



4.71 kWh LiFePO₄ Vehicle Energy Storage Module Manual



1.Product Description

This product is a high-capacity 12.8 V LiFePO₄ vehicle-mounted energy storage battery module, suitable for new-energy vehicles, RVs, utility vehicles, and stationary energy storage systems. It features high safety, high energy density, long cycle life, and an intelligent BMS management

2.Specifications

Parameter	Value	Unit
Size	800*206*123.6	mm
Weight	Approx. 36	kg
Cell Chemistry	LiFePO ₄	–
Rated Power	2560	W
Standard Charge Voltage	14.6	V
Standard Charge Current	50	A
Operating Voltage Range	10-14.6	V
Max. Charge Current	200	A
Max. Discharge Current	200	A
Cycle Life	≥ 6000	cycles
Peak Discharge Current	400	A
Rated Capacity	368	AH

3. Advantages

- **High-Power Discharge:** Supports power for outdoor camping, field cooking, etc.
- **Intelligent Anti-Deep-Discharge:** Automatically monitors starter-battery level, reverse-charges when low, and provides emergency jump-start.
- **Starter-Battery Maintenance:** Extends starter-battery life and prevents no-start conditions.
- **Whole-Vehicle Power Supply:** Provides stable, long-lasting power to onboard electronics and outdoor equipment.

4. Functional Description

1. Overcharge Protection & Recovery

- Cell-Level: If any cell's voltage exceeds the cell-overcharge threshold for the delay period, the BMS disables charging MOSFETs; protection lifts when voltages fall below the recovery threshold or by discharging.

- Pack-Level: If total pack voltage exceeds the pack-overcharge threshold for the delay period, the BMS disables charging MOSFETs; protection lifts when voltage drops below the recovery threshold or by discharging.

2. Over-Discharge Protection & Recovery

- Cell-Level: If the lowest cell voltage falls below the cell-overdischarge threshold for the delay period, the BMS disables discharge MOSFETs; charging clears protection.

- Pack-Level: If total pack voltage falls below the pack-overdischarge threshold for the delay period, the BMS disables discharge MOSFETs; charging clears protection.

3. Charge Overcurrent Protection & Recovery: When charge current exceeds the threshold for the delay period, the BMS enters protection and blocks charging; it auto-recovers after the set delay or via discharge.

4. Discharge Overcurrent Protection & Recovery: When

4. Discharge Overcurrent Protection & Recovery: When discharge current exceeds the threshold for the delay period, the BMS disables discharge MOSFETs; auto-recovers after 32s; charging also clears protection; dual-stage protection for reliability.

5. Temperature Protection & Recovery: High-temp ($\geq$ set threshold) disables MOSFETs; low-temp ($\leq$ set threshold) disables MOSFETs; resumes when temperature returns to range; static: protection only triggers on current detection.

6. Cell Balancing: Resistive bypass balancing; starts when highest cell voltage $\geq$ start threshold and $\Delta V >$ threshold; stops when ΔV or voltage $<$ threshold; supports charge and static modes.

7. Capacity Calculation: SOC via current-time integration; full and cycle capacities configurable; auto-update after complete cycle; increments cycle count at set cumulative discharge.

8. Sleep Mode: Enters sleep after 5 min idle (no comms, no current, no balancing, no overvoltage) to reduce power; any comms, switch, or charge/discharge wakes system.

5. Pre-Installation Accessory Check

Included Accessories: PartaStar battery module, inverter, vehicle quick-charger, compressor (with controller), AC charger

Cables Supplied: 6 AWG 5m, 6 AWG 1m, 4 AWG 8m, 4 AWG 1m, 50mm² red & black 1.2m each, Anderson AC charger cable 0.6m

