



GreatVolt Cruze

51.2V 105Ah LiFePO4 Battery for Golf Cart.

*100A continuous | 330A surge for 35 seconds | 500A surge for 2 seconds

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

www.GreatVolt.com



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

The GreatVolt 51.2V105Ah lithium iron phosphate (Cruze) battery pack is built with premium-quality LiFePO4 cells, delivering exceptional performance and value. It features high energy density, an extended cycle life, and outstanding safety. Designed for versatility, it is ideal for applications such as Golf carts and sightseeing cars, electric mountain carts, ATVs, UTVs and agricultural vehicles.

Table of Contents









| | |
|--|----|
| Revision Log | 3 |
| Please Read Carefully Before Use | 3 |
| Battery Specifications | 3 |
| Dimension Drawings | 4 |
| Installation Tips | 5 |
| Required Installation Tools | 5 |
| Standardized Installation | 5 |
| How to Configure Cables | 6 |
| App & Bluetooth | 6 |
| Communication | 7 |
| Install battery terminal | 7 |
| Charge | 8 |
| Discharge | 8 |
| Heating Logic | 9 |
| Battery Protection Parameters | 9 |
| Storage | 10 |
| Maintenance | 10 |
| Usage Tips and Protection | 10 |
| Disclaimer | 10 |
| Contact GreatVolt | 10 |

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.

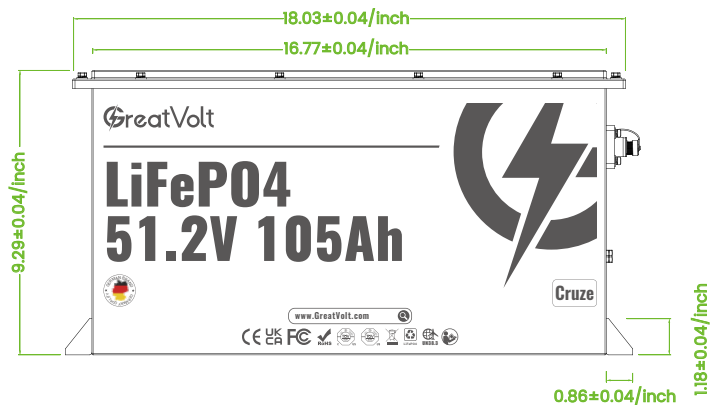
3.Battery Specifications

| | |
|-----------------------------|--|
| Battery Cell Type | LiFePO4 |
| Rated Capacity | 105Ah |
| Nominal Voltage | 51.2V |
| Voltage Range | 40~58.4V |
| Cycle Life | 300+ cycles, 80% SOH, 25°C/0.5C |
| Dimensions | 18.03"L X 13.11"W X 9.29"H |
| Weight | 97 lbs. |
| Connection Method | NA |
| Terminal Screw Size | M8x0.4724" |
| Recommended Terminal Torque | 619~974in-lbs (70~110N-m) |
| Protection Grade | IP67 |
| Certification | UL1973,UL9540A,IEC62619 /for cells /MsDs for shippin /UN38.3 |

