GreatVolt | Model Number: GV48100ESS

Quanta

GreatVolt Quanta

51.2V 100Ah LiFePO4 Battery Energy Storage System for Solar & Off-Grid.

*100A continuous | 120A surge for 3 seconds | 200A surge for 2 seconds

*Note: This built-in intelligent BMS wil reset after five seconds in most fault conditions. Disconnecting the load from battery will also reset.

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CE UKCA FC RoHS TÜV TÜV LiFePO4 UN38.3

Table of Contents

Thank you for choosing a GreatVolt product! To ensure safe and effective use, please read this manual carefully before use and keep it for future reference.

Product Introduction

Thank you for choosing the 51.2V 100Ah energy storage battery (Quanta). This product utilizes high-safety cells, supports parallel connection for capacity expansion, and is compatible with mainstream inverter brands. It is suitable for home energy storage, outdoor power supply, and emergency backup applications. To ensure safe and efficient use, please read this manual carefully before operation and keep it for future reference.

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1.Revision Log

Revision History

Version	Date	Contents	Reviewed by
		First issue	Mao

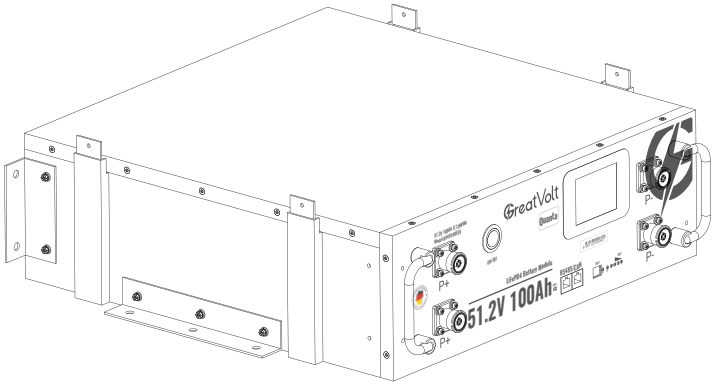
2.Please Read Carefully Before Use

- Do not disassemble, crush, puncture, or strike the battery to avoid internal short circuits, fire, or explosion.
- Do not throw the battery into fire or expose it to excessive heat.
- Do not short-circuit the positive and negative terminals of the battery.
- Do not use or store the battery in humid or high-temperature environments.
- Do not charge the battery with a non-designated charger.
- Do not mix batteries of different models, capacities, ages, or charge levels.
- Keep the battery away from children and pets.
- If you notice any deformation, discoloration, leakage, odor, or overheating, stop using the battery immediately and contact after-sales service.

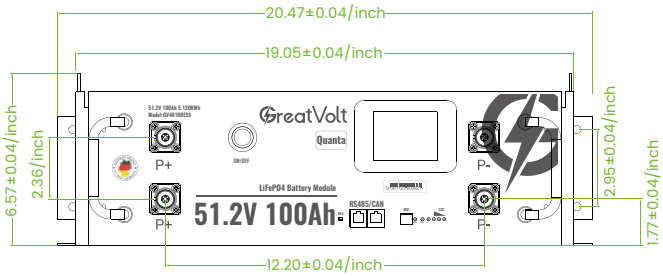
3.Battery Specifications

Battery Cell Type	LiFePO4
Rated Capacity	100Ah
Nominal Voltage	51.2V
Voltage Range	40~58.4V
Cycle Life	3000+ cycles, 80% SOH, 25°C/0.3C
Dimensions	20.47"L X 19.22"W X 6.57"H
Weight	105 lbs.
Connection Method	Parallel(5P)
Terminal Screw Size	M8x0.4724"
Recommended Terminal Torque	619~974in-lbs(70~110N-m)
Protection Grade	IP67
Certification	UL1973,UL9540A,EC62619 /for cells /MsDs for shippin /UN38.3

