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› ExpertPower EPC125 12.8V 5A Smart Charger for LiFePO4 Batteries User Manual

ExpertPower EPC125

ExpertPower EPC125 12.8V 5A Smart Charger User Manual

For Lithium LiFePO4 Deep Cycle Rechargeable Batteries

1. INTRODUCTION

This manual provides essential information for the safe and efficient use of your ExpertPower EPC125 12.8V 5A Smart Charger. This charger is specifically designed for 12V LiFePO4 (Lithium Iron Phosphate) deep cycle rechargeable batteries. Please read this manual thoroughly before operating the charger and retain it for future reference.



Image 1.1: ExpertPower EPC125 Smart Charger with included accessories.

2. SAFETY INFORMATION

To ensure safe operation and prevent damage to the charger or battery, observe the following safety precautions:

- This charger is intended for 12.8V LiFePO4 battery packs with a capacity greater than 5000mAh (5Ah) only. Do not use with other battery types or voltages.
- Operate the charger in a dry location only. Avoid exposure to moisture or liquids.
- Risk of electric shock. Do not open the charger casing. There are no user-serviceable parts inside.
- Always unplug the charger from the AC outlet after use and before disconnecting from the battery.
- Ensure proper ventilation during charging.
- Keep out of reach of children.

EXPERTPOWER®

12.8V 5Amp
Constant Current/Constant Voltage
- Charger for LiFePO4 Battery -

Model EPC125
Input 100-120 Vac 50-60Hz
Output 14.4Vdc 5.0A

LED INDICATORS

Red - Charging
Green - Charged

WIRES

Red - Positive
Black - Negative



CAUTION

1. Charge 12.8V LiFePO4 battery pack & capacity >5000mAh only.
2. Dry location use only.
3. Risk of electric shock if opened.
4. Unplug the charger from AC outlet after use.

CE



MADE IN CHINA

Image 2.1: Rear view of the charger with safety warnings and specifications.

3. PRODUCT FEATURES

The ExpertPower EPC125 Smart Charger incorporates advanced technology for optimal LiFePO4 battery charging:

- **Dedicated LiFePO4 Charging:** Uniquely designed for 12V LiFePO4 batteries.
- **2-Stage CC/CV Algorithm:** Utilizes a constant current/constant voltage (CC/CV) charge algorithm to protect the battery's structure, boost charging efficiency, and maximize lifespan.
- **BMS Reset Capability:** Designed to reset Battery Management Systems (BMS) by allowing current into batteries reading down to 0V.
- **Smart LED Indicators:** Provides clear status updates during the charging process.

FEATURES

Our **LiFePO4 Smart Charger** is uniquely designed for **12V LiFePO4 batteries**, implementing the special **2-stage constant current/constant voltage (CC/CV)** charge algorithm with smart LED indicators.



Additionally, the **LiFePO4 Smart Charger** is designed to reset battery BMS when active by allowing current into batteries reading from down to **0V**.

Image 3.1: Key features of the ExpertPower LiFePO4 Smart Charger.

PRECISE VS. MULTI-TYPE

Smart LiFePO4 Charger



- Specifically designed for LiFePO4 12V Batteries.
- Resets and charges lithium iron phosphate batteries after a BMS 0V protection trigger.
- 2-stage constant current/constant voltage (CC/CV) charge algorithm.
- Protects your LiFePO4 battery's delicate structure without sacrificing charge time.
- Boosts charging efficiency up to 90%.
- Maximizes lifespan through its careful utilization of the CC/CV algorithm regardless if the battery has a BMS or not.

VS

Multi-Type Charger



- System-wide operation solely based on SLA charging algorithms.
- Generic charge cycling for LiFePO4 batteries regardless of BMS systems.
- Lack of efficient cycling can lead to potential BMS triggers or cell degradation.
- Cannot charge a LiFePO4 battery after a BMS 0V protection trigger.
- No 2-stage constant current/constant voltage (CC/CV) charge algorithm.
- Keeps charging efficiency at a bare minimum.

Image 3.2: Comparison highlighting the benefits of a dedicated LiFePO4 charger.