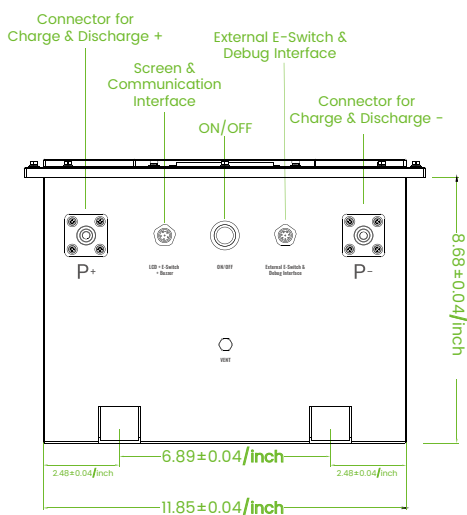
4.Dimension Drawings



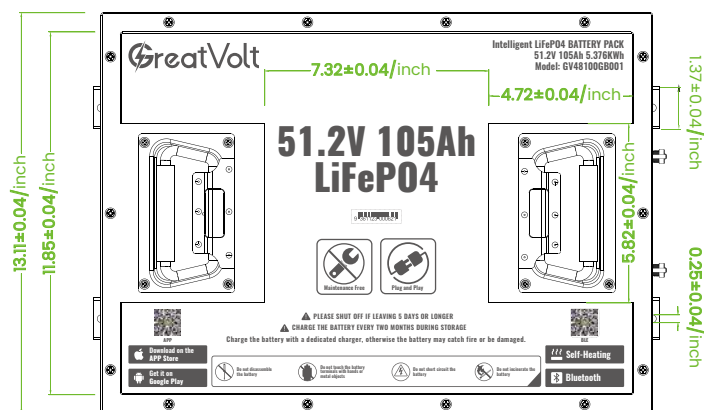
Perspective



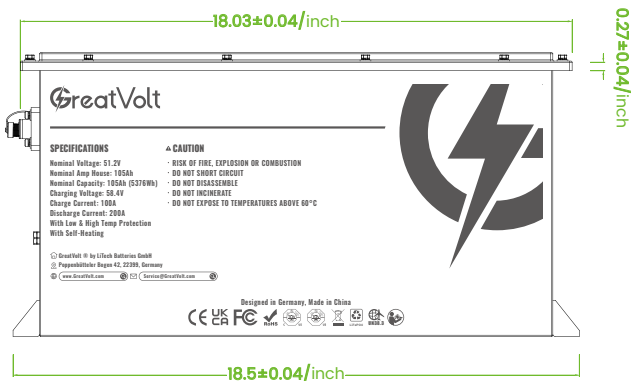
Front view



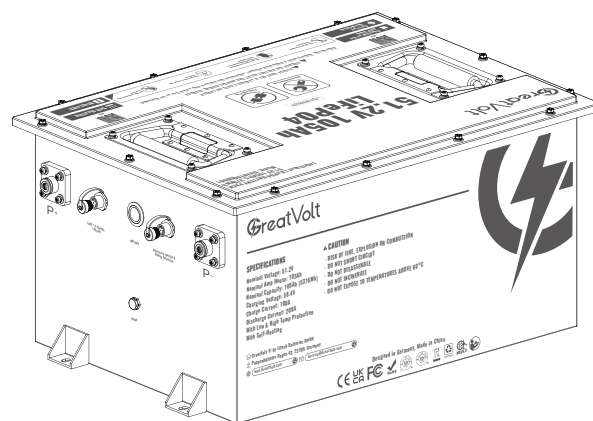
Side view



Top view



Rear view

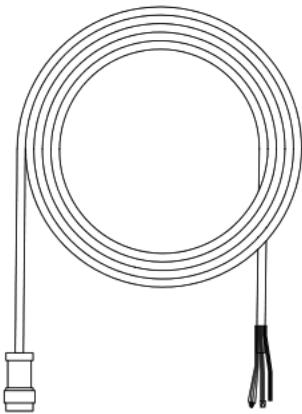


Perspective

5. Installation Tips ⚠

- i** 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.
- i** 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.

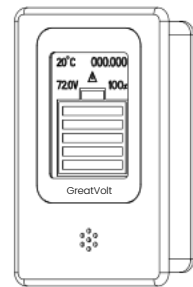
6. Required Installation Tools 🛠



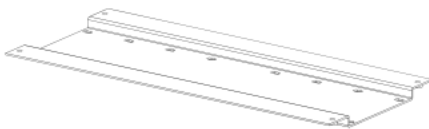
Communication line



Switched line



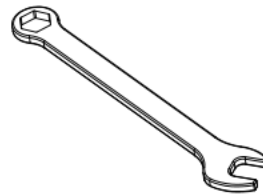
Display (Optional)



