

Lithium-Iron Phosphate Battery User's Manual

Specification: 12.8V30Ah

Model: CRIUS 30

GOLDE  ***MATE***



Thank you for choosing our lithium-iron phosphate batteries!

Please read the manual carefully before use.

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1. Technical parameters*

➤ Basic parameters

Rated voltage	12.8 V
Rated capacity	30Ah(0.2C 25°C)
Minimum capacity	29Ah(0.2C 25°C)
Rated energy	384Wh
AC internal resistance	≤50mΩ
Battery material	LiFePO ₄

➤ Mechanical parameters

Dimensions (L*W*H)	approx. 195*130*156mm
Net weight	approx. 3.9kg
Terminal specification	M8
Housing material	ABS+PC

➤ Charging parameters

Charging voltage	14.4V (14.6V Max)
Rated charging current	6A
Maximum charging current	15A
Charging cutoff current	0.6A

➤ Discharge parameters

Rated discharging current	15A
Maximum continuous discharging current	30A
Maximum discharging current	60A (≤5S)
Maximum continuous discharging power	384W
Discharging cutoff voltage	approx. 10V

➤ Temperature specifications

Charging temperature	0°C~50°C
Discharging temperature	-20°C~60°C
Storage temperature	0°C~45°C

➤ Certification

Product certification	CE ROHS FCC UKCA PSE UN38.3 IEC62619 IEC62133(cells) UL1642(cells)
Transport class	UN3480 CLASS9

➤ Cycle life

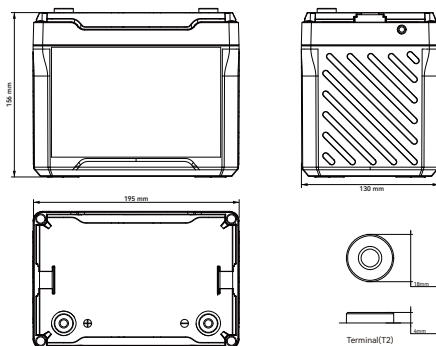
5000+ (0.2C 25°C 80%DOD)

➤ Waterproof rating

IP67

- * The results above are based on laboratory data obtained under standard test conditions. The actual data may vary from the laboratory data due to differences in usage condition and environment.
- * This product is not a professional waterproof product. It is splash-proof, water-resistant and dust-proof under normal use, having achieved an IP67 rating in tests conducted under controlled laboratory conditions. The splash-proof, water-proof, and dust-proof are not permanent, as their protection performance may diminish over time due to daily wear and tear.

2. Product appearance and size



3. Precautions

To maximize the energy efficiency of the lithium-ion battery pack and prevent the battery pack from leakage, heating and other accidents, please carefully read and observe the following precautions:

- ⚠ Do not immerse the battery pack in water. If the battery comes into contact with water or water enters the battery, isolate it immediately and seek professional assistance.
- ⚠ Do not charge the battery pack at temperatures above 50°C, and do not discharge or store it at temperatures above 60°C. Keep the battery pack away from fire, heaters, corrosive substances, etc. Failure to comply may result in overheating, fire, malfunction, reduced service life, or other serious safety risks.

