Rack mounted lithium battery

User Manual

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About the manual

This manual provides important information about the product and explains how to install the FJ48100 battery pack. Before attempting to install or use this product, please read this manual carefully and follow all instructions during installation. If you have any questions about the requirements, instructions, or safety procedures described in this manual, please contact FENGRUI immediately for assistance. Please note that if damage is caused by human error or if the product is not used in accordance with this manual, it will not be covered under warranty.

NOTE：

This manual is only applicable to the FJ48100 low-voltage parallel connection series battery pack (hereinafter referredto as the battery pack).

Catalogue

1. Safety

1.1 Battery pack label symbol

There are some electrical symbols related to electrical safety on the battery, please make sure you fully understand these symbols before installation.

Before installing or operating the battery pack, please read the user manual first.

The voltage of the battery pack is strong enough to cause an electric shock.

Ensure that the battery polarity is connected correctly.

Do not place near open flames or flammable materials.

Do not use sharp objects to drop, deform, impact, cut or spray.

Do not allow children to come into contact with the battery pack.

Please keep the battery pack away from sources of fire.

The battery pack should not be disposed of together with household waste at the end of its working life.

The battery pack is recyclable.

1.2 Important safety instructions

For safety reasons, please carefully read the safety precautions and instructions in this manual before installation. FENGRUI shall not be liable for any losses caused by violation of the instructions in this manual.

In the document, we use the following symbols to highlight important information: When using the battery pack, these warnings and precautions must be followed.

Warning

Indicates a dangerous situation that, if not avoided, may result in injury or death.

- Due to the active chemical properties of batteries,there is a high risk of electric shock, fire, and even explosion when exposed to ventilated air.When lithium metal is exposedto air, it will explode due to a violent oxidation reaction with oxygen. Please follow appropriate preventive measures:
  *Do not squeeze or puncture the battery.
  *Do not throw the battery into the fire.
  *Do not expose the battery pack to direct sunlight.
  *Do not allow battery connectors to come into contact with conductive objects, such as wires.
  *Without prior written approval from FENGRUI, no attempt shall be made to open,disassemble,tamper with, or modify the battery pack.
  *Do not allow children to come into contact with the battery pack.

- The battery pack is very heavy!Suggest using lift in gequipment.
- Do not touch internal components during runtime. Ensure that the power switch. and circuit breaker of the battery pack are always in the closed state before all installation, replacement, and maintenance processes.
- Please read this document before installing or using the battery. If the battery is operated under non-standard conditions and requirements, it may cause electric shock, serious injury, or even death.
- Use the battery pack according to the instructions.

Warning

Indicates a dangerous situation that, if not avoided, may result in minor injury or equipment damage.

- There is a risk of electric shock. Do not remove the cover plate, as there are non removable parts inside. Please consultthe staff.
- When the photovoltaic panel is exposedto light, it provides direct current voltage to the device.
- Do not use cleaning solvents to clean the battery pack, or expose the battery to flammable or irritating chemicals or vapors.
- Do not store the battery pack for more than a month. If stored,the power supply of the battery pack should be cut off to ensure that the battery level is above 50%. The battery needs to be recharged and maintained within 90 days.

1.3 Personal protective equipment

Wear the following safety equipment correctly for installation work. Installation personnel must meet relevant standards, such as IEC60364, or local legal requirements.