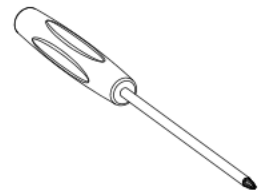
Low board



Screw



Wrench



cross screwdriver

7. Standardized Installation 🛠

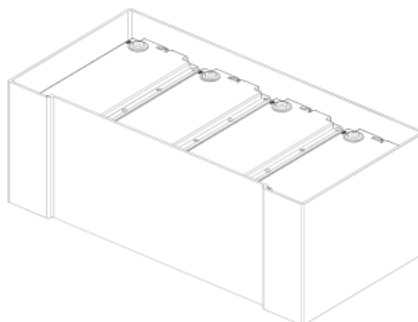
- i** According to the diagram, remove the original lead-acid battery, then fix the battery low board (the low board is optional, depending on the situation), then put the battery into the installation compartment and fix the 4 feet of the battery, finally you can start to connect the battery charging/load cables.

①



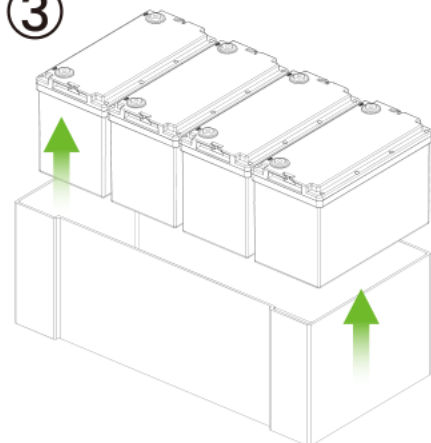
Ball cart

②

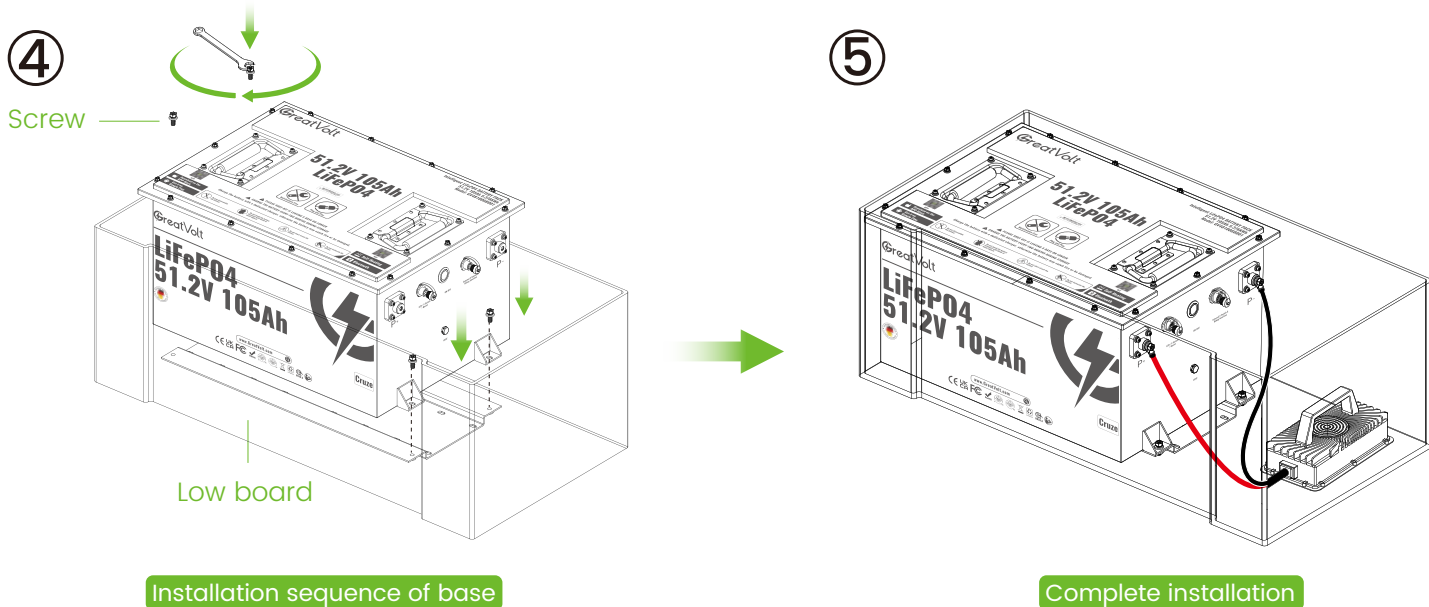


Old battery

③



Remove the old battery



Keep Dry

Fragile

Ventilation

- Ensure the cable's ring terminal is in full contact with the top surface of the battery terminal, tighten the screw, and cover it with an insulation cap. Ensure proper conductor contact to avoid high resistance and overheating.
- When making connections, avoid short-circuiting the battery terminals to prevent irreversible damage to the battery and load, as well as potential damage caused by an instantaneous high current.
- Check the polarity (positive and negative) before wiring to avoid irreversible battery damage caused by reverse polarity.
- To ensure safe and reliable system operation, tighten cable connections according to the manufacturer's recommended torque specifications. Over-tightening may cause the terminal to break, while loose connections may cause the terminal to overheat, melt, or even catch fire. When installing multiple cable ring terminals on a single battery terminal, use the supplied long terminal bolt to ensure a fully secure connection.

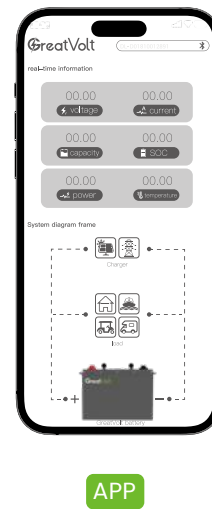
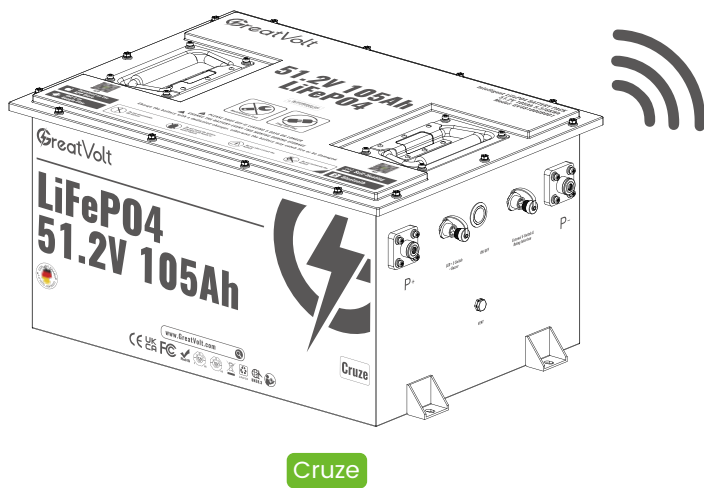
8. How to Configure Cables

- 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 |

9. App & Bluetooth

- Bluetooth Connection Diagram.