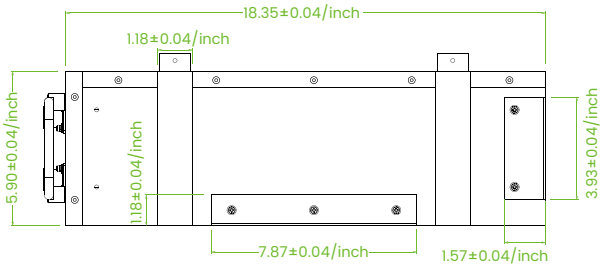
4.Dimension Drawings



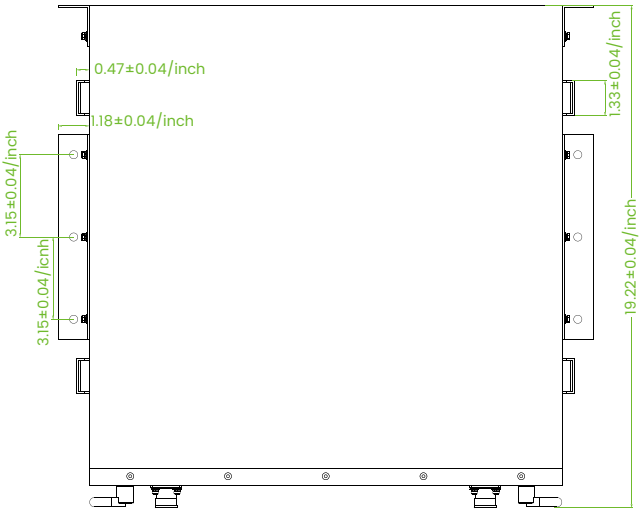
Perspective



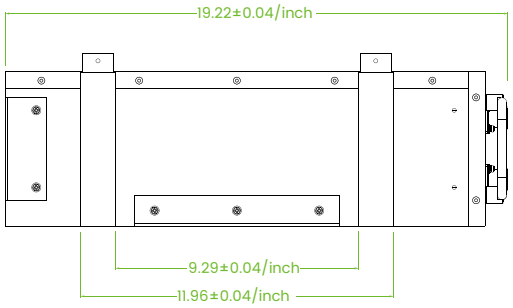
Front view



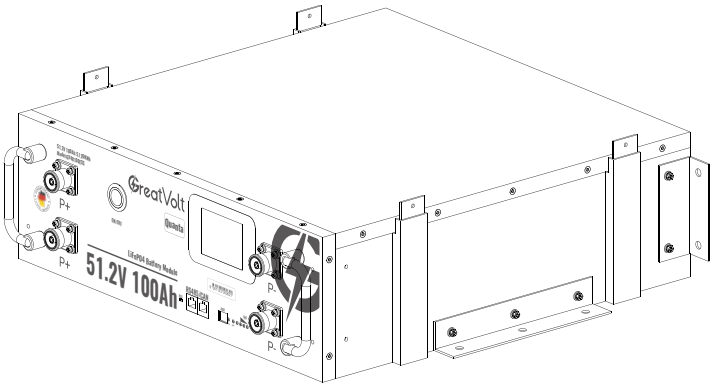
Side view



Top view



Rear view



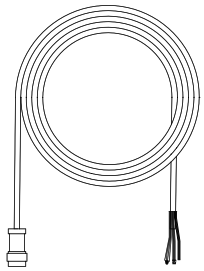
Perspective

5.Installation Tips

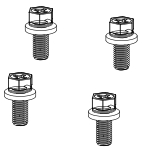
- The battery must be securely fixed with screws, and the cable connections must be properly insulated to prevent the insulation from loosening or becoming displaced during use, which could result in a short circuit or accident. This manual uses a typical battery as an example to describe the installation method.
- To ensure the best battery performance, it is recommended to install the battery in a clean, cool, and dry location, avoiding the accumulation of water, oil, or dirt. Such substances on the battery may cause leakage, self-discharge, or even short circuits.

