

[Manuals.plus](#) /

› [Power Queen](#) /

› Power Queen 12V 410Ah LiFePO4 Battery User Manual

Power Queen 12V410Ah

Power Queen 12V 410Ah LiFePO4 Battery User Manual

Model: 12V410Ah

1. INTRODUCTION

This manual provides essential information for the safe and efficient use of your Power Queen 12V 410Ah LiFePO4 Battery. Please read this manual thoroughly before installation and operation. Keep it for future reference.

The Power Queen 12V 410Ah LiFePO4 battery is a high-capacity, deep-cycle lithium iron phosphate battery designed for various applications including solar energy systems, recreational vehicles (RVs), and off-grid power solutions. It offers significant energy storage, long cycle life, and advanced safety features.



Image: Power Queen 12V 410Ah Deep Cycle Lithium Battery integrated into a home energy storage system.

2. SAFETY INFORMATION

WARNING: Failure to follow these safety instructions may result in electric shock, fire, serious injury, or death.

- Always wear appropriate personal protective equipment (PPE) including safety glasses and insulated gloves when handling batteries.
- Do not short-circuit the battery terminals.

- Do not disassemble, puncture, or modify the battery.
- Keep the battery away from heat sources, open flames, and flammable materials.
- Ensure proper ventilation during charging and discharging.
- Use only compatible LiFePO4 chargers with appropriate voltage and current settings.
- Do not connect the battery in series or parallel with other battery types or models unless explicitly stated in the expansion guidelines.
- This battery is not suitable as a starter battery.
- In case of fire, use a Class D fire extinguisher. Water may not be effective.

3. PRODUCT FEATURES

- **High Energy Capacity:** 5248Wh total energy with a 3.2kW maximum load power.
- **Advanced BMS:** Integrated 250A Battery Management System provides protection against overcharge, overcurrent, over-discharge, short circuit, and high temperature.
- **Long Lifespan:** Offers over 4000-15000 cycles (depending on Depth of Discharge) and a design life of up to 10 years.
- **Flexible Charging:** Compatible with solar panels and controllers, specialized LiFePO4 chargers (DC output 14.2V-14.6V), and generators (with a DC-DC charger).
- **Expandable System:** Supports expansion up to 4S4P, allowing for a maximum battery pack of 51.2V 1640Ah and 83.96 kWh total energy.
- **Robust Safety Certifications:** CE, FCC, ROHS, PSE, and IP65 certified for enhanced safety and durability.



Image: Key features of the Power Queen LiFePO4 battery, including EV-grade cells, cycle life, lifespan, IP65 rating, and BMS protection.

4. PACKAGE CONTENTS

Please check the package contents upon receipt to ensure all items are present and undamaged:

- 1 x Power Queen 12.8V 410Ah LiFePO4 Battery
- 1 x Product Manual (this document)
- 1 x Operating Guide
- 2 x Insulating Caps

- 2 x M8 16mm Screws
- 2 x Washers

Contenuto della confezione

- 1 batteria Power Queen da 12,8 V 410 Ah
- 1 manuale del prodotto
- 1 guida operativa
- 2 cappucci isolanti
- 2 viti M8 da 16 mm
- 2 rondelle



Image: Contents of the Power Queen 12.8V 410Ah battery package.

5. SETUP

5.1. Inspection

Before installation, inspect the battery for any visible damage. Ensure terminals are clean and free from corrosion. Verify that all package contents are present.

5.2. Installation Location

Install the battery in a clean, dry, and well-ventilated area. Avoid direct sunlight, excessive heat, and moisture. Ensure the battery is secured to prevent movement or vibration.

5.3. Connecting the Battery

- Ensure all loads are disconnected and the charging source is off before making connections.
- Connect the positive (+) terminal of the battery to the positive (+) terminal of your system (inverter, charge controller, etc.).
- Connect the negative (-) terminal of the battery to the negative (-) terminal of your system.
- Use the provided M8 screws and washers to ensure secure connections. Apply insulating caps after connections are made.
- Ensure all cables are of appropriate gauge for the expected current and are properly crimped.

5.4. Series and Parallel Connections (Expansion)

The Power Queen 12V 410Ah battery supports expansion up to 4S4P (4 series, 4 parallel) for increased voltage and capacity. When connecting multiple batteries:

- Ensure all batteries are of the same brand, model, and capacity.
- Charge all batteries to the same voltage level before connecting them.
- Use appropriate busbars and cables for series and parallel connections.
- For series connections, connect the positive of one battery to the negative of the next.
- For parallel connections, connect positive to positive and negative to negative.
- Refer to the operating guide for detailed diagrams and instructions for specific configurations (e.g., 2S2P, 4S4P).

Flexible Connections for All Energy Needs

Expandable to 4P4S for a 51.2V 1640Ah System



1P  X1 5.24KWh	2P/2S  X2 10.49kWh	4P/4S/2P2S  X4 20.99kWh	2P4S/4P2S  X8 41.98kWh	4P4S  X16 83.96kWh
---	---	--	--	---

Image: Flexible connection options for Power Queen batteries, demonstrating expandability for various energy needs.

