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› ExpertPower 12V 2A Smart Charger for Lithium LiFePO4 Deep Cycle Rechargeable Batteries [UL Listed]

ExpertPower EPC122

ExpertPower 12V 2A Smart Charger User Manual

Model: EPC122

INTRODUCTION

Thank you for choosing the ExpertPower 12V 2A Smart Charger. This charger is specifically designed for 12V Lithium Iron Phosphate (LiFePO4) deep cycle rechargeable batteries. It utilizes an advanced 2-stage Constant Current/Constant Voltage (CC/CV) charging algorithm to ensure efficient and safe charging, maximizing battery lifespan. This manual provides essential information for the proper setup, operation, maintenance, and troubleshooting of your charger.

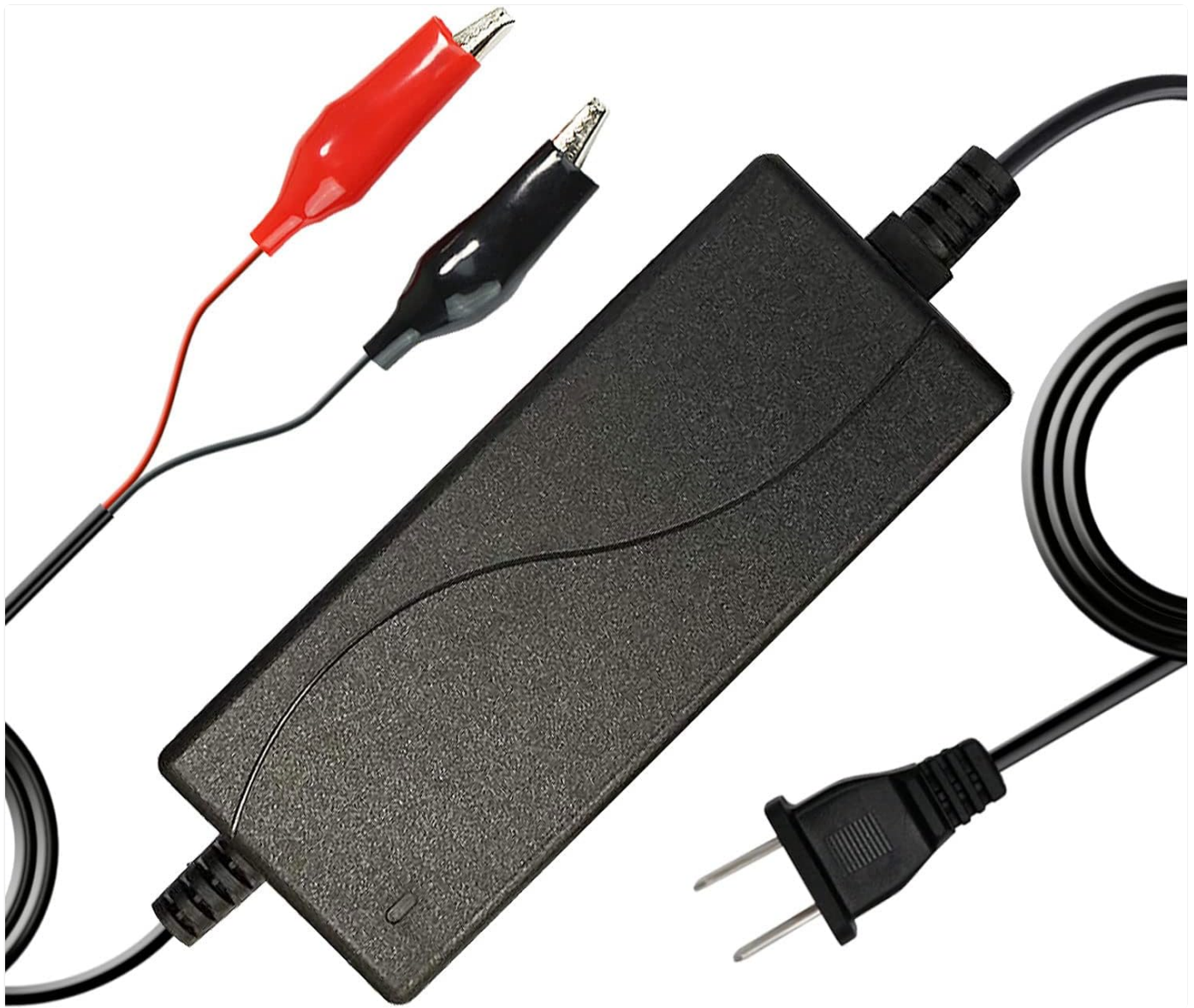


Image: The ExpertPower 12V 2A Smart Charger, showing the main unit, power cord with plug, and battery connection cables with red and black alligator clips.

SAFETY INFORMATION

Please read all safety instructions carefully before using the charger. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- This charger is designed exclusively for 12V LiFePO4 battery packs. Do not attempt to charge other battery types.
- The charger is rated for 12.8V 30Ah (max) LiFePO4 batteries.
- Use the charger in a dry location only. Avoid exposure to rain, moisture, or excessive humidity.
- Do not open the charger casing. There is a risk of electric shock. All repairs must be performed by qualified personnel.
- Always unplug the charger from the AC outlet after use and before making or breaking connections to the battery.
- Ensure proper ventilation during charging. Do not cover the charger.
- Keep out of reach of children.
- Do not operate the charger if it has been dropped or damaged in any way.
- Ensure the battery terminals are clean before connecting the charger.
- Connect the red (+) clip to the positive battery terminal and the black (-) clip to the negative battery terminal.