Mounting Notes

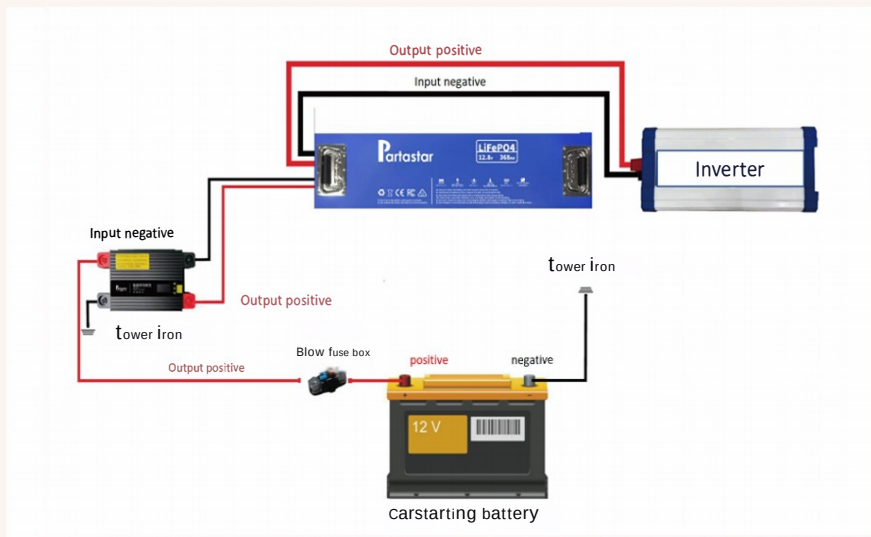
1. Secure the installed auxiliary power unit firmly (to prevent rattling and wear from vehicle vibrations), taking care not to damage the vehicle's original structure.

2. Torque the copper lug screws tightly, and ensure the grounding point's mating surface is free of paint or rust—sand down if necessary (to avoid poor contact and overheating).

3. For safety protection, sheath all cables in corrugated tubing or cable sleeves to prevent abrasion and short circuits.

4. Allow ample clearance around the inverter and onboard quick charger for proper heat dissipation.

5. If the battery housing contacts the vehicle's steel chassis directly, insulate the contact area with materials such as sound-deadening foam.



6. Vehicle Power Wiring Diagram



7. BMS Protection Board

Our lithium battery products feature a unique built-in Battery Management System (BMS) that protects the battery from overcharge, deep discharge, overload, overheat and short-circuit damage, and offers a low self-discharge rate.

The BMS includes a high-temperature disconnect function. When the internal battery temperature reaches 75°C (167°F), the system will automatically disconnect to protect the battery.

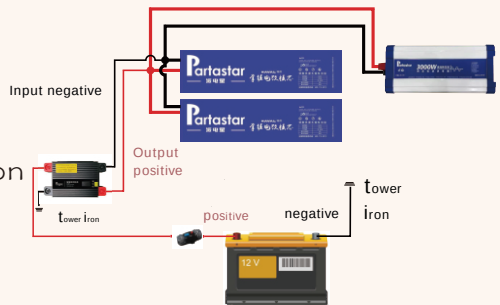
If the charge voltage exceeds 15 V or the discharge voltage falls below 8.8 V, the battery will automatically disconnect. We recommend a charging voltage of 14.4 ± 0.2 V and a discharging voltage of 10.0 ± 0.2 V. If the charging voltage drops below 13.8 V, the battery cannot reach full charge (tolerance 1–2 percent).

When the BMS disconnects the battery for protection, you can reactivate it as follows: Remove all loads from the battery and leave it idle for 30 minutes. The battery will then automatically recover to its normal voltage and can be used after a full charge.

If the battery does not self-recover and its voltage is too low to hold a charge, you can reactivate it in one of two ways. One, use a charger capable of charging from 0 V; connect and charge the battery from 0 V until fully charged, then it will operate normally. Two, connect another 12 V lithium battery in parallel with the original battery for one minute (you may also use a lead-acid battery whose voltage is between 12 V and 14.6 V). After that, fully charge the original battery and it will function normally.

8. Safety Precautions & Battery Handling

- Do not short-circuit
- Do not reverse-connect charger/battery
- Do not disassemble
- Do not expose to fire or $>70^{\circ}\text{C}$
- Do not puncture or weld
- Do not immerse in water
- Do not invert battery orientation
- Do not connect to AC mains
- Do not store with metal items