6.Install the Required Components

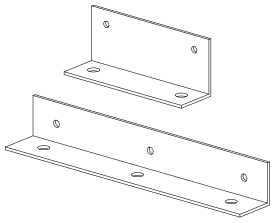
- It is recommended to use the components provided by GreatVolt.com. Alternative installation methods may also be adopted to meet specific application requirements.



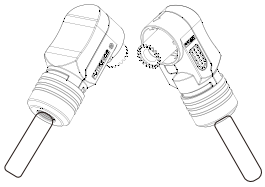
Communication line



Screw



Mounting Flange

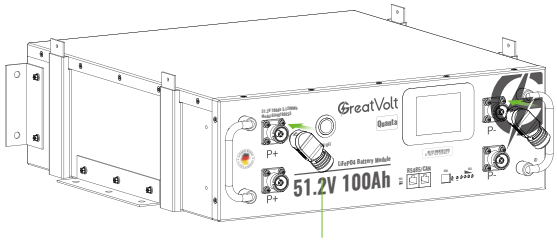


ES Connector

7.Connector Operation (ES Connector)

- Plug In
  Align the ES connector with the battery port and plug it in firmly until it locks automatically. This ensures a secure connection.
- Unplug
  To disconnect, press and hold the release button on the connector, then unplug it straight out.

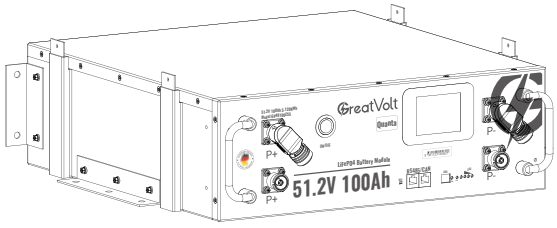
①



ES Connector

Unplug

②



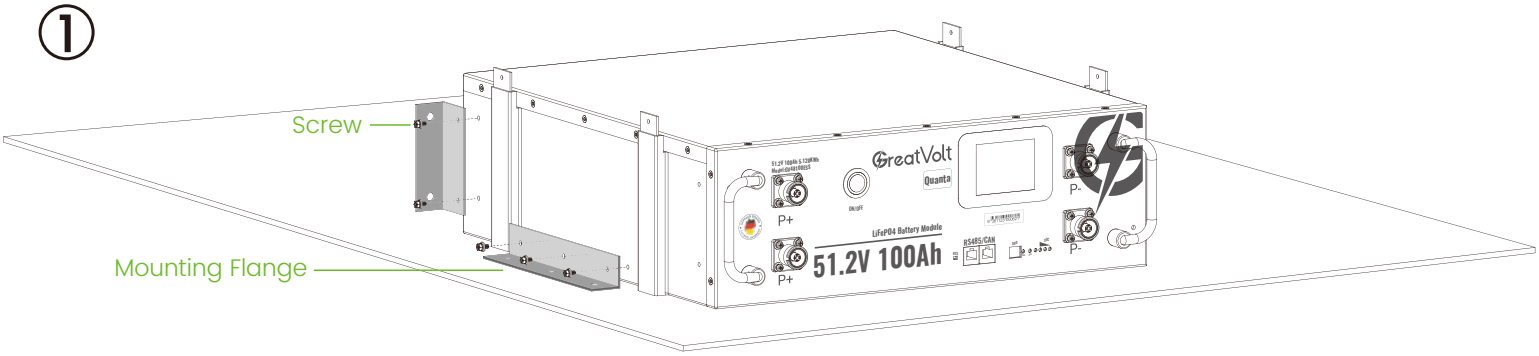
Plug In

- Warning: Do not attempt to unplug without pressing the release button. Forcing removal may damage the connector and compromise safety.
- Note: The ES connector is designed to be vibration-resistant and waterproof. Always make sure the connector is fully plugged in before operation

8.Install the battery bracket

- When installing the battery, it is recommended to place it against a wall. Mounting flanges can be used to secure the battery to the wall and floor for reinforcement.

