51.2V 100Ah

Rack-Mounted LiFePO■ Battery

Model: 512100
Nominal energy: 5,120Wh (5.12kWh)

USER MANUAL

Compiled from the manufacturer manual pages supplied. Read all safety instructions before installation or operation.

Important: Installation and electrical connection should be completed by a qualified installer. Never connect the battery directly to AC mains or directly to PV panels.

1. Safety Instructions

1. Read the complete user manual before installing or using the battery. Failure to follow instructions may cause electric shock, serious injury, death, or damage to the battery.

2. If stored for a long period, charge the battery every six months and maintain the state of charge above 90%, as stated in the supplied manual.

3. Recharge the battery within 12 hours after it has been fully discharged.

4. Do not install outdoors or outside the operating temperature and humidity ranges specified by the manufacturer.

5. Do not expose cables to outdoor conditions unless suitably protected for the installation.

6. Do not reverse the positive and negative terminals.

7. Disconnect all battery terminals before maintenance.

8. Contact the supplier within 24 hours if anything abnormal is observed.

9. Do not use detergent to clean the battery.

10. Keep the battery away from flammable materials, harsh chemicals and vapours.

11. Do not paint any part of the battery or its components.

12. Do not connect the battery directly to PV solar wiring.

13. Warranty claims may be excluded for damage caused by ignoring these instructions.

14. Do not insert foreign objects into any part of the battery.

Lithium-ion battery disposal

The crossed-out wheeled-bin symbol means the battery must not be disposed of with ordinary household waste. Use an appropriate battery collection or recycling service.

2. Warnings

2.1 Before Connecting

1. After unpacking, check the product and packing list. If the product is damaged or parts are missing, contact the supplier.

2. Before installation, isolate the grid and ensure the battery is switched off.

3. Connect the wiring correctly. Do not confuse positive and negative cables, and ensure there is no short circuit from external equipment.

4. Never connect the battery directly to an AC power supply.

5. The supplied manual states that the battery has a built-in BMS and a 51.2VDC design. Confirm compatibility with the inverter before connecting.

6. The battery must be grounded. The supplied manual states that resistance must be less than 0.10; confirm the applicable grounding measurement and requirements with a qualified installer.

7. Ensure the battery's electrical parameters are compatible with connected equipment.

8. Keep the battery away from water and fire.

2.2 In Use

1. Before moving or repairing the battery system, isolate the power supply and switch the battery off completely.

2. Do not connect batteries of different types together.

3. Do not connect the battery to a faulty or incompatible inverter.

4. Do not remove the battery if its QC seal/piece is damaged; contact the supplier.

5. In case of fire, the supplied manual specifies a carbon-dioxide fire extinguisher or fire blanket. Follow local emergency guidance and do not approach an overheating or venting battery.

6. Do not open, repair or remove the battery unless authorised by the manufacturer.

3. Introduction

The 16-series lithium iron phosphate (LiFePO■) battery is an energy-storage product designed to provide reliable power for various equipment and systems. The supplied manual describes a built-in battery management system (BMS) that monitors voltage, current, temperature and other information.

3.1 Product Features

1. Active protection through the BMS.

2. Non-toxic, pollution-free module materials, according to the supplied manual.

3. Lithium iron phosphate cathode material designed for safety and long cycle life.

4. BMS protection against over-discharge, over-charge, over-current, high temperature and low temperature.

5. Manages charging/discharging state and balances cell voltage.

6. Self-cooling design to support heat dissipation.

7. Low self-discharge and stable storage characteristics.

8. Compact, lightweight design intended for installation and maintenance.

4. Product Specifications

Parameter	Specification
Model	512100
Cell configuration	16S1P
Nominal capacity	100Ah
Minimum capacity	98Ah
Nominal voltage	51.2V
Nominal energy	5,120Wh (5.12kWh)
Charging cut-off voltage	57.4V
Discharge cut-off voltage	40V
Charge method	CC/CV
Standard charge current	≤50A
Maximum charge current	100A
Standard discharge current	50A
Maximum continuous discharge current	120A
Cycle life	≥4,000 cycles (manufacturer-stated)
Internal impedance	≤25mΩ
Dimensions (L × D × H)	650 × 450 × 200mm

Parameter	Specification
Weight	48.9kg
Charging temperature	0°C to 45°C
Discharging temperature	–20°C to 60°C
Storage temperature	25 ± 10°C (as printed in supplied data sheet)

The battery front panel is marked “48V 100A”, while the cover and data sheet specify 51.2V nominal. Use the nominal voltage and limits on the product data sheet and verify with the supplier if the physical label differs.