9. Long-Term Storage

Operating: -20°C to 60°C

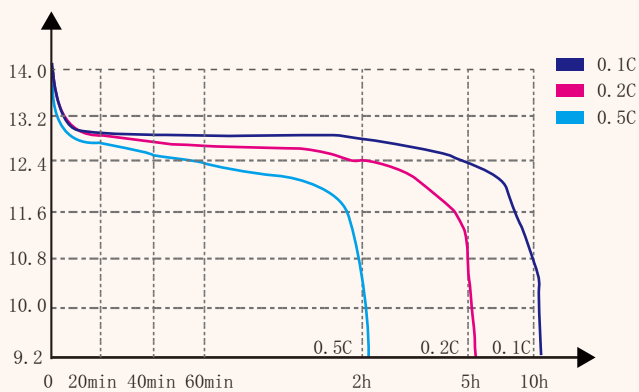
Storage: 10°C to 35°C (50% SOC recommended)

If unused, recharge every 3 months.

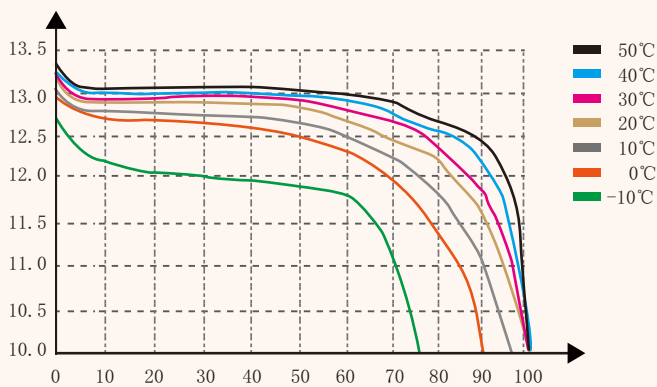
10. Prohibition on Disassembly

If housing is damaged, deformed, or electrolyte leaks, discontinue use and dispose professionally.

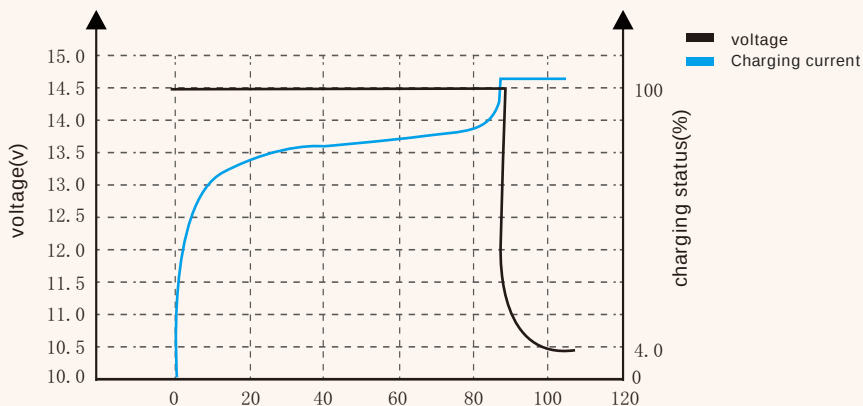
Discharge Curves at Different Speeds (25 C)



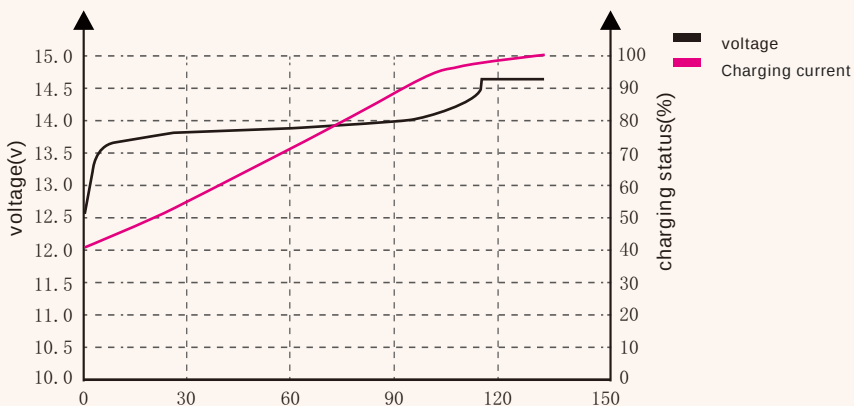
Discharge curves at different temperatures (0.5 °C) online



Charging performance (0.5c, 2.5) online



Charge Status Online (0.5c, 2.5) online



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