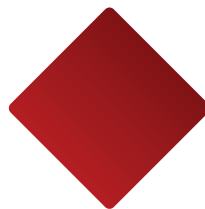


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12.8V&25.6V

Lithium Instead of Lead-Acid Instructions






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1 Overview

1.1 Warning Symbols

Symbol	Name	Description
	Caution	<ul style="list-style-type: none">● Operator should be cautious to deal with a process.● Ignoring caution may result in personnel injury or damage to the equipment.
	Electric Shock	<ul style="list-style-type: none">● The equipment and the parts dealing with in the process could have high voltage or high current.● Be cautious to electric shock during the process.
	Electrostatic Warning	<ul style="list-style-type: none">● Wear suitable protective gears (clothing, shoes, and gloves) to prevent electrostatic damage on the equipment.

1.2 General Safety

- 1) Before installing, read this document and observe all the safety instructions in this document.
- 2) The equipment should be used in the environment in accordance with the design specifications, otherwise it may cause equipment failure, and the resulting equipment function abnormality or component damage, personal safety accident, property loss, etc., are not within the scope of equipment quality assurance.

1.2.1 Unloading



- 1) Use forklift to unload the wooden pallets from the transportation vehicle.
- 2) Carefully move and put the pallets down from the vehicle, do not drop it or put it down hard.
- 3) Make sure that there are no other people around during the working.
- 4) Ensure sufficient space when unloading the pallets for unpacking.

1.2.2 Unpacking & Handling



- 1) Wear protective helmets, goggles and gloves while opening a cover of the wooden pallet.
- 2) Be careful when using a hammer, a crowbar, or a grinder.
- 3) Make sure that there are no other people around during the working.
- 4) Use a plastic cutter for opening carton packages.

1.2.3 Installation



- 1) Do not wear watches, bracelets, rings and other metal objects during the installation process.
- 2) Use insulated tools such as insulated wrenches and drivers.
- 3) Make sure that there are no other people around during the working.
- 4) Do not drop, squeeze or puncture the battery. Do not use damaged battery.
- 5) During the battery installation process, pay attention to the positive and negative terminal connection. It is strictly prohibited to connect the positive and negative poles of the same battery. It will cause a short circuit of the battery.
- 6) Power of a battery module shall be off during the installation process.
- 7) Do not connect battery power cables to DC terminals of a rectifier while a battery module power is on.
- 8) Before installing the battery modules into the rack cabinet, make sure that the rack and shelves were assembled tightly.
- 9) Be careful not to contact battery positive and negative power cables to any conductive parts except nominated counterparts.

1.2.4 Operation



- 1) Over charge: Do not set a rectifier DC output voltage over the max charge voltage of a battery module.
- 2) Limit charge with smart charge function: The initial charging mode will be limit charge with 10A after battery power on. This is a normal condition with smart charge function.
- 3) Check BMS GUI and if there are warning or fault information. Over voltage warning and protection could be occurred while the first charging after finishing installation, but they will be disappeared after cell balancing procedure.
- 4) Emergency output cut-off: In case you need to cut the output because there is a dangerous problem or an accident, you should turn the MCB off on the front panel of the battery modul.

1.3 Battery Module Installation Procedure

Be careful not to exposure the battery modules to conductive material, water, or dust during installation






2 Product installation

2.1 Preparations

- 1) There is a standard site for installing battery modules.
- 2) Check whether the battery module is installed firmly and correctly.
- 3) Considering the load capacity, carefully set the total installation capacity of the installation site.

* Installation Suggestions

When placing battery modules on the shelf, it is recommended to use an elevator for safety. If the elevator is difficult to use, it is recommended that at least two people install it.