5. Dimensions and Interfaces

Dimensions shown: length 650mm, depth 450mm and height 200mm. The supplied manual notes that the D-direction measurement excludes the support size and that the support space is 21mm.

Front-panel components

• Positive terminal: +M8 terminal.

• Negative terminal: –M8 terminal.

• Function switch: ON for start-up; OFF for shutdown, storage or transportation.

• Battery information display and menu button.

• Grounding point indicated on the front panel.

6. Safe Handling and Installation Location

• Do not mount the battery on flammable construction materials.

• The supplied manual specifies an ambient temperature between 0°C and 45°C for optimal operation; also observe the separate charging and discharging temperature limits in the data sheet.

• The recommended position is vertically attached to a wall, as shown in the manual. Use suitable mounting hardware for the battery's weight.

• Leave adequate clearance for heat dissipation and cable access. Follow the manufacturer's diagram and local electrical regulations.

• Keep the installation area dry, away from water and fire, and protected from unauthorised access.

7. Installation and Operation

7.1 Package Items

The supplied manual lists one battery pack and one user manual. Battery cables and a grounding cable should be selected according to installation requirements. Check the actual package contents before installation.

7.2 Battery Connection

• Have a qualified installer verify battery/inverter compatibility, polarity, cable size, overcurrent protection, grounding and isolation.

• Ensure relevant power sources are isolated and the battery switch is OFF before wiring.

• Connect positive to positive and negative to negative using suitable cables and terminals. Prevent accidental short circuits.

• Connect grounding as required by the manufacturer and local electrical code.

• Do not connect the battery directly to AC mains or directly to PV panel wiring.

• Do not connect batteries of different types together. For multiple batteries, follow the manufacturer's approved configuration and communication requirements.

7.3 Connection to an Inverter

The manual illustrates the battery used with a compatible hybrid/off-grid inverter in a solar energy system. Confirm the inverter's battery voltage range, charge voltage, current limits and BMS communication compatibility before commissioning. Not every 48V inverter is necessarily compatible.

8. Switching ON and OFF

The supplied manual describes the function switch as ON for start-up and OFF for shutdown, storage or transportation. The display/menu button can be used to view battery information. Follow the battery and inverter manufacturers' prescribed start-up and shutdown sequence.

9. Troubleshooting

The supplied pages include troubleshooting notes: if the battery will not start, check whether the capacity is too low or the module is over-discharged. The original manual recommends charging via a compatible charger/inverter and specifies voltage ranges; follow the manufacturer's exact procedure and have a qualified professional handle maintenance. If the battery turns on but cannot charge or discharge, check operating temperature, current settings and high/low voltage conditions against the official data sheet. If cell voltage or temperature protection is triggered, switch off the module and contact the local distributor. Do not open the battery enclosure or attempt internal repairs.

10. Emergency Situations

If the battery is leaking, swelling, emitting smoke, unusually hot, or making unusual sounds, keep people away and contact emergency services or a qualified battery professional. Do not touch exposed conductors or attempt to move a damaged battery. The supplied manual advises evacuating the area and seeking medical attention if fumes are inhaled; if skin or eyes contact leaking electrolyte, rinse with running water for at least 15 minutes and seek medical attention. For a battery fire, do not use water; the supplied manual specifies a carbon-dioxide extinguisher or fire blanket. Follow local fire-service guidance.

11. Maintenance, Storage and Disposal

• Disconnect the battery before maintenance and protect terminals against accidental short circuits.

• Do not use detergents or solvents to clean the battery; follow the manufacturer's approved cleaning instructions.

• The supplied manual says to charge the battery at least once every six months and maintain state of charge above 90%.

• After installation, check power connectors, grounding points, power cables and screws annually. Ensure there are no loose connections, breaks or corrosion. Check for dust, water, insects and other environmental issues.

• Dispose of or recycle the battery in accordance with local recycling regulations. Do not put it in ordinary household waste.

Important specification note

This document was compiled from the photographed manufacturer manual pages supplied. The additional pages supplied include single-battery busbar connection, inverter connection illustration, troubleshooting, emergency situations, and recycling/maintenance notes. Some original pages remain unavailable. This is a readable reference, not a substitute for the complete manufacturer manual. If any value or instruction conflicts with the battery label or the manufacturer's current documentation, verify with the supplier before installation.