
JKBMS

SPECIFICATION

Product Name:	6U Lithium Battery Kit (Energy Storage Cabinet Enclosure)
Product model:	JKLU015
Version:	Ver1.0

Revision History

Revision date	Version number	Revised content	Reviser
2024-10-15	VER1.0	First Edition	

CONTENTS

1. Product Overview

The 6U lithium battery kit (also known as 6U energy storage cabinet enclosure) is a power storage device with stable performance and wide adaptability. It has a core capacity of 15/16 kWh and is compatible with two mainstream battery pack specifications: 48V and 51.2V. This allows flexible connection to power systems and charging equipment with different voltage standards, reducing the adaptation threshold with various power systems.

In terms of cell adaptability, it has significant advantages, supporting combinations of cells with multiple capacities such as 280Ah, 304Ah, and 314Ah. Users can flexibly configure cell solutions according to actual power load requirements and cost budgets.

In terms of structural specifications, the standardized 6U size design ensures good space adaptability, enabling smooth integration into various standardized installation environments such as cabinets and equipment compartments, simplifying the installation process and improving space utilization efficiency. The exterior is painted black, featuring certain anti-fouling and wear-resistant properties, which can adapt to various usage environments.

With a capacity reserve of 15 kWh, this battery kit can be widely used in scenarios such as home energy storage, small commercial backup power supplies, and outdoor mobile power supply, providing stable power support for lighting, communication equipment, small household appliances, etc.

1.1. Product Name

Product Name：JKESS 6U Battery Kits (Energy Storage Cabinet Enclosure)

1.2. Product Model

Product Model：JKLU015

Applicable Cells: 3.2V280Ah / 3.2V304Ah / 3.2V314Ah

1.3. Product Purpose

The battery kit consists of a battery cabinet enclosure and auxiliary materials. As a 6U-high battery cabinet enclosure, it is specially customized for 15/16 kWh (approximately 15~16kWh) lithium iron phosphate battery systems. Its core purpose is to provide a professional and adaptive installation carrier and integrated space for the batteries and BMS (Battery Management System) of the system.

Customers can orderly assemble lithium iron phosphate batteries and BMS components inside the enclosure. With the structured design of the enclosure, centralized storage and fixation of batteries and BMS can be achieved. This not only effectively physically protects internal components, reducing interference and damage from external environmental factors (such as collisions, dust, moisture, etc.), but also makes the layout of the entire battery

system more regular, facilitating later maintenance, inspection, and management.

Through the integration function of the enclosure, it helps improve the overall stability and safety of the lithium iron phosphate battery system, enabling it to be more reliably applied in scenarios such as home energy storage and small industrial and commercial backup power supplies, providing a solid hardware foundation for related power needs.

1.4. Applicable Scenarios

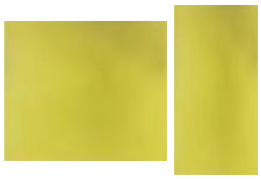
- **Home energy storage**: Cooperating with solar energy equipment for power storage, used for daily household use or emergency power supply during power outages.
- **Small Industrial and Commercial Sectors:** As a backup power supply to ensure the normal operation of supermarkets, restaurants and other places during power outages, or to help avoid peak electricity consumption.
- **Outdoor operations**: Providing power support for equipment in field exploration and construction camps.
- **Small communication base stations**: As a supplementary backup power supply, providing short-term power for core equipment when the main power supply fails.

- **RV camping**: Supplying power for lighting, refrigerators, small household appliances, etc. inside the RV to meet the daily electricity needs during outdoor camping.
- **Medical clinics**: As a backup power supply for small medical equipment (such as small oxygen generators, monitors, etc.) to deal with sudden power outages and ensure basic diagnosis and treatment work.
- **Agricultural greenhouses**: Supplying power for small ventilation equipment, lighting systems, and temperature and humidity sensors in greenhouses to ensure a stable environment in the greenhouses.