①



Single Installation

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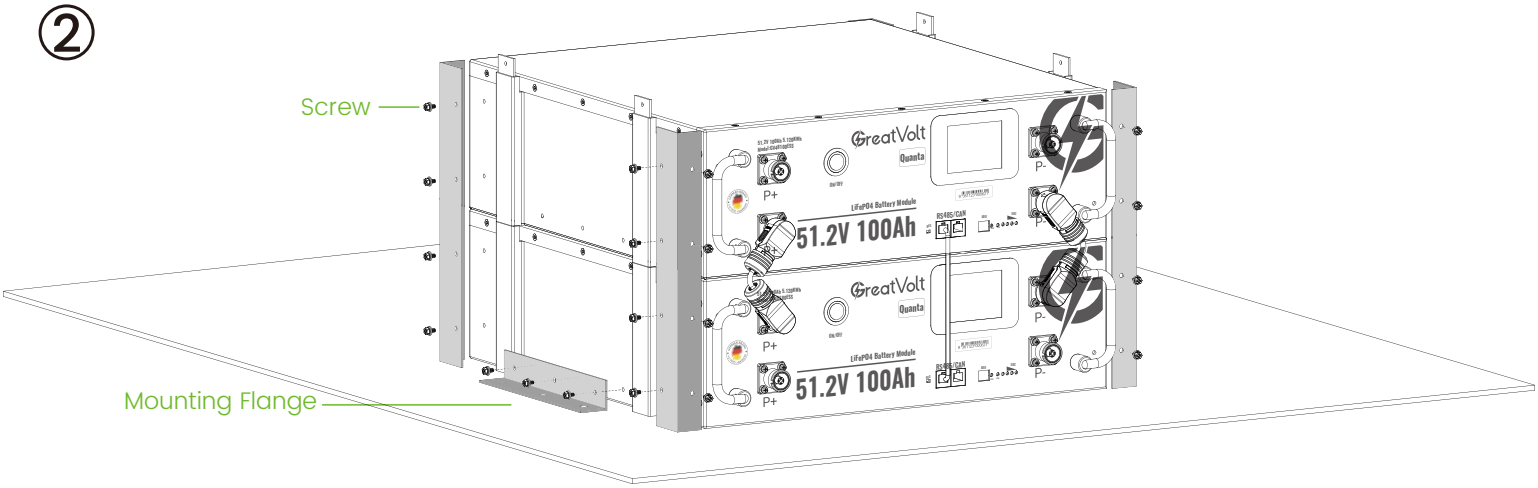


Multiple Battery Installation

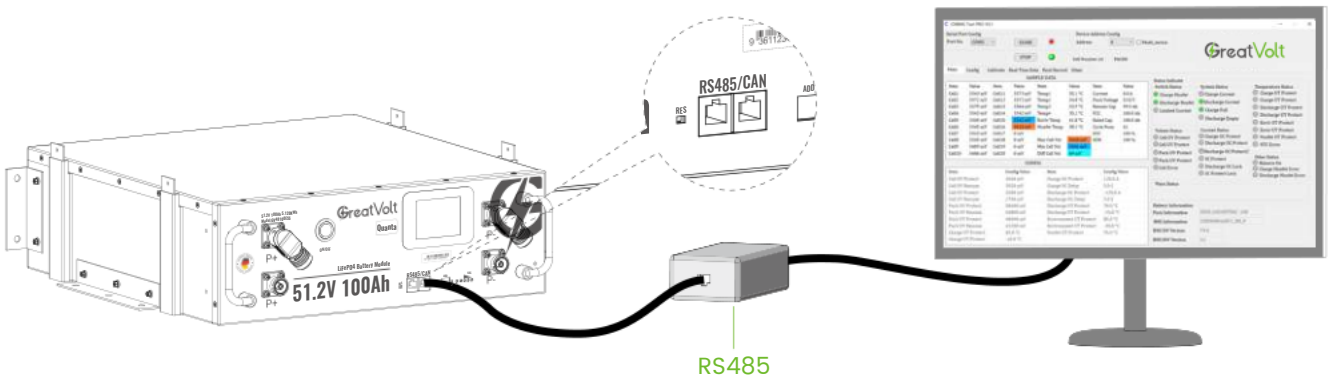
9.How to Configure Cables

Use appropriately sized cables (sold separately) based on the expected load. Refer to the table below for the current ratings corresponding to each cable gauge. When selecting cables according to the battery' s voltage and capacity, if the cable length exceeds 10 feet (3,000 mm), a thicker gauge cable may be required to prevent excessive voltage drop, which could affect the battery's efficiency.