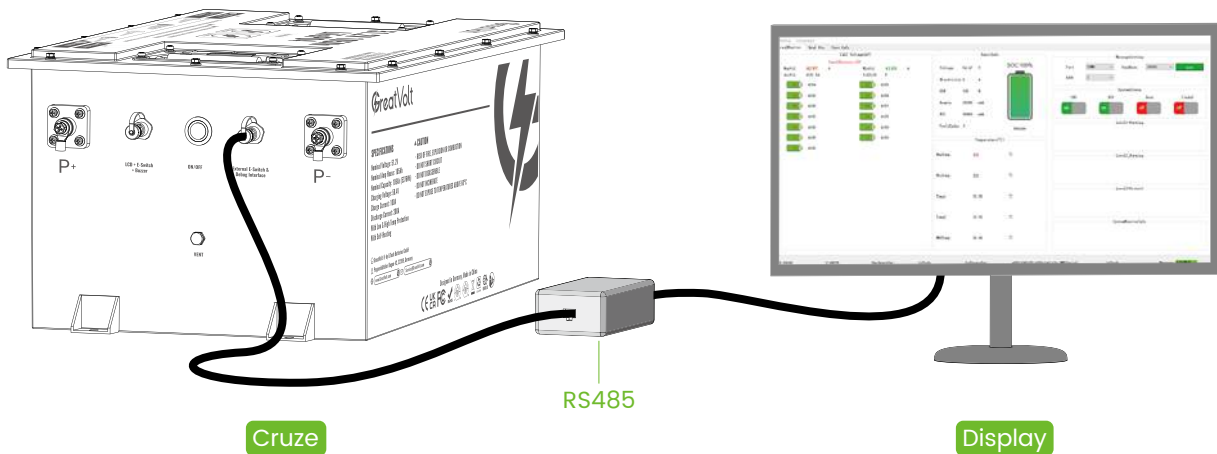


Cruze

APP

10.Communication

PC Software Connection Diagram.