2. Product Composition

The battery kit includes the following structural components (which can be adjusted according to actual design):

Accessories picture	Component name	texture of wood	quantity	function declaration
	Upper cover plate	1.2mm galvanized steel plate	1	Sealed top, with waterproof rubber strip groove
	Lower tray	1.2mm galvanized steel plate	1	Bearing module weight, bottom shock-proof design
	Side panel (left/right)	1.2mm galvanized steel plate	2	Structural support, ventilation holes are reserved, and each side plate has two embedded handles for easy handling
	Front end plate	1.2mm galvanized steel plate	1	Used for fixing terminals, display screens and electrical interface panels
	Rear end plate	1.2mm galvanized steel plate	1	Internal reserved space for wiring harness passage

Accessories picture	Component name	texture of wood	quantity	function declaration
	Internal partition	1.5mm galvanized steel plate	2	One in the front and one in the back, because the battery cell and BMS are fixed, the structural strength is enhanced
	Pressing bar	1.2mm galvanized steel plate	2	Used to fix the battery core, which is convenient for wiring
	Collection connection PCB (optional)	PCB/connecting wire	2	Connecting the battery cells and BMS, and used for collecting current, voltage and temperature.
	Installing support	1.2mm galvanized steel plate	2	Used for the fixed connection between box body and cabinet equipment
	Positive and negative terminals and their protective covers	Copper+silica gel	4	Used for connecting the battery and charging and discharging output
	Epoxy board	Composite material composed of epoxy resin and glass fiber cloth	24	The function of insulation protection between batteries
	Soft silica gel wire	Copper+silica gel	3	Connect the positive and negative electrodes in the box and the protection plate

Accessories picture	Component name	texture of wood	quantity	function declaration
	Dc circuit breaker	Plastic+circuit board	1	on-off control
	Terminal connecting piece	2.0mm aluminum plate	2	Direct connecting piece of terminal post
	BMS connecting piece	2.0mm aluminum plate	1	Direct connecting piece of positive and negative electrodes of protection plate
	Negative electrode connecting piece	2.0mm aluminum plate with silicone protective layer	1	Connecting piece of total negative electrode to protection plate
	Folding handle	stainless steel	2	Easy to carry and install
	Screw, screw	Carbon steel, stainless steel		Used to install and reinforce parts

3. Technical Parameters

3.1 Parameter Description

Item Name	Parameter Description
Applicable Cell Type	Lithium Iron Phosphate ($LiFePO_4$)
Nominal Voltage	51.2V (= 3.2V × 16 strings)
Overall Dimensions (L×W×H)	715*420*267mm
Total Weight	Net weight: 22.5kg; weight with carton: 23kg
Adaptable Communication Interface	CAN / RS485 interface mounting position
Shell Material	galvanized steel plate
Protection Class	IP55 (default) / customizable IP67
Surface Treatment	Spraying / Anodizing / Electroplating
Heat Dissipation Design	Natural air duct / optional fan mounting position
Operating Temperature Range	–20℃ ～ +60℃
Storage Temperature Range	–40℃ ～ +70℃
Vibration Resistance Grade	Compliant with IEC 61427 standard

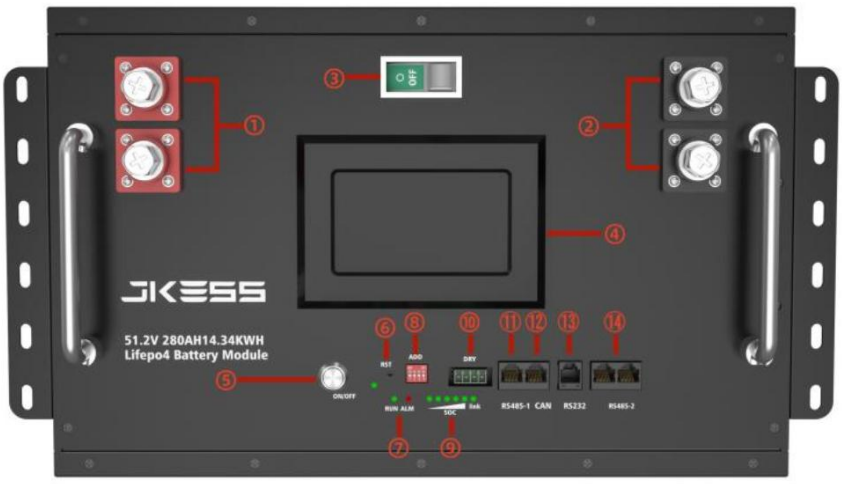
Supplementary Instructions:

This parameter only covers the functions and adaptation range of the "empty shell" and does not include cells, Battery Management System (BMS) or cables;

If functions such as fans, monitoring modules, and liquid cooling interfaces need to be installed, please mark them in the structural drawings;

The protection class can be enhanced through sealing rings, screw caps, and rubber strips.

3.2 Port Description



Number	Name	Description
①	Positive terminal	Positive terminal
②	Negative terminal	Negative terminal
③	DC circuit breaker	DC circuit breaker
④	Display screen	Display screen
⑤	Switch	ON or OFF
⑥	RST	Reset contact
⑦	RUN/ALM	Alarm Indicator
⑧	ADD	Communication dial number
⑨	SOC	The number of lamps indicates the percentage of energy
⑩	DRY	Used to set the trigger conditions for the dry contact alarm of the protection board
⑪	RS485 Interface -1	Communicationinterface(Connected inverter)
⑫	CAN	Communicationinterface(Connected inverter)
⑬	RS232	Communication interface
⑭	RS485	Communication interface (Battery connect batter, when you connect multiple batteries in parallel)

4. Principle and Application Scenarios

4.1. Working Principle:

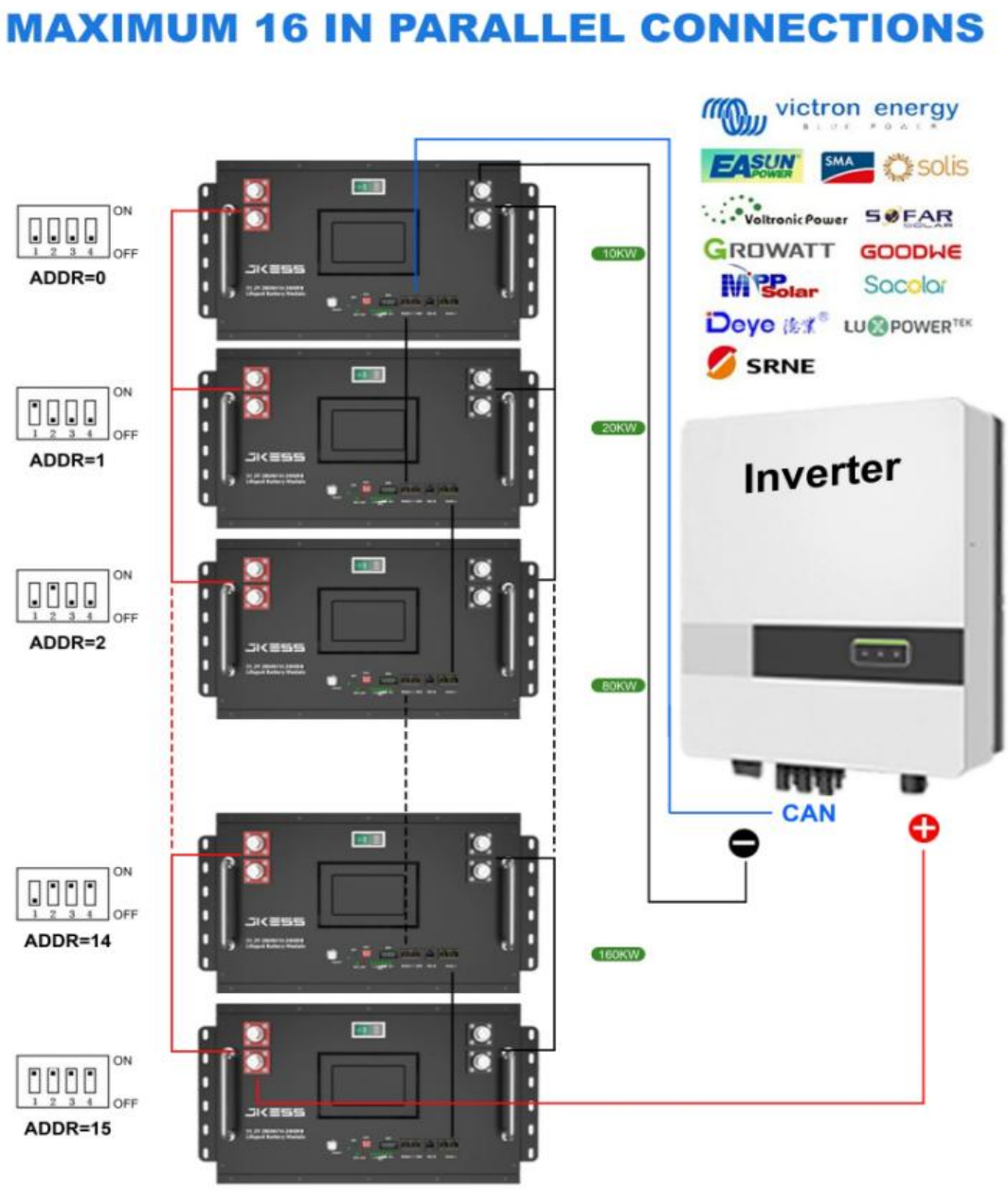
This battery kit is essentially a dedicated enclosure designed for 15/16kWh lithium iron phosphate battery systems, whose core function is to provide standardized installation space and structural support.