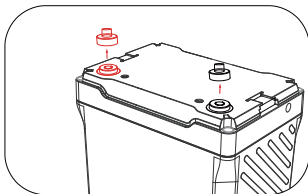
- ⚠ Do not charge the battery pack at temperatures below 0°C.
- ⚠ Do not use the battery pack with reversed terminals, and do not short-circuit the positive and negative terminals.
- ⚠ Do not reverse-charge the battery pack, and do not plug the positive and negative terminals directly into the outlet.
- ⚠ Do not transport or store the battery pack with conductive objects (such as hairpins and necklaces).
- ⚠ Do not knock, throw, step on, drop, dismantle or apply impact to the battery pack.
- ⚠ Do not weld the battery pack directly or pierce it with nails or other edge tools.
- ⚠ Do not use the battery pack in environments with strong static electricity and strong magnetic field, as it may damage the battery pack protection circuit.
- ⚠ Do not overload the battery pack.
- ⚠ Do not mechanically process the circuit board, as this may damage the internal circuit and cause functional failure.
- ⚠ Do not deform the product by force, as this may damage the electronic components or internal connections, leading to unstable performance.
- ⚠ Do not disassemble the shell to avoid unnecessary damage.
- ⚠ Do not overcharge or over-discharge the battery pack.
- ⚠ When charging, please use the designated charger for lithium-ion battery packs.
- ⚠ Please charge the battery pack within 12 hours after use. Failure to charge in time may cause the battery to lose its efficiency and greatly shorten its lifespan.
- ⚠ If the battery pack leaks and liquid comes into contact with the eye or skin, please do not rub it. Rinse with water and seek medical attention immediately.
- ⚠ Battery packs should be extinguished by dry powder fire extinguisher

or sand in case of accidental fire.

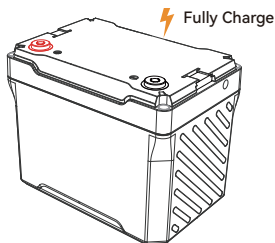
- ⚠ If the battery pack emits odor, heats up, discolors, deforms, or shows any abnormality during use, storage or charging, immediately stop charging and using it. Remove it from the device and isolate it while ensuring safety.
- ⚠ The terminals of a scrapped battery pack should be wrapped with insulating paper to minimize safety hazards during storage.
- ⚠ A reversed terminal connection at the charging port can damage the internal circuit board, so please ensure correct connection.
- ⚠ Product dimensions do not include outlets, connectors, handles, wheels, ventilation holes and other parts.

4. How to use the battery

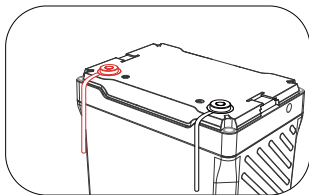
4.1 Remove the insulating cap



4.2 Fully charge the batteries (see charging method for details)

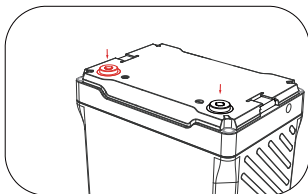


4.3 Connect to use



4.4 Cover with insulating caps when not in use

Cover the insulating caps when not in use to prevent short circuits caused by metal or conductive objects touching both the positive and negative terminals simultaneously.



5. Charging method

Recommended charging voltage: between 14.2V and 14.4V

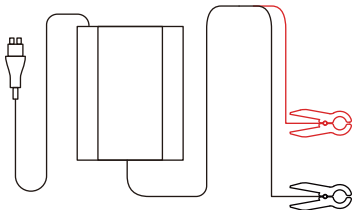
Recommended charging current:

6A (0.2C)	The battery will be fully charged to 100% in about 5 hours
15A (0.5C)	The battery will be fully charged to approximately 97% in about 2 hours

5.1 Battery charger

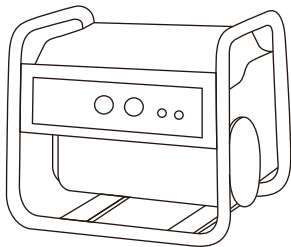
Please use the designated charger for 14.4V lithium-iron phosphate (LiFePO₄) to ensure optimal charging capacity.

- ① Please connect the charger to the battery before plugging the charger to the grid power to prevent sparking.
- ② Please disconnect the charger from the battery once charging is complete.



5.2 Generator charging

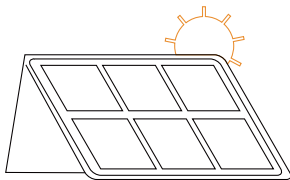
Our products can be charged using a generator. If the generator supports DC output, a DC-DC charger is required to connect the battery and the generator. If the generator supports AC output, please refer to the charging recommendations in “Battery Charger” and use an appropriate battery charger to connect the battery to the generator.



