RoyPow P085MI

RoyPow 24V 15A LiFePO4 Battery Charger Instruction Manual

Brand: RoyPow | **Model:** P085MI

1. INTRODUCTION AND OVERVIEW

This manual provides essential instructions for the safe and efficient operation of your RoyPow 24V 15A LiFePO4 Battery Charger. Designed specifically for 24V (25.6V) Lithium LiFePO4 Batteries, this smart charger ensures optimal performance and extends battery lifespan through its advanced charging algorithms and multiple protection features. Please read this manual thoroughly before use and retain it for future reference.

Figure 1: RoyPow 24V 15A LiFePO4 Battery Charger with included alligator clips.

2. SAFETY INSTRUCTIONS

- **Read All Instructions:** Before using the charger, read all instructions and cautionary markings on the charger, the battery, and the product using the battery.

- **Ventilation:** Ensure adequate ventilation during charging. Do not cover the charger.

- **Battery Compatibility:** This charger is designed exclusively for 24V (25.6V) Lithium LiFePO4 batteries. Do not use it with other battery types (e.g., lead-acid, Ni-Cd, Ni-MH) as this may cause damage, fire, or explosion.

- **Connection:** Always connect the charger to the battery terminals correctly (positive to positive, negative to negative) before plugging the charger into an AC power outlet.

- **Disconnecting:** Disconnect the AC power before disconnecting the battery from the charger.

- **Indoor Use:** This charger is intended for indoor use only. Do not expose to rain or moisture.

- **Damage:** Do not operate the charger if it has received a sharp blow, been dropped, or otherwise damaged. Contact customer support for assistance.

- **Children:** Keep out of reach of children.

- **Temperature:** Avoid charging in extreme temperatures. The charger features a built-in cooling fan to prevent overheating.

- **Modification:** Do not disassemble or modify the charger. Unauthorized modifications may result in electric shock, fire, or damage to the product.

3. PRODUCT FEATURES

- **Dedicated LiFePO4 Charging:** Specifically designed for 24V (25.6V) Lithium LiFePO4 Batteries, ideal for 24V 30 Amp LiFePO4 batteries and above.
- **0V Charging Function:** Reactivates or repairs long-unused batteries, including those with BMS cut-off protection.
- **High Performance:** Charging Voltage: 29.2V, Charging Current: 15A, Rated Input Voltage: 90-120Vac. Fully charges batteries in 2-5 hours (depending on capacity).
- **Durable Construction:** Made with unibody aluminum alloy and heavy-duty copper wire for passive cooling, safety, and long lifespan.
- **Multiple Protections:** Includes safeguards against over voltage, over current, short circuit, over temperature, overload, and reverse polarity connection.
- **Smart Charging Algorithm:** Utilizes CC/CV (Constant Current/Constant Voltage) algorithm to boost charging efficiency and maximize battery lifespan, regardless of BMS presence.
- **Automatic Shut-off:** Automatically stops charging when the battery is fully charged.
- **LED Indicator Lights:** Provides clear status updates (Red for charging, Green for full).
- **Built-in Cooling Fan:** Heat sensor-controlled silent fan prevents overheating and ensures quiet operation.
- **Compact and Portable:** Lightweight design with good heat dissipation, suitable for travel or camping.

Figure 2: The charger features multiple protection functions for safe operation.

4. PACKAGE CONTENTS

Verify that all items are present in your package. If any items are missing or damaged, please contact RoyPow customer support.

- RoyPow 24V 15A LiFePO4 Battery Charger (Model P085MI)
- AC Power Cord (Standard US Plug)
- DC Output Cable with Anderson Connector
- Anderson to Alligator Clip Adapter
- Anderson to O-shaped M8 Terminal Adapter
- Instruction Manual (This document)

Figure 3: Included accessories: Standard US Plug, cable strap, and various battery connection adapters.

5. SETUP AND CONNECTION

Follow these steps to properly connect your RoyPow battery charger to your LiFePO4 battery.

1. **Prepare the Battery:** Ensure your 24V LiFePO4 battery is in a safe, well-ventilated area.

2. **Select Connection Method:** Choose the appropriate adapter for your battery:
    - For battery terminals with posts: Use the Anderson to Alligator Clip Adapter.
    - For battery terminals with bolts: Use the Anderson to O-shaped M8 Terminal Adapter.