Cable Gauge Size	Ampacity
14 AWG (0.0819"²)	35A
12 AWG (0.1303"²)	40A
10 AWG (0.2067"²)	55A
8 AWG (0.3291"²)	80A
6 AWG (0.5236"²)	105A
4 AWG (0.8307"²)	140A

10.Communication

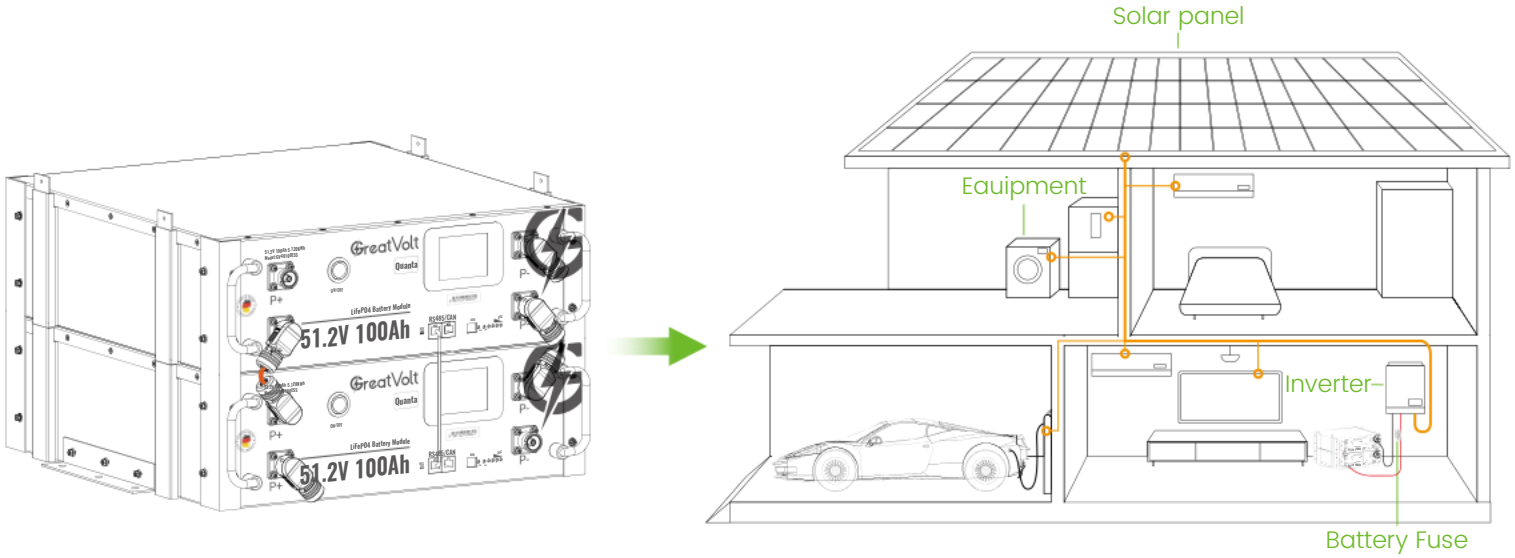
PC Software Connection Diagram.