4. SETUP AND CONNECTION

Follow these steps to properly connect your charger to a LiFePO4 battery:

1. **Connect Charger to AC Power:** Plug the charger's AC cord into a standard 100-120V AC wall outlet. The charger's LED will illuminate green, indicating power on and idle status.
2. **Select Connection Method:** Choose between the alligator clips or the blot-screw wires based on your battery's terminals. Ensure the connection is secure.
3. **Connect to Battery:** Connect the positive (+) red terminal of the charger to the positive (+) terminal of the battery. Connect the negative (-) black terminal of the charger to the negative (-) terminal of the battery.
4. **Verify Connection:** Ensure all connections are firm and correct polarity is observed.

HOW TO CONNECT

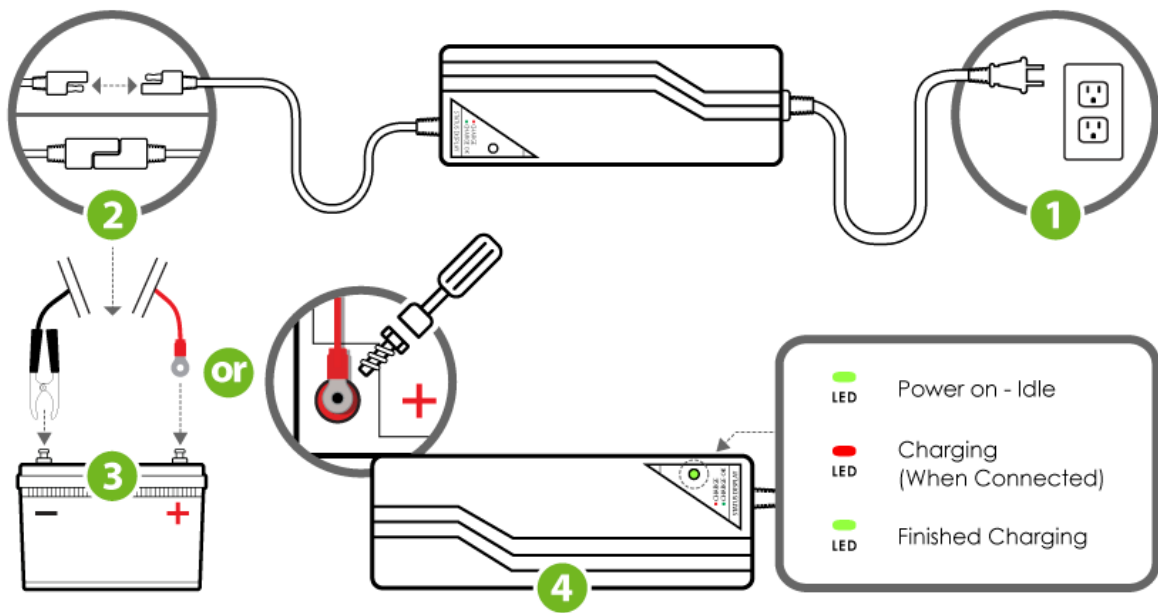


Image 4.1: Step-by-step connection guide for the charger.

5. OPERATION

Once connected, the charger will automatically begin the charging process.

5.1 LED Indicators

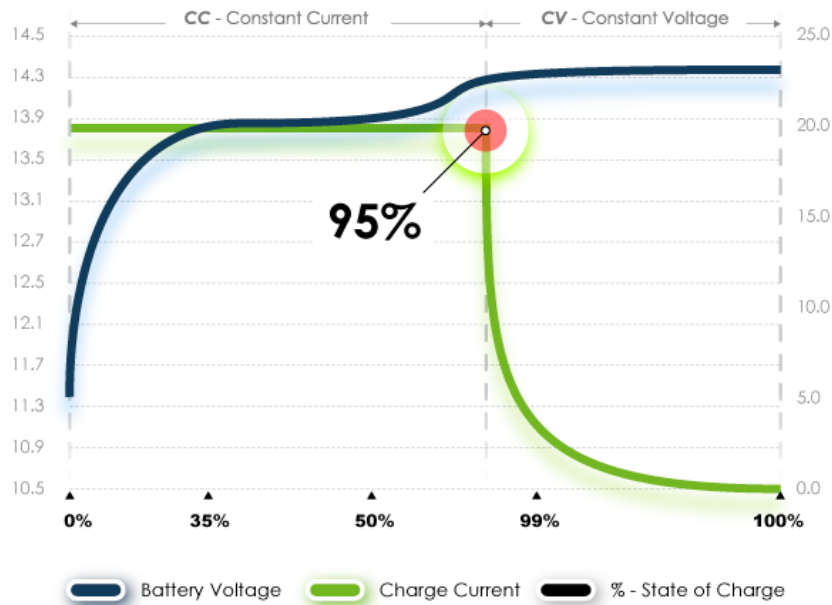
- **Green LED (Solid):** Indicates the charger is powered on and idle (not connected to a battery or battery is fully charged).
- **Red LED (Solid):** Indicates the battery is currently charging.
- **Green LED (Solid, after Red):** Indicates the battery is fully charged.