goggles earplug insulating gloves safety gloves safety shoes

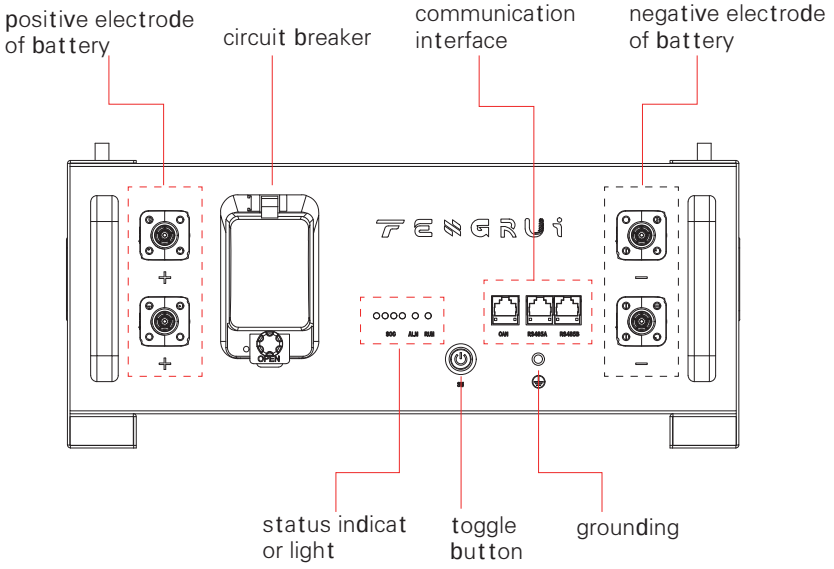
2. Product introduction

2.1 Overview of battery pack

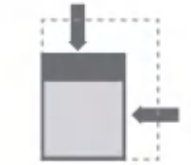
Energy storage battery pack is a device used for storing electrical energy, consisting of multiple individual batteries combined with a battery management system (BMS). It plays a key role in modern energy management, especially in balancing grid supply and demand, increasing the utilization of renewable energy, and improving the response speed of the power system.

NOTE：

FJ48100 batteries support parallel connection of multiple machines, butthe minimum workload is one battery pack.



Main functions



Compact size, easy to install
The lightweight and stackable design makes indoor installation easier and faster.

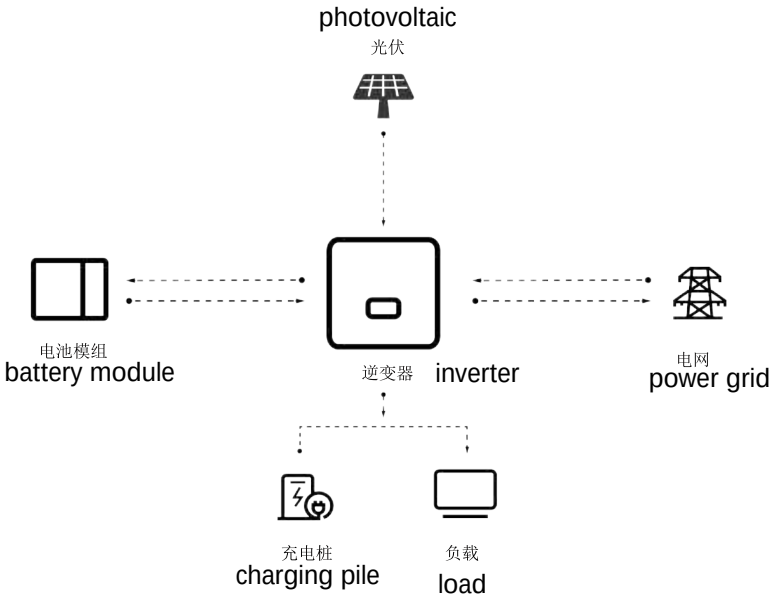
Safety
The battery pack uses LFP battery cells to store energy, with a built-in BMS monitoring its operation and preventing the battery from exceeding design limits.

Scalability
By adding battery modules,the capacity of the battery pack can be increased.

High compatibility
The battery pack is compatible with multiple inverters.

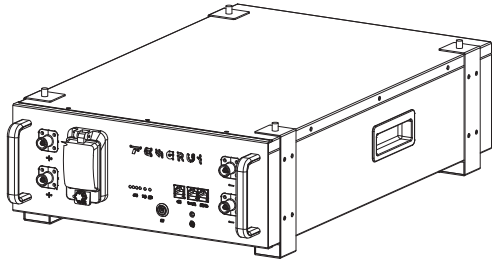
2.2 Technical data

The FJ48100 battery pack is designed for charging and discharging to provide maximum energy independence for your home and potentially save on your electricity bills.