After users assemble lithium iron phosphate batteries and BMS (Battery Management System) inside the enclosure, the enclosure fixes the relative positions of the batteries and BMS through its physical structure. Through accessories such as battery connecting pieces, connecting wires, switches, and terminals, the batteries and BMS are connected to form an integrated battery system unit.

During operation, the batteries inside the enclosure serve as energy storage carriers, realizing energy storage and release through charging and discharging; the BMS is responsible for monitoring battery status (such as voltage, current, temperature, etc.) and regulating the charging and discharging process to ensure the safe and stable operation of the system. The enclosure provides a reliable environment for the collaborative work of batteries and BMS by protecting internal components from external environmental interference (such as physical collisions, dust intrusion, etc.),

indirectly supporting the entire lithium iron phosphate battery system to achieve effective energy management and application.

4.2. Application Scenarios



After users assemble lithium iron phosphate batteries, BMS (Battery Management System) and this battery kit into an energy storage battery pack, the common application scenarios are as follows:

- **Home energy storage scenario**

In households where users have installed solar panels, the photovoltaic power can be stored in the energy storage battery pack to form a home energy storage system. During the day, part of the electricity generated by the solar panels is directly used for household needs, and the excess electricity is stored in the batteries inside the enclosure through charging and discharging management. At night, when the solar panels stop generating electricity, the batteries inside the enclosure can release the stored electricity to power household appliances such as lights, air conditioners, TVs, and refrigerators, reducing household consumption of grid electricity and lowering electricity bills. In addition, in case of power outages caused by severe weather such as typhoons and heavy rains, the system composed of this battery kit can quickly switch to an emergency power supply, ensuring basic household electricity use—for example, keeping the refrigerator running to prevent food spoilage and ensuring lighting for family activities.