5.2 Charging Process

The charger employs a 2-stage Constant Current (CC) / Constant Voltage (CV) algorithm:

- **Constant Current (CC) Stage:** The charger delivers a steady 5A current until the battery voltage reaches approximately 14.4V. During this stage, the red LED will be illuminated.
- **Constant Voltage (CV) Stage:** Once 14.4V is reached, the charger maintains this voltage while the current gradually decreases. When the current drops to a low threshold (0.3-0.7A), the battery is considered fully charged, and the LED will turn green.

2-STAGE CHARGING ALGORITHM



ExpertPower EPC125 charger

is uniquely designed for **12V LiFePO4 batteries**, implementing the special **2-stage constant current/constant voltage (CC/CV)** charge algorithm, it protects your LiFePO4 battery's delicate structure by boosting charging efficiency and maximizing lifespan through its careful utilization.

Image 5.1: Illustration of the 2-stage charging algorithm.

5.3 Estimated Charging Times

The charging time depends on the battery's capacity and its initial state of charge. Approximate charging times for various LiFePO4 battery capacities are:

CHARGING TIME



Image 5.2: Estimated charging durations for common LiFePO4 battery capacities.

6. MAINTENANCE

The ExpertPower EPC125 charger requires minimal maintenance:

- Keep the charger clean and free from dust and debris. Use a dry cloth for cleaning.
- Store the charger in a dry, cool place when not in use.
- Regularly inspect the cables and connectors for any signs of damage. Do not use if cables are frayed or connectors are damaged.

7. TROUBLESHOOTING

If you encounter issues with your charger, consider the following:

- **Charger not turning on:** Ensure the AC power cord is securely plugged into a live outlet. Check the outlet with another device.
- **No charging (Green LED remains on after connecting to battery):** Verify that the battery connections are secure and correct (positive to positive, negative to negative). Ensure the battery voltage is not extremely low (below 0V, though the charger is designed to reset BMS from 0V, extreme cases might require specific attention).
- **Charging takes too long:** Confirm the battery capacity is within the recommended range for a 5A charger (10Ah and above). Very large capacity batteries will naturally take longer to charge.
- **Charger gets warm:** It is normal for the charger to generate some heat during operation. Ensure adequate ventilation around the unit. Excessive heat may indicate an issue; discontinue use and contact support if it feels unusually hot.

For further assistance, please contact ExpertPower customer support.

8. SPECIFICATIONS

Specification	Detail
Model Number	EPC125
Input Voltage	100-120 Vac, 60 Hz
Output Voltage	14.4 Vdc
Charging Current	5.0 A
Cut-off Current	0.3-0.7 A
Recommended Battery Capacity	10 Ah and above (LiFePO4)
LED Indicators	Red: Charging, Green: Charged
Product Dimensions	1.8 x 2.5 x 1.8 inches (4.57 x 6.35 x 4.57 cm)
Item Weight	1 pound (0.45 kg)
Manufacturer	ExpertPower

9. WARRANTY AND SUPPORT

ExpertPower stands behind its products with a commitment to quality and customer satisfaction.

- **Money Back Guarantee:** This product includes a 30-day money-back guarantee.
- **Warranty:** A 1-year hassle-free warranty covers manufacturing defects and issues under normal use.

For warranty claims, technical support, or any questions regarding your ExpertPower charger, please visit the official ExpertPower website or contact their customer service department directly.

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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