2.2.1 Dimensions and weight

	length（mm）	width（mm）	height（mm）	weight（kg）
Battery box size：	590	390	145	46.8



Outer packaging dimensions：	650	450	205	4

2.2.2 Performance

specification	parameter
Cell Chemistry	LFP/102Ah
Pack Configuration	51.2V
Rated Capacity (Ah)	5.22Ah
Rated Energy (kWh)	20.48–51.20
Charging/discharging temperature	0~55℃ / –10~55℃
IP Rating	IP20
Max. Continuous Charge/ Discharge Current (A)	60A
Depth of Discharge (%)	90%
BMS Communication	CAN
Cycle life	6000
Serial and parallel quantities	8 Units in parallel

2.2.3 Environmental Requirements

FJ48100	
Working temperature range	0~50° C
Best operating temperature	5~50° C
Storage temperature range	0~35° C
Humidity	5%–95%
Altitude	3000m
Cooling strategy	natural convection

3. Installation

3.1 Prepare

3.1.1 Installation materials and tools

Before starting the installation process, ensure that all necessary tools and materials are in place to avoid any inconvenience on site. These tools are used for installing battery packs.

冲击钻
impact drill

十字绝缘力矩螺丝刀
cross insulation torque screwdriver

内六角绝缘力矩螺丝刀
internal hexagonal insulation torque screwdriver

绝缘力矩套筒扳手
insulation torque socket wrench

内六角扳手
hex key

斜口钳
diagonal cutting pliers

液压钳
hydraulic pliers

剥线钳
wire stripper

拆卸扳手
dismantling wrench

橡胶锤
rubber mallet

剪线钳
wire cutter

压线钳
crimping tool

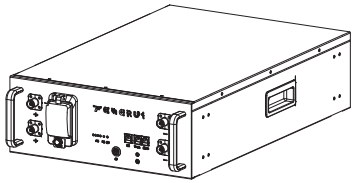
3.1.2 Installation location

Ensure that the installation location meets the following conditions:

- It is recommended to set up a location at least 1000 meters away from the coast to avoid salt water and moisture.
- The floor must be flat.
- There are no flammable or explosive materials nearby.
- The optimal ambient temperature is between 15 and 30℃ .

3.1.3 Packaging inspection

Verify and ensure that the following quantities match the order and that there are no parts damaged or broken during transportation. You can check it in the unpacking inspection guide provided below.