- **Small commercial and industrial scenario**

For small supermarkets and convenience stores, the energy storage battery pack can serve as a backup power system. During normal power supply, the

system can be in a standby state. Once the grid power is suddenly cut off, it can immediately start supplying power to ensure that cash registers, refrigerators, lighting systems, etc. continue to work, avoiding problems such as product spoilage and transaction interruptions caused by power outages. Small restaurants can also use this system to power small kitchen appliances and restaurant lighting during power outages, ensuring that food preparation and customer dining are not significantly affected. At the same time, during peak electricity consumption periods when electricity prices are high, the stored electricity in the system can be used to reduce the use of high-priced grid electricity, saving operating costs.

- **Outdoor operation scenario**

In field exploration operations, exploration teams need to carry various instruments and equipment, which often require stable power support. The energy storage battery pack can supply power to geological detectors, walkie-talkies, laptops, and other equipment. Due to the certain protective performance of this battery kit, it can protect internal batteries and BMS from normal operation in complex 野外 environments (such as slight collisions, dust, moisture, etc.), ensuring the smooth progress of exploration work. Outdoor construction camps can also use this energy storage system to provide power for camp lighting, small heating equipment, mobile phone charging, etc., improving the living conditions of construction workers.

- **RV camping scenario**

Power supply is crucial when traveling in an RV. Fixing the energy storage battery pack in a suitable position in the RV can supply power to the equipment inside the RV. During driving, the excess electricity generated by the RV generator can be stored in the battery; when parking for camping, the battery releases electricity to power RV lighting, refrigerators, microwaves, TVs, etc., allowing campers to enjoy a comfortable life. The compact design of the kit does not take up too much space in the RV and can protect the battery and BMS from stable operation in the bumpy environment during vehicle driving.

- **Medical clinic scenario**

Small medical clinics usually have some basic medical equipment, such as small oxygen generators, electrocardiographs, monitors, etc., which have high requirements for power stability. Using the energy storage battery pack as a backup power system can timely supply power to these key medical equipment in case of grid power outages, ensuring the continuous progress of diagnosis and treatment work, gaining time for patient treatment, and avoiding serious consequences caused by power outages. At the same time, the kit can protect internal components to ensure reliable operation in the clinic environment.

- **Agricultural greenhouse scenario**

Environmental control is crucial in agricultural greenhouses. The energy storage battery pack also plays an important role in supplying power to equipment in the greenhouses. For example, when light is insufficient at night or on cloudy days, it can power supplementary lights to ensure plant photosynthesis; supply power to small ventilation fans, humidifiers, dehumidifiers, etc. to adjust the temperature and humidity in the greenhouses; and provide power to monitoring equipment such as temperature and humidity sensors and carbon dioxide sensors, ensuring the normal operation of the sensors and timely feedback of environmental data in the greenhouses, facilitating precise management by farmers.

- **Small communication base station scenario**

Small communication base stations in remote areas have certain needs for backup power supplies. This energy storage device is often used as a backup power supply for base stations. When the main power supply fails, the system can quickly take over the power supply, providing short-term power support for core communication equipment of the base station (such as signal transmitters, receivers, etc.), gaining time for maintenance personnel to repair, reducing the duration of communication interruptions, and ensuring smooth communication in the area.

5. Installation Instructions

5.1. Assembly Steps

Fixing the lower tray: Fix the lower tray to the equipment base through the mounting bracket.

Fixing the left and right side panels: Fasten the left and right side panels (1.5mm cold-rolled steel plates) to both sides and the rear panel of the lower tray with bolts (M6×20, grade 8.8).

Inlay processing: Install the handles of the left and right side panels.

Battery installation: Place epoxy plates of corresponding sizes on the lower tray and left and right side panels, then place the lithium battery modules in the lower tray in sequence. Each battery needs to be isolated by an epoxy plate, avoiding the partition positioning holes, and paying attention to the order of positive and negative electrodes.

Place the battery terminal connecting pieces in sequence to prevent short circuits.

Installation of BMS fixing panel: The punched surface must face upward.

Install the internal partition to fix the battery.

Install BMS: The side with connecting cables faces upward. Then connect the battery cables in sequence according to the serial number displayed by BMS and weld them. After connection, connect the BMS power cable to the positive terminal.