5.3 Solar panel charging

Recommended solar panel charging power: $\leq 300\text{W}$

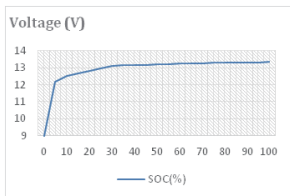
When the effective lighting duration is ≥ 4.5 hours / day, a 150W solar panel will fully charge the battery within one day. When the effective lighting duration is less than 4.5 hours / day, it may take more than one day for a full charge. In such cases, increasing the power of the solar panel may be necessary.



6. How to estimate battery capacity

The battery capacity can be roughly estimated based on its static voltage (non-charging/discharging voltage). The following parameters are for reference only, as slight variations in battery voltages can occur. The voltage properties and measurements of lithium iron phosphate batteries can be affected by factors such as the measuring instrument, environment, temperature and other factors. The actual SOC of the battery refers to its discharging capacity under load conditions.

Static voltage: the voltage measured after 3 hours in the static state when the battery is disconnected from the charger and the load current is zero.

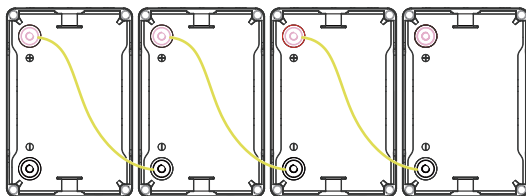


SOC (%)	Voltage (V)
0	10-12
25	13-13.15
50	13.15-13.2
75	13.3-13.33
100	≥ 13.33

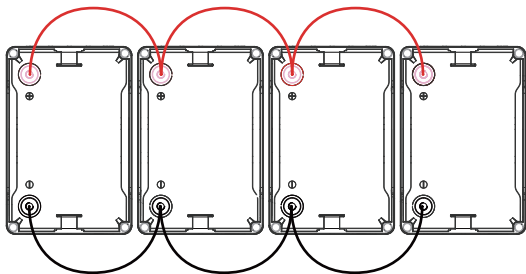
7. Battery series/parallel connection

1. Battery series and parallel connection must satisfy the following conditions:
 - a. Lithium-iron phosphate batteries must be of the same model and brand.
 - b. The batteries must be purchased within one month.
2. Precautions for series and parallel connection:
 - a. The product supports up to 4 series connections and 4 parallel connections.
 - b. The total operation current after series and parallel connection cannot exceed the maximum charging/discharging specified in the recommended electrical parameter table for series and parallel connections.

Series connection of 4 battery packs



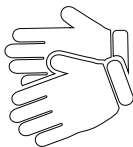
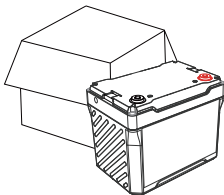
Parallel connection of 4 battery packs



8. How to connect the battery

8.1 Wear insulating gloves

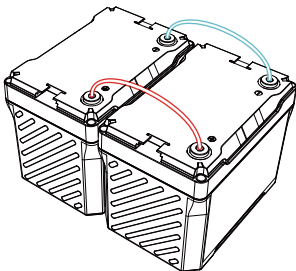
Wear insulating gloves before connecting the battery and ensure operation safety during connection.



8.2 Balancing voltages before connection

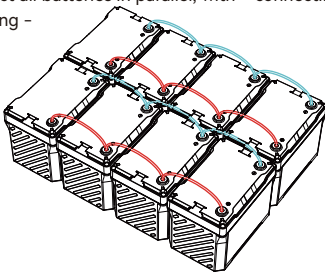
The following two steps are necessary to minimize the voltage difference between batteries, and to maximize the performance of the battery system in series or/and parallel connection.