Item	Usage	Image
Electric Screw Driver	For fastening mounting screws	
Insulated Socket Wrench	For fastening power cable screws	
Torque Wrench	For fastening power cable screws with specified torque	
Multi-meter	For checking module voltage	
Insulation Gloves	For safety	

2.2 Visual Inspection

Items	Verification Method
Correct Position of All Screw	Visual checking
Power Port	
Label (position, direction, serial)	
No physical damage	

3 BMS Parameter

Item		Value	Delay	Restore
Charge	Over voltage warning (Cell)	3.65V	1-2S	Discharge current >1A or Max. cell voltage < 3.38V
	Over voltage protecting (Cell)	3.70V*N	1-2S	
	Over current protecting 1	≥1.02C.A and <1.02C.A	30S	
	Over current protecting 2	≥1.12C.A	1-2S	
Discharge	Under voltage warning (Cell)	2.8V	1-2S	Charge current >1A or Min. cell voltage > 3.0V
	Under voltage protecting (Cell)	2.5V*N	1-2S	
	Over current protecting 1	≥1.02C.A and <1.22C.A	30S	Charge current >1A or 60S delay after protecting
	Over current protecting 2	≥1.22C.A	1-2S	
	Short-circuit protecting	>2C.A	0.2mS	
Temp. protecting	Discharging warning	≥ 70°C or < -20°C	1-2S	-15°C < Temp < 65°C
	Discharging protecting	< -25°C or >75°C	1-2S	
	Charging warning	≤ -3°C or > 65°C	1-2S	0°C < Temp < 60°C
	Charging protecting	≤ -5°C or >70°C	1-2S	
	PCB Temp over 95°C protecting		1-2S	<75°C
Cell balance		"Max cell >3.4V △V > 40mV"		

4 Usage

4.1 Charging Instructions

- 1) When charging the battery string, confirm the positive and negative polarities. Do not connect the positive and negative polarities to the opposite side.
- 2) Set the battery charging current on the rectifier to prevent rectifier overload protection due to high battery charging current.
- 3) Set the equalized charging voltage and floating charging voltage based on the battery charging voltage range to prevent the battery from being overcharged or undercharged.
- 4) After the battery leaves the factory, 0.2C current should be used to replenish the battery for each three months of storage.
- 5) Discharge Instructions: Discharge the battery in strict accordance with the specified current size. When a single battery is used, the maximum discharge current is 0.5C. When multiple batteries are connected in parallel, set the maximum discharge current according to the following coefficient.
- 6) 12V series, a maximum of 4 series support, no parallel support.
24V series, no series support.

5 Matters needing attention

- 1) The battery pack must be maintained by professional personnel, non-professional personnel are strictly prohibited to dismantle; To avoid danger, do not wear or damage the battery string cable during operation or maintenance.
- 2) Before using the battery module, ensure that the positive and negative terminals are correctly connected and reliably connected. The battery string cover is properly grounded.
- 3) It is forbidden to disassemble or assemble the battery pack without the presence of technical personnel familiar with the battery pack; Even if professional technicians remove or install battery packs, proceed with caution. Two or more persons must be present at the same time to avoid risks.
- 4) Ensure that the heat dissipation air channel of the charger is unobstructed during charging.
- 5) Do not discharge the battery during charging.
- 6) Do not use the battery module outside the operating range. Otherwise, abnormal conditions such as insufficient battery power and reduced battery life may occur.
- 7) Do not expose the power module to the sun for a long time.
- 8) Do not step on the battery module or immerse the battery module in water. When not in use, store the battery module in a cool and dry environment, preferably with semi-electric storage.
- 9) Before connecting cables, ensure that the cables and cable labels are consistent with actual installation conditions.
- 10) When operating high voltage or AC power, use special tools. Do not use ordinary or non-special tools carried by yourself.
- 11) The installation of power supply equipment must comply with local safety standards, and the personnel who install the equipment must have relevant work qualifications.
- 12) Do not wear conductive objects such as watches, bracelets, bracelets and rings during operation.
- 13) When operating the battery in a damp environment, prevent water from entering the battery module.
- 14) If the battery needs to be stored for a long time, the battery storage soc should be 50%-60%. Also, it is recommended to charge the cell every six months.