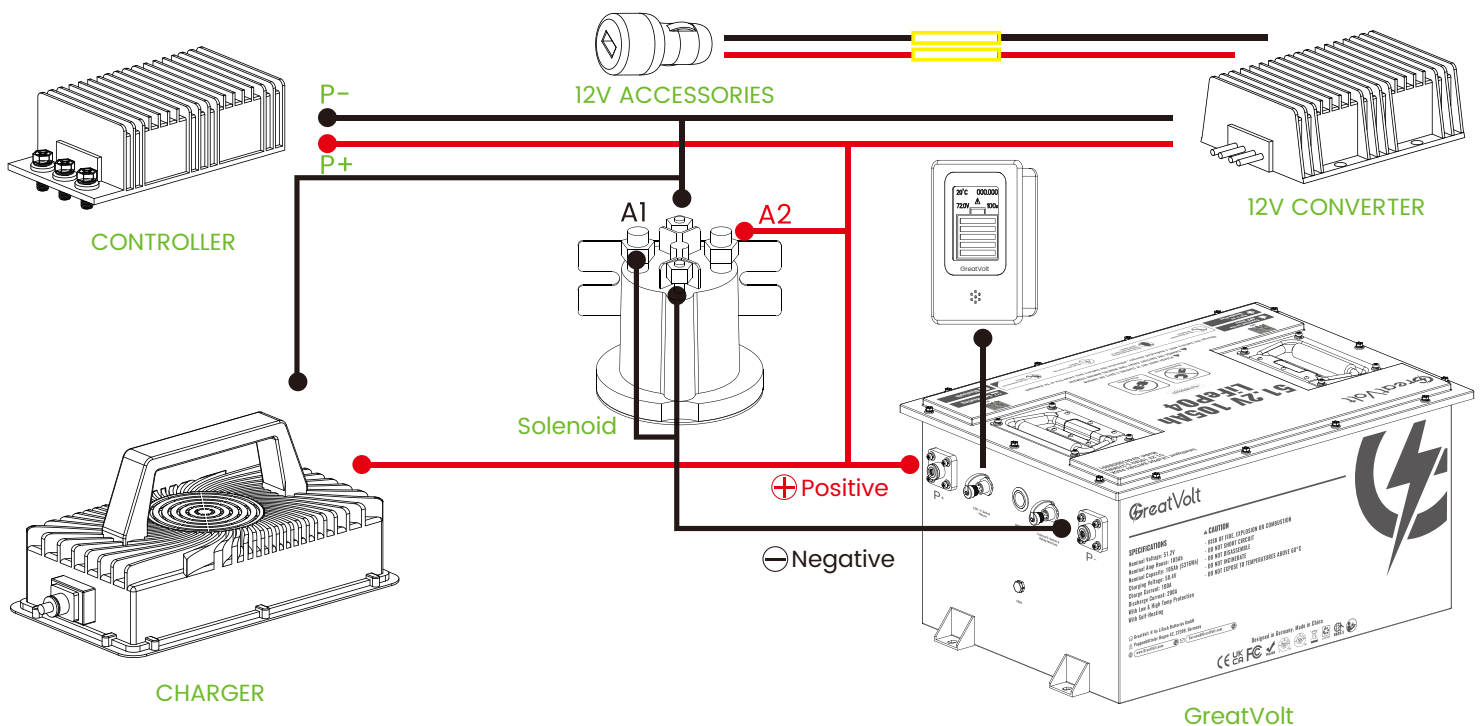


Cruze

Display

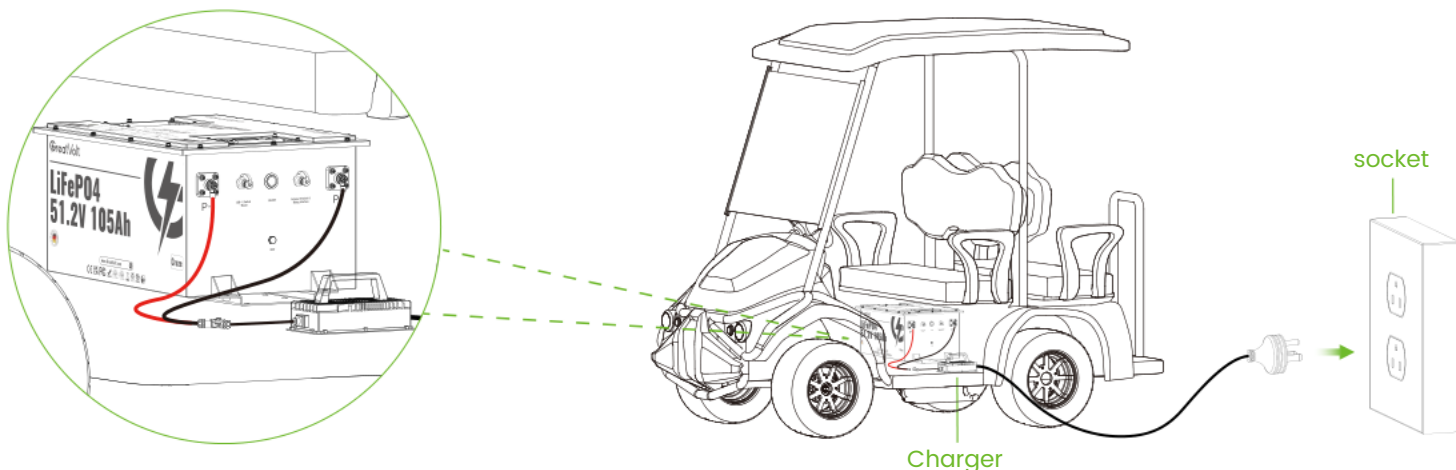
10.Install battery terminal

Golf Cart Battery Wiring Diagram.









GreatVolt

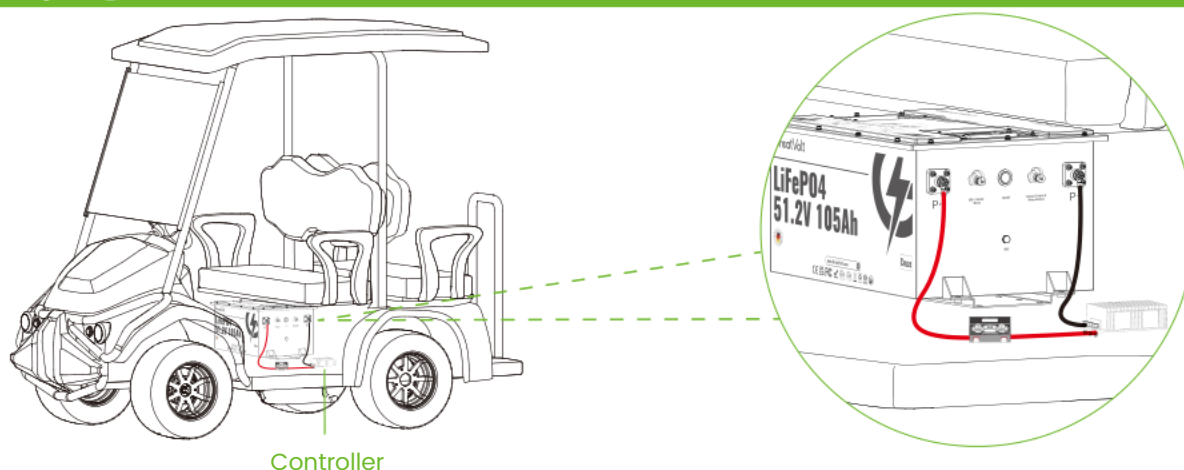
12.Charge



| | |
|----------------------------|----------|
| Reconnect Voltage | @54.5V |
| Recommended Charge Voltage | 58.4V |
| Charge Cut-off Voltage | 60V |
| Recommended Charge Current | 0.2C/21A |
| 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.

