description

1. When the BMS is sleeping, press the button (3~6s) and release, the board is activated, and the LED indicator lights up sequentially for 0.5s from "RUN".
2. When the BMS is activated, press the button (3~6s) and release, the board will sleep, and the LED indicator lights up sequentially for 0.5s from the lowest power lamp.
3. When the BMS is activated, press the button (6~10s) and release, the board is reset, and the LED lights are all lit up for 1.5s at the same time.
4. After the BMS is reset, the parameters and functions set by the upper computer are still retained, and if it is necessary to restore the initial parameters, it can be achieved by restoring the default value of the host computer, but the relevant operating records and storage data remain unchanged (such as power level, number of cycles, protection records, etc)

### 3.5 Buzzer Logic

When fault occurs, ring 0.25s per 1s;

When protecting, ring 0.25s per 2s (except over-voltage protection)

When alarming, ring 0.25s per 3s (except over-voltage alarm);

The buzzer function can be enabled or disabled by upper computer, and it is disabled by factory default.

## 4. BEMERGENCY SITUATIONS

AFRICELL cannot guarantee the absolute safety of lithium-ion batteries.

### 4.1 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 Protective Equipment 89/686/EEC.
- NOVEC 1230, FM-200, or dioxide extinguisher.

Batteries may explode when heated above 150°C. **KEEP FARAWAY** from the battery if it catches fire.

## **4.2 Leaking batteries**

If the battery pack leaks electrolyte, avoid contact with the leaking liquid or gas. If one is exposed to 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.

## **4.3 Wet Batteries**

If the battery pack is wet or submerged in water, do not let people access it, and contact your supplier for help.

## **4.4 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.

## **4.5 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.

## **4.6 Limitation of Liability**

Any product damage or property loss caused by the following condition. **KAGE** 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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