Lumix

Display

11.System Connection Diagram for Application Fields

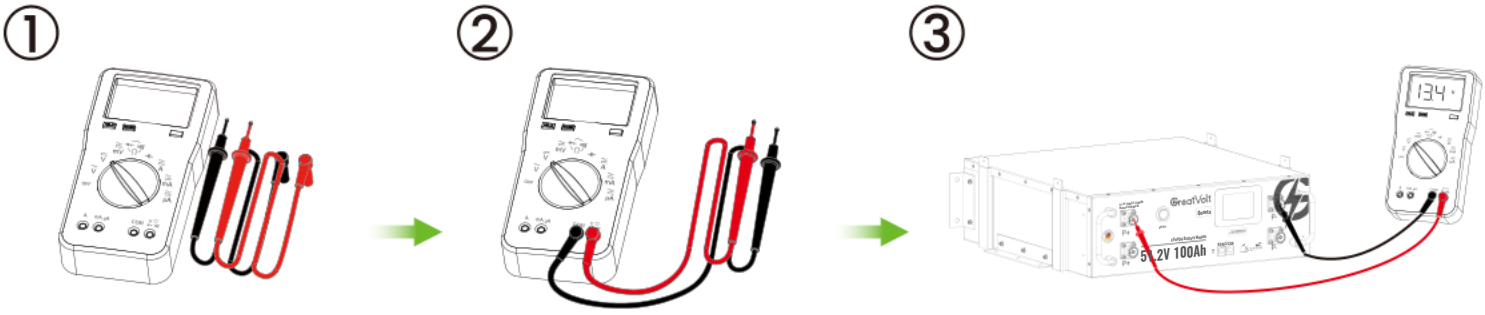


Solar house

12.Measure battery balance before connecting in parallel

Before connecting batteries in parallel, it is important to perform balancing to reduce voltage differences and optimize performance. Please follow these three steps:

Step 1: Before connecting the battery system, measure the voltage of each battery. Only batteries with a voltage difference of less than 3V may be connected in series or parallel to form a system.

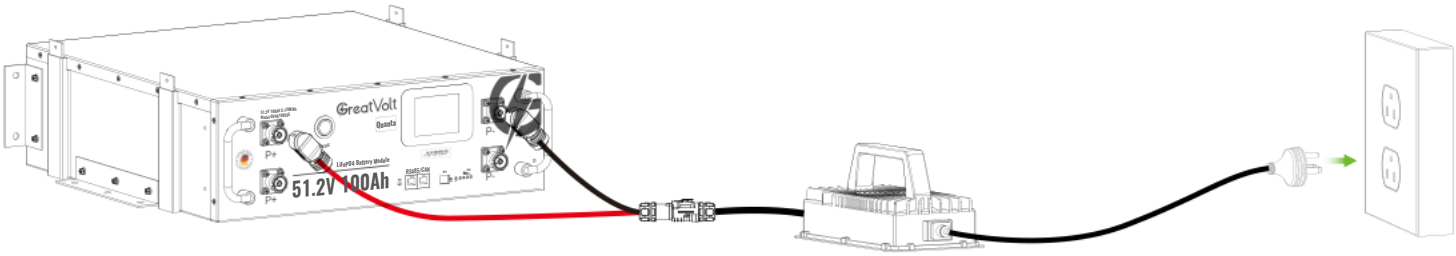


multimeter

Connect to multimeter

Detect voltage

Step 2: If the voltages of the batteries are inconsistent, you can balance them either by fully charging all batteries with a charger or by discharging them uniformly with a load, so that the battery voltages remain consistent.

