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> Power Queen 12V 100Ah Group 24 LiFePO4 Lithium Battery and MPPT Charger Instruction Manual

Power Queen P12V100-100-PERM24-4-A70+P2430-MPPT

Power Queen 12V 100Ah Group 24 LiFePO4 Lithium Battery and MPPT Charger Instruction Manual

Model: P12V100-100-PERM24-4-A70+P2430-MPPT

INTRODUCTION

This manual provides essential information for the safe and efficient use of your Power Queen 12V 100Ah Group 24 LiFePO4 Lithium Battery and 24V 30A MPPT Solar Charger. Please read all instructions carefully before installation and operation to ensure optimal performance and longevity of your products.

The Power Queen 12.8V 100Ah Premium LiFePO4 Battery features Grade-A cells and an upgraded 100A Battery Management System (BMS) for enhanced energy density and comprehensive protection against overcharge, over-discharge, over-current, over-voltage, overload, and short circuits. It is designed to be a direct replacement for Group 24 lead-acid batteries, offering a significantly longer lifespan and higher cycle count for various applications.

WHAT'S IN THE BOX

Your package includes the following items:

- 1x Power Queen 12V 100Ah Group 24 LiFePO4 Battery
- 1x Power Queen 24V 30A MPPT Solar Charger
- User Manual (this document)
- Terminal bolts and protective caps

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Video: Power Queen 12.8V 100Ah LiFePO4 battery unboxing. This video demonstrates the unboxing process of the Power Queen 12.8V 100Ah LiFePO4 battery, showcasing the contents of the package including the battery and accessories.

SPECIFICATIONS

Feature	Detail
Brand	Power Queen
Model	P12V100-100-PERM24-4-A70+P2430-MPPT
Voltage	12.8 Volts
Battery Capacity	100 Amp Hours
Battery Cell Composition	Lithium-Phosphate (LiFePO4)
Item Weight	20 Pounds
Terminal Type	Marine Terminal
BMS	Upgraded 100A BMS with multi-level protection
Lifespan	Up to 10 years / 15000+ Cycles @60%DOD
Charging Voltage (Recommended)	14.6V
Charging Current (Recommended)	20A
Max Continuous Current	100A
Max Continuous Output Power	1280W
Series & Parallel Connections	Supports up to 16 batteries in 4P4S configuration (51.2V 400Ah, 20.48kWh max)

SAFETY INFORMATION

Always prioritize safety when handling batteries. Read and understand all warnings and instructions before use.

- Do not expose the battery to extreme heat, open flames, or immerse in water.
- Do not mix new and old batteries or different models/chemistries.
- Do not disassemble the battery or pierce it with sharp objects.
- Store the battery in a cool, dry place away from direct sunlight.
- Charge the battery every 3 months if it's not used for a long time to prevent deep discharge.
- Ensure proper ventilation during charging and operation to dissipate any heat.
- Use appropriate personal protective equipment (PPE), such as insulated gloves and eye protection, when handling batteries.
- Avoid short-circuiting the battery terminals.

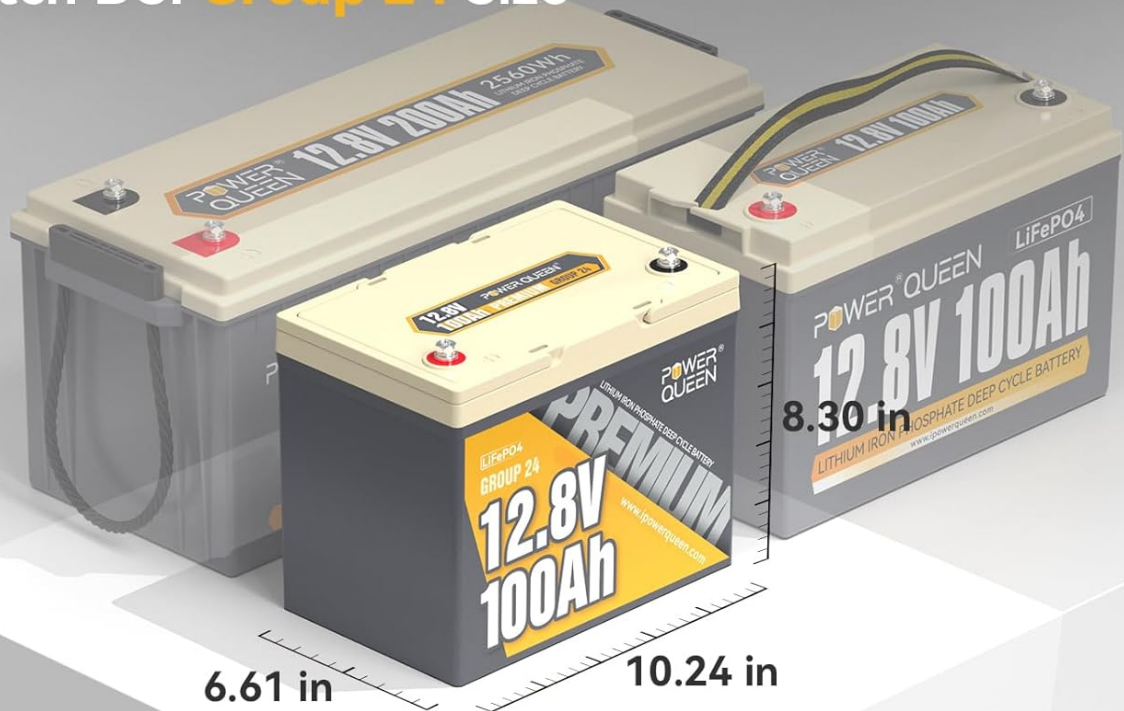
SETUP AND INSTALLATION

The Power Queen 12V 100Ah battery is designed for easy integration into systems requiring Group 24 size batteries. It is suitable for various applications including RVs, solar systems, trolling motors, and camping setups.