Connect the positive and negative terminals of the battery.

Upper cover sealing: Fit the waterproof rubber strip and then lock the upper cover plate (torque recommendation: 10-12N·m).

Front panel processing: Install the positive and negative electrodes, BMS interface panel, BMS switch, and LCD on the front panel in sequence.

Connect the BMS to the interface panel of the front panel, then connect the LCD and the switch.

Connect the battery negative terminal to the first negative terminal (B-) of BMS, and connect the second negative terminal (P-) to the negative terminal of the kit.

Connect the battery positive terminal to the positive terminal of the kit.

Fix the front panel, and the installation is completed.

5.2. Transportation and Storage

The battery box is heavy. For handling, use pulleys/forklifts or two people to cooperate, avoiding dropping or squeezing.

When storing empty shells, avoid stacking heavy objects on top to prevent structural deformation.

Store in a dry room, avoiding sunlight or moisture erosion.

5.3. Precautions

The edges of sheet metal parts must be deburred to prevent scratching cables.

The grounding terminal must be reliably connected to the enclosure (grounding resistance ≤0.1Ω).

6. Maintenance and Care

Regular inspection: Check sheet metal parts for deformation and rust every 6 months.

Cleaning: Wipe the surface with a dry cloth, avoiding corrosive solvents.

Fastener review: Retighten bolts to the specified torque every year.

Special reminder: When maintaining the kit that has been assembled into a battery pack, please pay attention to safety and must take anti-electricity precautions.

7. Security Warning

7.1 Installation Safety Warnings

1) When installing internal batteries and BMS, ensure that all external power supplies are disconnected. Under no circumstances shall assembly operations be carried out in a live state to prevent electric shock accidents.
2) During assembly, use tools that meet specifications. Avoid using damaged tools with damaged insulation layers to prevent safety issues caused by tool conduction.
3) Do not arbitrarily modify the internal structure of the enclosure or refit the installation interface, so as not to damage the load-bearing capacity and protective performance of the enclosure, leading to falling or damage of internal components and potential safety hazards.

7.2. Usage Safety Warnings

1) It is strictly forbidden to place the enclosure near flammable and explosive items (such as gasoline, alcohol, fireworks, etc.) to avoid fire, explosion, and other serious accidents caused by sparks from battery or line faults.
2) During the operation of the enclosure, if there is an abnormal smell, smoke, abnormal noise, etc., immediately cut off all connected power supplies, stop using it, and contact professionals for inspection and

maintenance. Do not disassemble or repair it by yourself to prevent danger.

3) It is forbidden to insert metal objects (such as keys, coins, screwdrivers, etc.) into the enclosure or leave them inside, to prevent line short circuits, component damage, or even electric shock and fire.

7.3. Maintenance Safety Warnings

1) When performing internal maintenance, wear protective equipment such as insulating gloves. Avoid direct contact with conductive parts such as line connectors and battery electrodes with hands to prevent electric shock injuries.

2) It is forbidden to directly flush the inside of the enclosure with water or allow a large amount of liquid to enter the enclosure, so as not to cause line short circuits, component corrosion, and electric leakage and other safety accidents.

7.4. Other Safety Warnings

1) It is forbidden to hit, step on the enclosure or stack heavy objects beyond the load, to prevent deformation and rupture of the enclosure, leading to

damage to internal batteries and other components, and risks such as electrolyte leakage and electric shock.

2) If the enclosure is subjected to severe impact, fire, flooding, etc., immediately stop using it, transfer it to a safe and ventilated place away from crowds, and contact professionals for evaluation and treatment. Do not continue to use or handle it by yourself.

8. Attachment

Product Image


JKBMS
51.2V 280AH14.34KWH
Lifepo4 Battery Module
RS485-1 CAN
RS232
RS485-2


RST
ADD
DRY
ON/OFF
RUN ALM
SOC
link
RS485-1 CAN
RS232
RS485-2


DRY
SOC
link
RS485-1 CAN
RS232
RS485-2