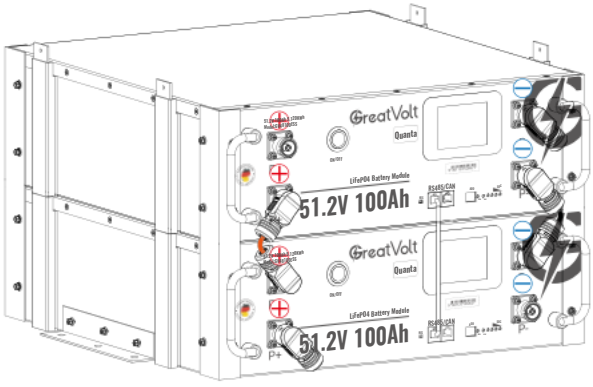


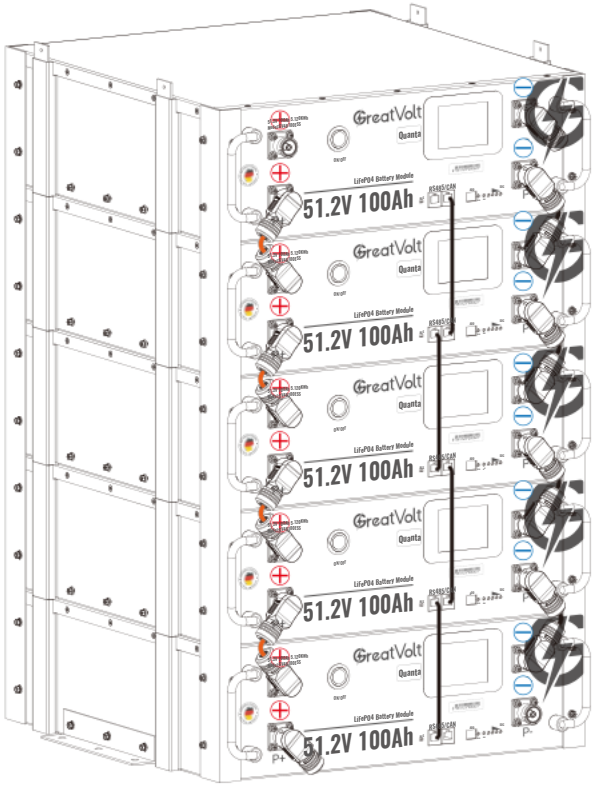
Lumxi　　Charger　　Socket

Step 3: If no abnormalities are found after completing the above steps, you may proceed with series or parallel connections according to actual requirements.

- Please select cables of appropriate specifications for parallel connections. Higher-grade cables help handle high currents and are typically arranged in parallel or stacked configurations to distribute power efficiently.
- Calculate the battery voltage and capacity in parallel connections. The cable length between each battery should be kept consistent to ensure that all batteries can workevenly together.
- Please note that the wiring methods provided below are for reference only, as the optimal approach may vary depending on the specific situation. It is important to take into account factors such as cable size, the equipment used, and environmental conditions.

- Parallel Connection: At least 2 identical batteries are required for parallel connection, and up to 5 identical batteries can be connected in parallel.





2P

2P	
Battery System	48V (51.2V) 200Ah
Energy	10240Wh

5P

5P(Max)	
Battery System	48V (51.2V) 500Ah
Energy	25600Wh

13.Charge

Reconnect Voltage	@54.5V
Recommended Charge Voltage	58.4V
Charge Cut-off Voltage	60V
Recommended Charge Current	0.2C/20A
Maximum Charge Current	50A

- Please use the supporting LiFePO4 battery charger to charge the battery.
- Please ensure that the charger output voltage matches the rated voltage of the battery before charging.
- Connect the positive terminal of the charger to the positive terminal of the battery and the negative terminal to the negative terminal when charging.
- The charging environment temperature should be between 0°C and 45°C.
- Please choose an open area when charging and always monitor the battery status.
- When the charger displays a charging current of 0.1A or full, it means the battery is fully charged. Please disconnect the charger in time.

14.Discharge

Recommended Low Voltage Cut-off Voltage	44.8V
BMS Discharge Cut-off Voltage	40V
Reconnect Voltage	44.8V
Recommended Discharge Current	50V
Maximum Discharge Current	100A

- Do not use batteries that exceed the maximum continuous discharge current or are below the discharge cut-off voltage.
- The discharge ambient temperature should be maintained between -20°C and 60°C.
- It is recommended to recharge the battery when the remaining capacity exceeds 20% to avoid over-discharge.