battery pack

supporting feet x 4

grounding cable

M4-10 countersunk screw × 16

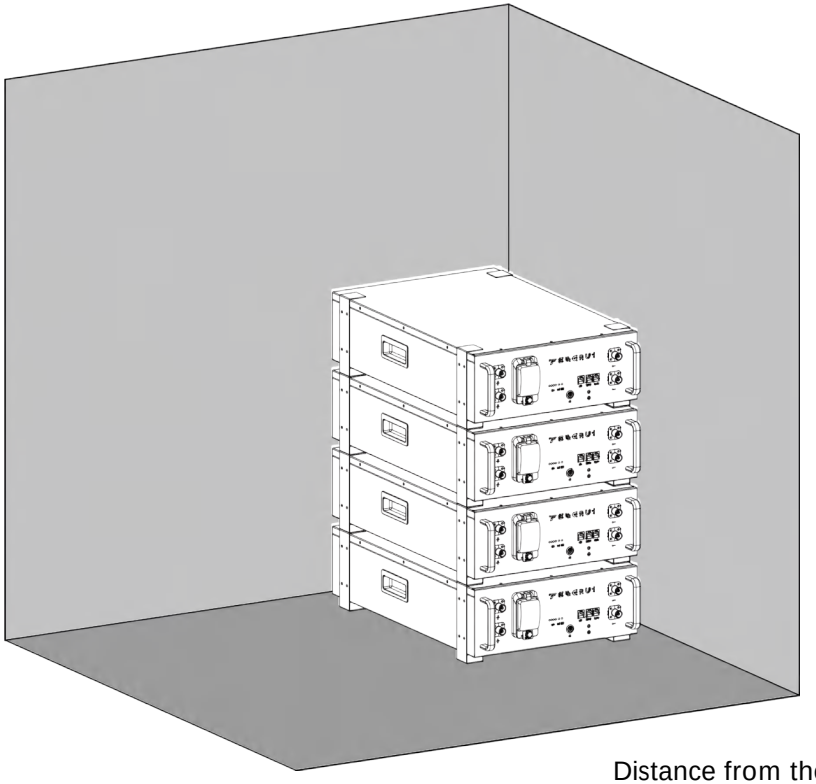
parallel positive cable

parallel network cable

parallel negative cable

3.2 Start installation

3.2.1 Installation space



Distance from the wall 100mm

NOTE：

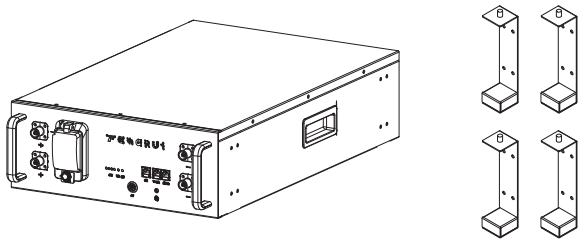
Ensure that the battery pack is always exposedto ambient air. The battery pack is cooled by natural convection, and if the battery pack is completely or partially covered, it may cause the battery pack to stop working.

3.2.2 Stacked battery pack

Check and ensure that the following quantities meet the order requirements and that there are no parts damaged or lost during transportation.

Step1

● Connect the battery pack and support legs.



NOTE：

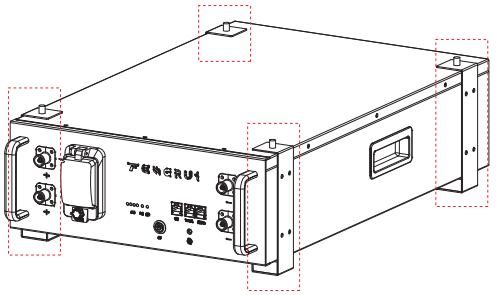
FJ48100 can be installed on the ground and walls.

Warning

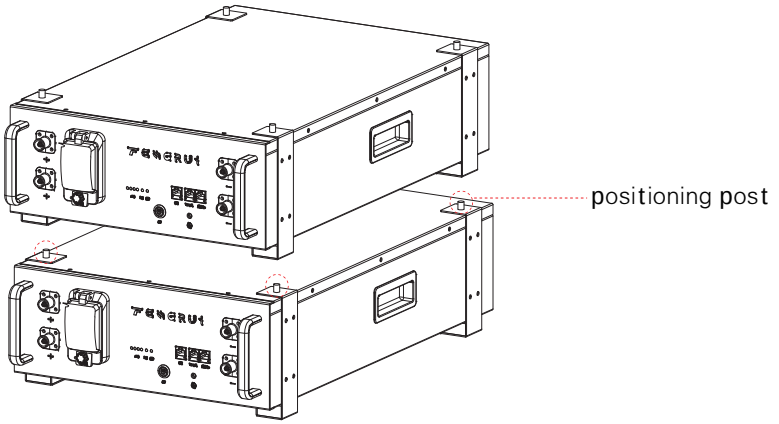
Ensure the ground is level, use horizontal tools when necessary, and stay away from standing water.

Step2

● Place the battery pack on a level surface and secure the 4 support legs with M4-10 countersunk screws.