- ① Fully charge the batteries separately (voltage $\geq 13.33\text{V}$)
- ② Connect all batteries in parallel and allow them stand for 12-24 hours.
- ③ Proceed with connecting the batteries in series and parallel.

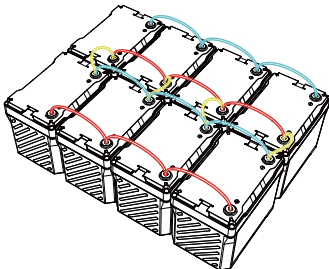


8.3 4P2S battery connection

① Connect all batteries in parallel, with + connecting +, and - connecting -



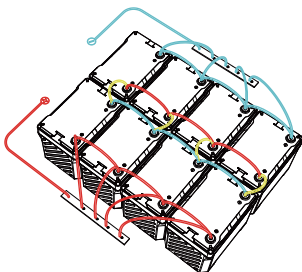
② Connect all batteries in series, with + connecting -



③Connection of total positive and total negative terminals

Use two copper strips to connect all positive and negative cables, respectively, instead of relying on the battery terminals. This ensures balanced input and output currents of each battery (not required for series connection only).

Avoid using a single terminal as the total positive or total negative terminal for the battery system, as this can lead to overheating or even melting if the total input/output current of the battery system is too high.

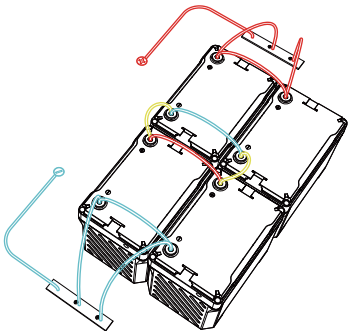


4P2S battery connection of total positive and total negative terminals

4P2S	Battery pack specifications	25.6V120Ah
	Rated energy	3072Wh
	Recommended charging/ discharging current	15A/30A
	Maximum continuous charging/ discharging current	50 A/50 A
	Maximum continuous discharging power	1280W

4P2S recommended electrical parameter table

8.4 2P2S battery connection

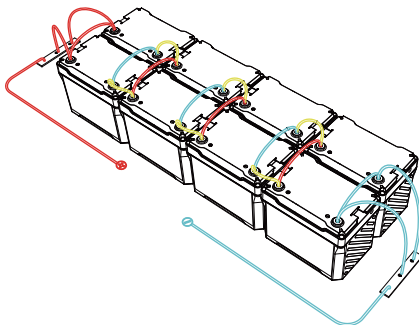


2P2S battery connection

2P2S	Battery pack specifications	25.6V60Ah
	Rated energy	1536Wh
	Recommended charging/ discharging current	15A/30A
	Maximum continuous charging/ discharging current	30A/30A
	Maximum continuous discharging power	768W

2P2S recommended electrical parameter table

8.5 2P4S battery connection



2P4S battery connection

2P4S	Battery pack specifications	51.2V60Ah
	Rated energy	3072Wh
	Recommended charging/ discharging current	15A/30A
	Maximum continuous charging/discharging current	30A/30A
	Maximum continuous discharging power	1536W

2P4S recommended electrical parameter table

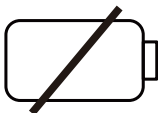
9. Balancing voltage

If you are connecting multiple batteries as a battery system, it is recommended to re-balance the battery voltage every six months following the steps in 8.2, as voltage differences may occur after a six-month operation of the battery system.

10. How to activate the battery



Stop working



Charging failure



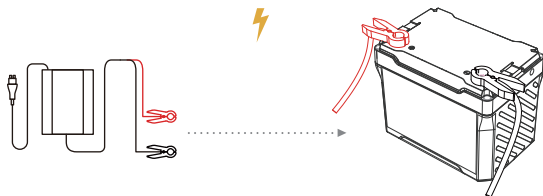
Voltage < 10V

There is an 85% possibility that the BMS disconnects the line to protect the battery. Try the following methods to activate the battery.