15.Battery Protection Parameters

- The battery with a BMS (Battery Management System) that provides protection and recovery against over-voltage, under-voltage, over-current, short circuit, high temperature, and low temperature conditions. The trigger and recovery conditions for each type of protection are listed in the protection table below.

Battery operating Status		Condition(For Reference Only)	
Single-cell overvoltage protection	≥3.75V	/	≤3. 45V
Single-phase undervoltage protection	≤2. 5V	/	≥2.8V
Charging overcurrent protection 1	≥110A	5 seconds	/
Charging overcurrent protection 2	/	/	/
Discharge overcurrent protection 1	≥120A	3 seconds	/
Discharge overcurrent protection 2	≥200A	2 seconds	/
Discharge overcurrent protection 3	/	/	/
Charging low temperature protection	≤0°C(°F)	/	≥5°C(°F)
Charging high temperature protection	≥50°C(°F)	/	≤45°C(°F)
Discharge low temperature protection	≤-20°C(°F)	/	≥-10°C(°F)
Discharge high temperature protection	≥60°C(°F)	/	≤55°C(°F)
Short circuit	≥1000A	Battery short circuits are strictly prohibited	

16.Storage

Please keep the battery in the cool and dry environment: Within 1 month -5°C~35°C or Within 6 months 0°C~35°C, relative humidity ≤75%, please charge the battery pack (around 50% SOC) regularly (every 60-90 days) to keep its chemistry active and longer lifespan. Long shelf time without charging the battery, the battery may completely depleted or totally died.

17.Maintenance

- Regularly inspect the battery appearance and remove any dust or dirt from its surface.
- Regularly check the battery cables for looseness or corrosion, and tighten or replace them if necessary.
- If you notice a significant drop in battery performance, contact after-sales service promptly.

18.Usage Tips and Protection

- **Avoid battery pack collisions and water ingress**
  When using the battery in environments with rain or snow, take extra care to protect it from impact and water. The battery pack is the core component of the equipment, and any physical damage may reduce performance or pose safety risks.
- **Pay attention to the operating temperature range**
  The battery's normal operating temperature range is -20°C to 60°C, with charging temperature range 0°C to 55°C. Operating the battery outside these ranges may shorten its lifespan. Therefore, use the battery within the specified range and avoid operation under extreme temperature conditions.
- **Avoid over-discharge**
  Excessive discharge can affect battery life. If the battery indicator shows low charge, recharge it promptly to avoid damage caused by insufficient power.
- **Use the correct charger**
  The optimal charging environment is between 10°C and 30°C. Ensure the charger is functioning properly to prevent unstable voltage or overcharging, which can harm the battery.
- **Avoid long-term storage without charging**
  If the battery is not used for a long time, it will gradually self-discharge, leading to deep discharge. For storage, keep the charge above 25% and recharge at least once every three months to prevent irreversible capacity loss.
- **Ensure safe connection during use**
  If you notice the battery operating abnormally, stop using it immediately and contact after-sales service. Avoid dismantling the battery yourself to prevent injury.
- **Avoid short circuits**
  Short circuits may cause abnormal battery operation or permanent damage. Keep the battery away from conductive objects to prevent short circuits.

Stop use if abnormal odor or heat occurs
If you notice an unusual smell or heat during battery use, stop immediately and have it inspected. Prolonged abnormal use may cause further damage.

Do not use modified chargers
Using incompatible chargers may damage the battery or reduce its performance. Always use chargers provided or recommended by the manufacturer.

Keep the battery away from heat sources and open flames
Heat can damage the battery's safety mechanisms, reducing its lifespan and posing safety hazards.

19.Disclaimer

Greatvolt assumes no responsibility for any loss caused by improper use or force majeure. The contents of this manual are subject to change without prior notice.

20.Contact GreatVolt

GreatVolt ® by LiTech Batteries GmbH.

Poppenbütteler Bogen 42, 22399, Germany.

www.GreatVolt.com

Service@GreatVolt.com

Please keep this manual safe for reference.
Have a happy use!