6. OPERATING INSTRUCTIONS

6.1. Charging

The battery supports various charging methods:

- **Solar Charging:** Connect to a compatible solar charge controller. Ensure the controller is set for LiFePO4 batteries.
- **LiFePO4 Charger:** Use a specialized LiFePO4 battery charger with a DC output voltage of 14.2V-14.6V.
- **Generator Charging:** A DC-DC charger is required when charging with a generator.

Always monitor the charging process. The BMS will protect the battery from overcharging, but using the correct charger and settings is crucial for optimal battery health.

6.2. Discharging

The battery can continuously discharge at 250A, with a maximum load power of 3.2kW. The BMS will protect against over-discharge. Avoid exceeding the maximum continuous discharge current to prevent damage and ensure longevity.

Lunga durata, alta potenza per soddisfare le tue esigenze energetiche

BMS 250A | 3200W



(100W)

52
ore

Televisione



(50W)

105 ore

Frigorifero



(800W)

6,5
ore

Macchina per caffè



(1500W)

3,5 ore

Scaldabagno

Image: Example of Power Queen battery powering an RV, illustrating long-duration power for common appliances.

7. MAINTENANCE

LiFePO4 batteries require minimal maintenance compared to other battery types. However, following these guidelines will ensure maximum lifespan and performance:

- **Regular Inspection:** Periodically check battery terminals for cleanliness and tightness. Ensure no corrosion is present.
- **Cleaning:** Keep the battery surface clean and dry. Use a dry cloth to wipe off any dust or debris. Do not use solvents or harsh chemicals.
- **Storage:** If storing the battery for an extended period, charge it to approximately 50% State of Charge (SOC) and

store it in a cool, dry place. Recharge every 3-6 months to prevent deep discharge.

- **Temperature:** Operate and store the battery within its specified temperature range to avoid performance degradation.

8. TROUBLESHOOTING

If you encounter issues with your Power Queen battery, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Battery not charging	Incorrect charger, loose connections, BMS protection activated (over-discharge)	Verify charger compatibility and settings. Check all cable connections. If BMS is active, try a compatible charger to re-activate.
No power output	Battery discharged, BMS protection activated (over-discharge, overcurrent, short circuit), loose connections	Check battery voltage. Recharge if low. Inspect connections. If BMS is active, remove load and allow it to reset.
Battery overheating	Excessive charge/discharge current, poor ventilation, high ambient temperature	Reduce load/charge current. Ensure adequate ventilation around the battery. Move to a cooler environment if possible. BMS will shut down if temperature is too high.
Reduced capacity/runtime	Aging battery, consistent deep discharges, operating outside optimal temperature range	Ensure proper charging and avoid consistent deep discharges. Operate within recommended temperature limits.

If the problem persists after attempting these solutions, please contact Power Queen customer support.

9. SPECIFICATIONS

Specification	Value
Brand	Power Queen
Model Number	12V410Ah
Battery Cell Composition	Lithium Iron Phosphate (LiFePO4)
Nominal Voltage	12.8 Volts
Capacity	410 Ah
Energy	5248 Wh
BMS Continuous Charge/Discharge Current	250 A
Maximum Load Power	3.2 kW
Cycle Life	4000+ cycles (100% DOD) to 15000 cycles (60% DOD)

Specification	Value
Lifespan	Up to 10 years
Item Dimensions (LxWxH)	56 x 26.9 x 22 cm (22.05 x 10.59 x 8.66 inches)
Item Weight	36.4 Kilograms (80.25 lbs)
Certifications	CE, FCC, ROHS, PSE, IP65
Reusability	Rechargeable



Image: Dimensions and weight specifications of the Power Queen 12.8V 410Ah LiFePO4 battery.

10. WARRANTY AND SUPPORT

10.1. Warranty

The Power Queen 12V 410Ah LiFePO4 Battery comes with a **5-year warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use. It does not cover damage caused by misuse, abuse, unauthorized modification, or improper installation.

10.2. Customer Support

For any questions, technical assistance, or warranty claims, please contact Power Queen customer service. You can typically find contact information on the official Power Queen website or through your purchase platform.

Seller: Power Queen EU

We are committed to providing satisfactory service and support for your Power Queen products.

11. APPLICATIONS

The Power Queen 12V 410Ah LiFePO4 battery is versatile and suitable for a wide range of applications:

- **Solar Energy Systems:** Ideal for residential and commercial solar installations, providing reliable energy storage.
- **Recreational Vehicles (RVs):** Powers appliances and electronics in RVs, campers, and marine vessels.
- **Off-Grid Systems:** Provides independent power for remote cabins, workshops, and other off-grid setups.
- **Home Energy Storage:** Can be integrated into home backup systems to ensure power during outages.

Numerose applicazioni



Image: Diverse applications for the Power Queen LiFePO4 battery, including home backup, RVs, off-grid, and solar systems.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for

conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question