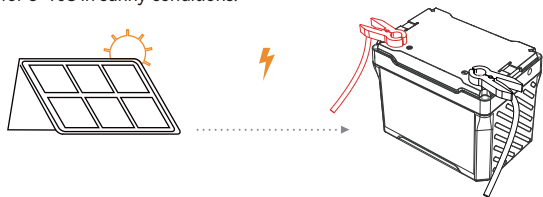
General steps:

If the BMS has disconnected the line for protection, please activate it using the following methods:

Method 1: Fully charge the battery using a charger with either a 0V activation function or a voltage activation function.



Method 2: Connect the battery to an 18V solar panel and charge it for 3-10S in sunny conditions.



11. Daily use and maintenance of battery packs

11.1 Battery pack storage

Storage temperature: 0 °C ~ 45 °C (the optimal storage temperature is between 15 °C to 25 °C in a dry environment). Temperature fluctuations affect battery pack performance, which is reflected in changes in capacity. This is a normal phenomenon. Avoid condensation caused by temperature changes during storage, otherwise it will lead to rusting of the battery or metal parts.

11.2 Battery pack inspection before use

- ⚠ Upon receiving the battery pack, carefully inspect the package for any abnormalities and ensure it has not been impacted during transportation.
- ⚠ Check the battery pack shell and accessories for damage, liquid leakage, missing parts and other defects. Please contact the after-sales service for any damage or missing parts.
- ⚠ Check that the charging and discharging terminals of the battery pack are correctly connected and not reversed. Ensure the voltage is within the equipment's normal range. If there is dirt or rust at the terminals, wipe them with a dry cloth before use to prevent poor electrical connections.

11.3 Precautions for battery pack installation

- ⚠ Remove dust, metal debris, and any other contaminants from the installation area. Open flames are prohibited during installation to prevent battery pack short circuit, equipment damage or personnel injury.
- ⚠ Place the battery pack in a well-ventilated, dry, and clean installation area. Do not install the battery pack in a place where water immersion is possible. Keep battery packs away from flammable and explosive materials. Ensure shock absorption and secure fixation between the battery pack and the repository body to prevent mechanical damage.

- ⚠ Fasten the wire terminal of the electrical appliance to the battery pack terminals. Do not use excessive force or exceed the specified torque when fastening to prevent damaging the terminals.
- ⚠ After completing the installation, check and ensure the terminals are securely fastened and that the surface of the battery pack is free of debris. Clean the outer package of the battery pack with a dry cloth. Do not use tools that produce static electricity to clean the outer package. Do not use organic solvents such as volatile oils as these can damage or even crack the outer package.
- ⚠ Ensure that the positive (+) and negative (-) terminals are connected correctly. Incorrect connections may cause fire or damage to the battery pack and electrical appliances.
- ⚠ Conduct a test run of the equipment. Observe the equipment and battery pack for any abnormalities.

11.4 Battery pack operation requirements

- ⚠ The charging current shall not exceed the specified maximum value. Excessive charging current may affect the battery pack's service life, damage the internal circuit, or even pose a safety hazard.
- ⚠ The discharging current shall not exceed the specified maximum value. Excessive discharging current may affect battery pack's service life or damage the internal circuit, or even cause danger.
- ⚠ When the battery pack is low, it should be charged in time, which is beneficial to its service life. Delayed charging can result in prolonged over-discharge, which shortens the battery's lifespan.
- ⚠ Shallow charging and discharging of the lithium-ion battery pack can extend its cycle life. It is recommended to discharge the battery to 10% and charge it to 95% of its nominal capacity with each cycle.

11.5 Battery pack operation requirements

- ⚠ The charging current shall not exceed the specified maximum value. Excessive charging current may shorten the battery pack's lifespan, damage the internal circuit, or even pose safety hazards.
- ⚠ The discharging current shall not exceed the specified maximum value. Exceeding this limit may reduce the battery pack's lifespan, damage the internal circuit, or even pose safety hazards.
- ⚠ When the battery pack is low, it should be charged in time to preserve its lifespan. Delayed charging can result in prolonged over-discharge, which shortens the battery life.