13.Discharge

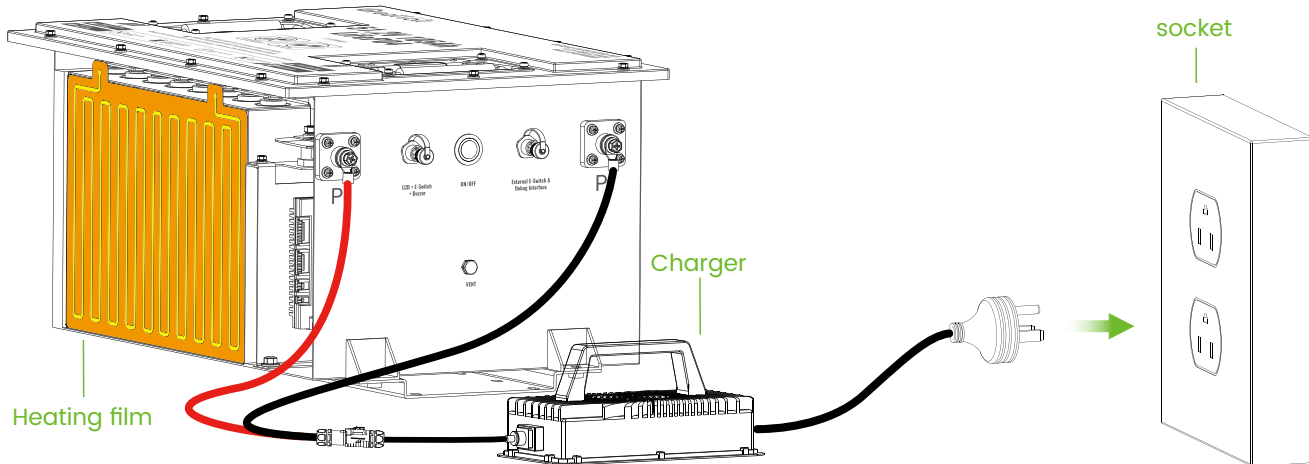


| | |
|---|-------|
| Recommended Low Voltage Cut-off Voltage | 48V |
| BMS Discharge Cut-off Voltage | 40V |
| Reconnect Voltage | 44.8V |
| Recommended Discharge Current | 50A |
| Maximum Discharge Current | 105A |

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

14.Heating Logic

- i** Heating Voltage: 58.4V
- i** Heating Current: Minimum Current 10A



| | |
|---------------------------|------------------|
| Heating Method | Charging heating |
| Heating Voltage | 57.6V~58.4V |
| Heating Start Current | ≥10A |
| Heating Start Temperature | ≤0°C |
| Heating Stop Temperature | ≥5°C |

15.Battery Protection Parameters

- i** 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 | / | ≥22.8V |
| Charging overcurrent protection 1 | ≥105A | 2 minutes | 5 seconds |
| Charging overcurrent protection 2 | ≥210A | 5 seconds | 5 seconds |
| Discharge overcurrent protection 1 | ≥210A | 2 minutes | 5 seconds |
| Discharge overcurrent protection 2 | ≥315A | 32 seconds | 5 seconds |
| Discharge overcurrent protection 3 | ≥500A | 2 seconds | 5 seconds |
| 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

- i** 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

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

18.Usage Tips and Protection

- i** **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.
- i** **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.
- i** **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.
- i** **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.
- i** **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.
- i** **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.
- i** **Avoid short circuits**
Short circuits may cause abnormal battery operation or permanent damage. Keep the battery away from conductive objects to prevent short circuits.
- i** **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.
- i** **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.
- i** **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

- i** 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!



LiFePO4