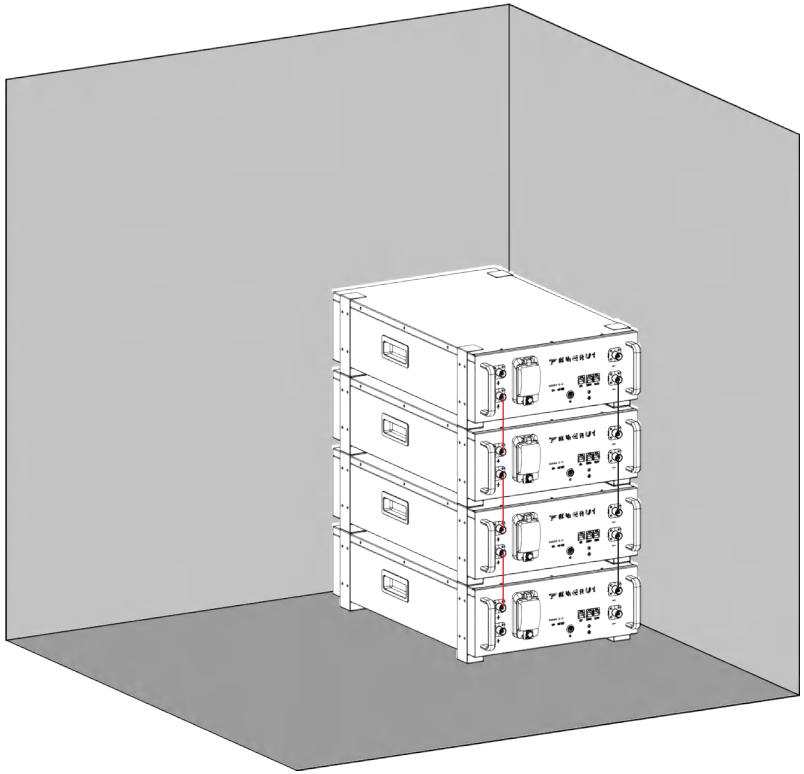


● Stack the battery packs in sequence and embed them into the positioning columns.



Step3

- Connect positive and negative cables, ground wires, and communication cables.

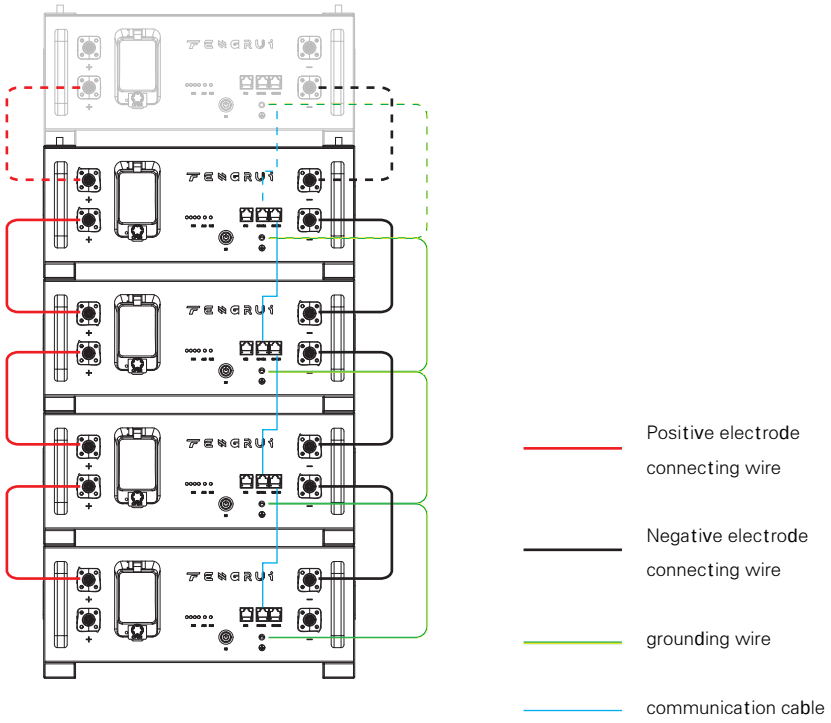


NOTE：

The positive and negative power lines are connected to the inverter and cannot be reversed.