Shallow charging and discharging of the lithium-ion battery pack can enhance its cycle life. It is recommended to discharge the battery to 10% of its nominal capacity and recharge to 95% of the nominal capacity each time.

12. After-sale service

If the product malfunctions, please attempt to resolve the issue by following the instructions provided in the manual. If the problem persists after troubleshooting, kindly contact GOLDENMATE after-sales service personnel. Please provide the date of purchase, contact number, detailed address, and a description of the product failure when contacting the after-sales service personnel. We kindly request your cooperation in answering our personnel's detailed inquiries, including information on site conditions, fault manifestations, occurrences of accidents (frequent or occasional), and whether any operating procedures were performed incorrectly. Providing this information will assist our personnel in identifying the cause of the issue and providing appropriate assistance or guidance to the user. If the problem remains unresolved, please do not hesitate to contact us for further assistance. For material defects, process defects, and non-human damage to the product, we offer free maintenance and part replacement within the warranty period. The replaced parts belong to GOLDENMATE.

13. Disclaimer

The warranty excludes issues caused by normal wear and tear, maintenance, handling, or improper storage. GOLDENMATE is not responsible for accidents due to failure to comply with the use and installation requirement specified in the manual, including but not limited to the following:

- The customer should use the battery pack in accordance with the user manual. GOLDENMATE is not responsible for quality issues, product failures, or any damages resulting from improper or incorrect use.
- Customers and third parties should avoid overcharging and over-discharging the battery pack. If the charging voltage, charging current, discharging current, and discharging cut-off voltage of the battery pack exceed the range specified in the manual, it may cause permanent damage to the interior of the battery pack, and invalidate the product quality warranty.
- Using the battery pack in inappropriate environments. Avoid charging or discharging the product at temperatures exceeding the range specified in the manual.
- Improper or incorrect installation and maintenance of the battery pack as well as issues resulting from installation after shipment.
- Damage during transportation or storage. Loss of capacity or other losses of the battery pack caused by a lack of charging/discharging maintenance for more than 3 months during storage.
- GOLDENMATE is not responsible for product quality issues resulting from improper use during the warranty period.
- Force majeure events, such as lightning, storms, floods, fires and earthquakes.

Before using the product, please read the manual carefully. GOLDENMATE disclaims the product quality warranty and all related liabilities including compensation for failure to use the product in

accordance with the manual. GOLDENMATE reserves the right to pursue its legal responsibility in case its reputation is negatively affected by the aforementioned issues. Without affecting the user experience, the product may be upgraded without prior notice.

◆ Risk warnings

➤ Warning statement:

- Battery packs are hazardous and potentially dangerous. They must be used and maintained with appropriate protective measures!
- Battery packs must be operated using the correct tools and protective equipment.
- Maintenance of battery packs must be performed by individuals with specialized knowledge about batteries and safety training.
- The disassembly of the battery pack must be authorized by GOLDENMATE.
- Failure to comply with the above warnings may lead to various hazards, for which GOLDENMATE will not be held responsible.

➤ Types of hazard:

- The customer is aware of the following potential hazards during the use and operation of the battery packs:
- Risk of injury from electric shocks or electric arcs.
- Risk of harm caused by electrolyte or other chemicals.
- To avoid accidental short circuits, electric arcs, explosion, or thermal runaway, appropriate operation methods and protective equipment are required.

GOLDENMATE reserves the right to modify the contents of this manual without prior notice. The final interpretation of this manual is at GOLDENMATE's discretion.

Get 24/7 Assistance at



Use camera or QR scanner to scan

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Email: goldenmate@afterservice.vip

Call: +1 (877) 591 5875 (Toll-free)

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