1. **Unpacking:** Carefully remove the battery and charger from their packaging. Inspect for any visible damage. If damage is found, do not proceed with installation and contact customer support.
2. **Terminal Connection:** Connect the battery terminals using the provided bolts and caps. Ensure connections are secure and correct polarity is observed (red for positive, black for negative). Loose connections can cause overheating and damage.
3. **Placement:** Install the battery in a secure, well-ventilated location. The compact Group 24 size allows for easy replacement of traditional lead-acid batteries without extensive modifications to your existing electrical system or wiring.
4. **Charger Connection:** Connect the 24V 30A MPPT Solar Charger to your solar panels and the battery. Follow the charger's specific instructions for optimal solar charging. Ensure the charger settings are appropriate for LiFePO4 batteries.
5. **Series & Parallel:** This battery supports connections in series and parallel. For larger capacity, up to 16 batteries can be connected in a 4P4S configuration to create a 51.2V 400Ah battery bank (maximum energy output: 20.48kWh). Consult a qualified technician for complex configurations to ensure proper balancing and safety.

COMPREHENSIVELY UPGRADED **IN SIZE**

Match BCI **Group 24** Size



1/3 LIGHTER
WEIGHT



8X ENERGY
DENSITY

Image: Power Queen 12.8V 100Ah LiFePO4 Battery with dimensions. This image shows the compact size and dimensions of the Power Queen 12.8V 100Ah LiFePO4 battery, highlighting its suitability as a Group 24 replacement.

PERFECT REPLACEMENT OF GROUP 24 LEAD ACID BATTERIES

4000+
Cycle

Discharge Rate

100%DOD

50%DOD

Weight

21 lbs

63.9 lbs

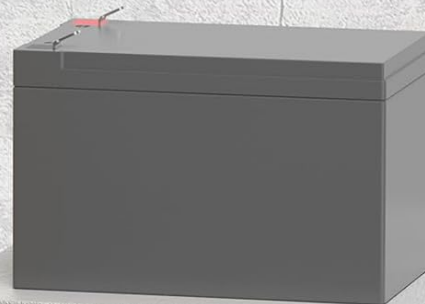
Lifespan

10 Years Service Life

5 Years Service Life



Power Queen Battery
(12V100Ah Premium)



Lead Acid Battery
(12V100Ah)

Image: Power Queen 12.8V 100Ah LiFePO4 Battery compared to a traditional lead-acid battery. This image illustrates the advantages of the LiFePO4 battery, including lighter weight, higher energy density, and longer cycle life compared to lead-acid alternatives.

OPERATING INSTRUCTIONS

The Power Queen LiFePO4 battery is designed for deep cycle applications, providing reliable power for extended periods.

- **Charging:** The recommended charging voltage is 14.6V and charging current is 20A. A full charge from empty typically takes about 5 hours ($100\text{Ah} / 20\text{A} = 5$ hours). Always use a charger compatible with LiFePO4 batteries.
- **Discharging:** The battery can be discharged up to 100% Depth of Discharge (DOD) without significant impact on its lifespan, unlike lead-acid batteries.
- **BMS Protection:** The integrated 100A BMS protects against common electrical issues, ensuring safe operation. If

the battery unexpectedly shuts off, the BMS may have activated due to an abnormal condition.

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Video: Power Queen 12V 100Ah Group 24 Battery overview. This video provides a general overview of the Power Queen 12V 100Ah Group 24 battery, showcasing its features and potential applications in various setups.

MAINTENANCE

Proper maintenance ensures the longevity and optimal performance of your Power Queen battery:

- Keep battery terminals clean and free from corrosion. Use a wire brush and baking soda solution if necessary, then rinse and dry thoroughly.
- Regularly check all connections to ensure they are tight. Loose connections can lead to power loss and heat buildup.
- Store the battery in a cool, dry environment when not in use. Avoid extreme temperatures.
- For long-term storage, charge the battery to approximately 50% State of Charge (SOC) and recharge every 3 months to maintain its health and prevent irreversible damage from deep discharge.

TROUBLESHOOTING

If you encounter issues, refer to the following common troubleshooting steps:

- **Battery Not Charging:**
 - Check all charger connections to ensure they are secure.
 - Verify that the charger is compatible with LiFePO4 batteries and is functioning correctly.
 - Ensure there is power supply to the charger (e.g., solar panels are receiving sunlight, AC outlet is active).
- **Low Power Output:**
 - Inspect all wiring for loose connections, corrosion, or damage.
 - Ensure the battery is fully charged.
 - Check the load requirements to ensure they do not exceed the battery's maximum continuous output.
- **BMS Activation (Battery Shuts Off):**
 - If the battery unexpectedly shuts off, the BMS may have activated due to overcharge, over-discharge, over-current, or over-temperature.
 - Disconnect the load, allow the battery to rest for a few minutes, and then attempt to restart.
 - Address the underlying cause (e.g., reduce load, ensure proper charging voltage, improve ventilation).
- **Unusual Odor, Swelling, or Excessive Heat:** Immediately disconnect the battery from all loads and charging sources. Contact Power Queen customer support without delay.

WARRANTY AND SUPPORT

The Power Queen 12V 100Ah LiFePO4 Battery comes with a 5-year warranty, ensuring peace of mind and reliable

performance. For technical support, warranty claims, or further assistance, please contact Power Queen customer service.

Contact Information:

Website: www.ipowerqueen.com

Email: service@ipowerqueen.com