3. **Connect to Battery (DC Output):**
    - Connect the **red** (positive, +) clamp/terminal to the **positive** (+) battery terminal.
    - Connect the **black** (negative, -) clamp/terminal to the **negative** (-) battery terminal.
    - Ensure connections are secure.

4. **Connect Charger to Adapter:** Plug the DC output cable from the charger into the chosen Anderson adapter.

5. **Connect to AC Power:** Plug the AC power cord into a standard 90-120Vac wall outlet.

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Video 1: This video demonstrates the connection process for a 12V/24V battery charger, showing how to connect the charger to the mains power and then to the battery using different adapters. While the video shows a 20A charger, the connection principles are identical for the 15A model.

6. OPERATING INSTRUCTIONS

6.1. Charging Process

Once properly connected, the charger will automatically begin the charging process. The built-in smart charging algorithm (CC/CV) will optimize the charge for your LiFePO4 battery.

- **LED Indicator:**
    - A **red** LED light indicates the battery is currently charging.
    - A **green** LED light indicates the battery is fully charged.

- The charger will automatically stop charging once the battery reaches full capacity, preventing overcharge.

Figure 4: The charger's LED indicator turns green when the battery is fully charged.

6.2. 0V Charging / BMS Reactivation

The RoyPow charger supports a 0V charging function, which can reactivate or repair deeply discharged LiFePO4 batteries. If your battery's Battery Management System (BMS) has triggered a low-voltage cut-off, this feature can help restore the battery to a normal voltage state.

- Connect the charger to the deeply discharged battery as described in Section 5.
- The charger will attempt to detect and reactivate the battery. This process may take some time.
- Once reactivated, the charger will proceed with normal charging.

Figure 5: The charger can reactivate batteries with voltage down to 0V, resetting the BMS.

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Video 2: This video from Li Time US explains how to reactivate a LiFePO4 battery that has stopped working or won't charge, which is relevant to the 0V charging feature of this RoyPow charger.

7. MAINTENANCE

- **Cleaning:** Disconnect the charger from both AC power and the battery before cleaning. Use a dry, soft cloth to wipe the exterior. Do not use harsh chemicals or abrasives.
- **Storage:** Store the charger in a cool, dry place when not in use. Avoid extreme temperatures and direct sunlight.
- **Cable Care:** Inspect cables and connectors regularly for any signs of damage. Replace damaged cables immediately.
- **Battery Storage:** For long-term battery storage, refer to your battery manufacturer's recommendations for optimal charge levels.

8. TROUBLESHOOTING

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

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Charger not turning on / No LED activity	No AC power; Faulty power cord; Internal fault.	Check AC outlet and power cord. Ensure the charger is properly plugged in. Try a different outlet. If issue persists, contact support.
LED remains green but battery is not fully charged	Incorrect battery connection; Battery fault; Charger fault.	Verify battery connections (positive to positive, negative to negative). Ensure the battery is a 24V LiFePO4 type. If the battery is deeply discharged, allow time for 0V charging to initiate.
LED remains red for an extended period	Large battery capacity; Deeply discharged battery; Battery fault.	Charging time varies with battery capacity and discharge level (2-5 hours for typical batteries). If charging time is excessively long, check battery health or contact support.
Charger gets excessively hot	Poor ventilation; Overload; Internal fault.	Ensure the charger is in a well-ventilated area and not covered. The built-in fan should manage normal operating temperatures. If overheating is severe, disconnect immediately and contact support.

For issues not covered here, please contact RoyPow customer support.

9. SPECIFICATIONS

Feature	Specification
Model Number	P085MI
Input Voltage	90-120Vac
Output Voltage	29.2V
Charging Current	15A
Battery Type	24V LiFePO4 (Lithium Iron Phosphate)
Product Dimensions	5.08 x 7.83 x 10.94 inches
Item Weight	4.58 pounds
Safety Certifications	UL, CE, FCC

10. WARRANTY AND SUPPORT

RoyPow products are designed for reliability and performance. For warranty information, technical support, or service inquiries, please refer to the official RoyPow website or contact their customer service directly.

- **Manufacturer:** RoyPow
- **Seller:** RoyPow (via Amazon)
- **Return Policy:** 2026 days (refund/replacement) - *Please check current Amazon policy for details.*
- **Protection Plans:** Optional 2-Year and 3-Year Protection Plans are available for purchase.
- **Official Website:** Visit the RoyPow Store on Amazon