3.2.3 Parallel mode

- FJ48100 parallel connection, prepare power line, communication line, red and black power line, red to positive pole,black to negative pole.
- Ensure that each connecting wire is correctly inserted into the corresponding hole.



Warning

·When connecting a battery pack to another battery pack, make sure the battery is turned off.

·If the sequence of power cables and communication cables is in a disordered state, it may cause faults.

4. Debug

4.1 Status indicator light

There are six LED indicator lights in front of the battery pack to display its working status.

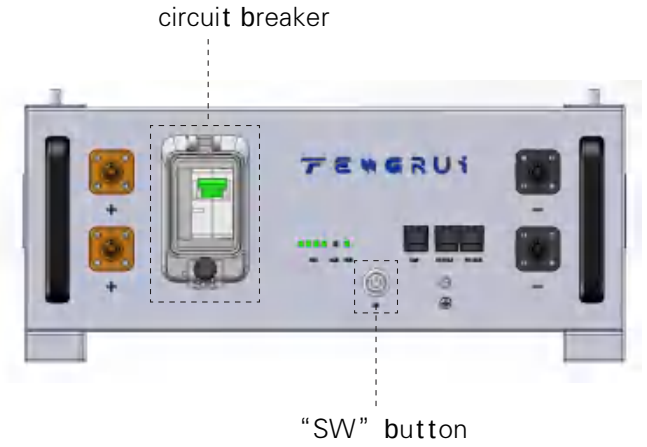
RUN：When the battery pack is running normally, including charging and discharging,this indicator light remains on.

ALM：When the battery pack is in an alarm state,this indicator light lights up.

SOC：There are 4 energy indicator lights that can monitor the SOC of different battery levels.

4.2 Turn on the battery pack

1) Open the circuit breaker ;
2) Press the "SW"button to turn on the battery pack.

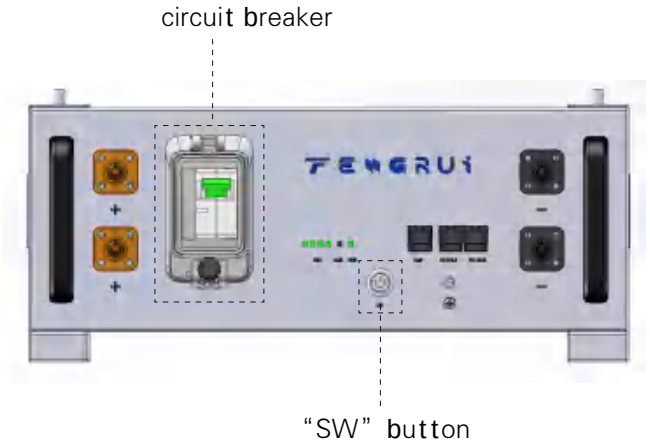


NOTE :

If there is no communication established with the inverter within 3 minutes after the battery pack is turned on,the out put power of the battery pack will be turned off. At the same time,the RUN indicator light will turn off while the ALM indicator light remains on.

4.3 Turn off the battery pack

1) Press the "SW"button to turn off the battery pack ;
2) Open the circuit breaker.



NOTE :

Ensure that all indicator lights on the battery pack are turned off.

5. Troubleshooting

Check the front indicator lights to determine the status of the battery pack. When conditions such as voltage, current,or temperature exceed the design limits, a warning state will be triggered.

Use monitoring software connectedto the battery pack to determine the cause of the warning. Possible warning messages are as follows:

Battery charging over voltage

Insufficient battery voltage

The battery temperature is too high

The battery temperature is too low

Battery over current discharge

Excessive battery charging current

BMS internal communication error,
battery cell voltage imbalance

NOTE：

The system can automatically restore minor risks,dangers, and no warnings after a period of time. For serious warnings or alerts,please contact FENGRUI Company or local installation personnel.