EXPERTPOWER[®]

12.8V 2Amp
Constant Current/Constant Voltage
- Charger for LiFePO4 Battery -

Model EPC122

Input..... 100-240 Vac 50-60Hz

Output..... 14.4Vdc 2.0A

LED INDICATORS

Red - Charging
Green - Charged

WIRES

Red - Positive
Black - Negative



CAUTION



1. Charge 12V LiFePO4 battery pack, Rated 12.8V 30Ah(max).
2. Dry location use only.
3. Risk of electric shock if opened.
4. Unplug the charger from AC outlet after use.



MADE IN CHINA



Image: The back label of the ExpertPower charger, detailing input/output specifications, LED indicator meanings, and critical safety cautions regarding battery type, maximum capacity, dry location use, and risk of electric shock if opened.

PRODUCT FEATURES

The ExpertPower 12V 2A Smart Charger is engineered with advanced features for optimal LiFePO4 battery charging:

- **Dedicated LiFePO4 Charging:** Uniquely designed for 12V LiFePO4 batteries, ensuring compatibility and optimal performance.
- **2-Stage CC/CV Algorithm:** Implements a special Constant Current/Constant Voltage charge algorithm for efficient and safe charging, protecting the battery's delicate structure.
- **Smart LED Indicators:** Provides clear status updates during the charging process.
- **BMS Reset Technology:** Designed to reset all types of Battery Management Systems (BMS) when active by allowing current into batteries reading down to 0V. This feature helps recover batteries that have entered a low-voltage protection state.
- **High Efficiency:** Boosts charging efficiency up to 90%, maximizing lifespan through careful utilization of the CC/CV algorithm, regardless of whether the battery has a BMS.
- **Compact Design:** Lightweight and portable for convenient use.

Smart LiFePO4 Charger Features

Dimensions: 4.5 x 1.8 x 1.3 in

Weight: 0.5 lbs



Image: A detailed view of the charger highlighting its dimensions (4.5 x 1.8 x 1.3 inches) and weight (0.5 lbs), along with labels for the Smart Charger unit, 3 ft AC Cord, LED Indicator, and Alligator Clips with 4 ft Cord.

EXPERTPOWER®

LiFePO4

SMART CHARGER



**Specifically Made for
LiFePO4 Batteries**

- **12V 2A Lithium Charger**
- **Intelligently Programed**
- **Efficiently Easy**
- **BMS Compatible**

Image: The ExpertPower LiFePO4 Smart Charger, emphasizing its specific design for LiFePO4 batteries, its 12V 2A lithium charging capability, intelligent programming, efficient and easy use, and BMS compatibility.

SETUP

Follow these steps to set up your ExpertPower Smart Charger:

1. **Inspect the Charger:** Before each use, visually inspect the charger, cables, and connectors for any signs of damage. Do not use if damaged.
2. **Prepare the Battery:** Ensure the 12V LiFePO4 battery terminals are clean and free of corrosion.
3. **Connect to Battery:**
 - Connect the **RED** alligator clip to the **positive (+)** terminal of the LiFePO4 battery.
 - Connect the **BLACK** alligator clip to the **negative (-)** terminal of the LiFePO4 battery.

Ensure a secure connection.

4. **Connect to Power Outlet:** Plug the charger's AC power cord into a standard 100-240V AC, 50-60Hz wall outlet.

HOW TO CONNECT

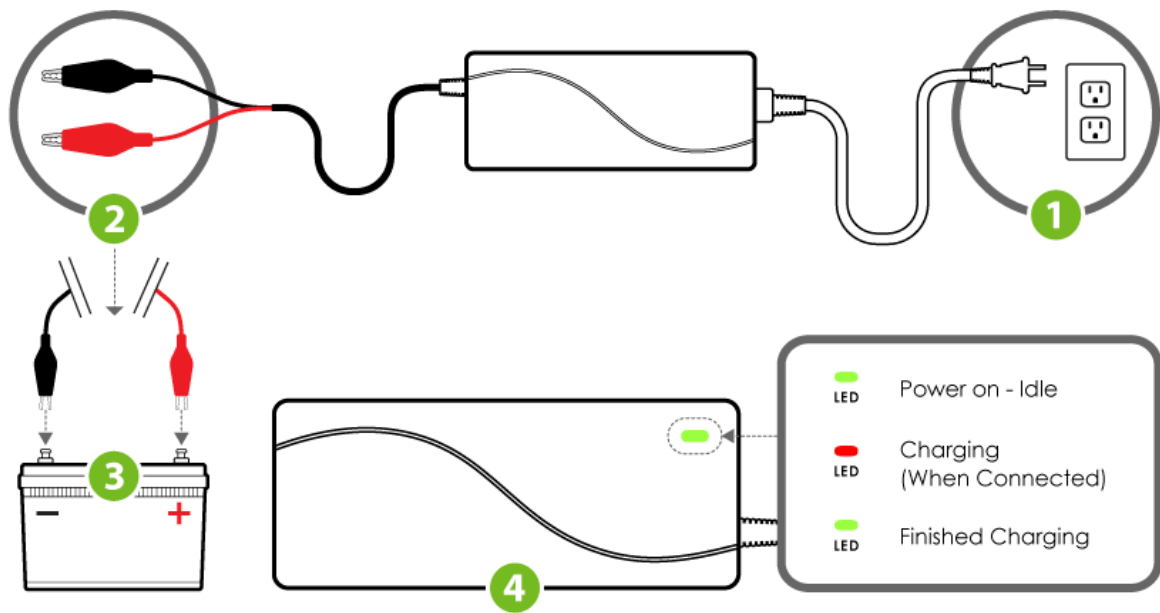


Image: A step-by-step diagram showing the connection process: (1) plugging the charger into a wall outlet, (2) connecting the alligator clips to the charger, (3) attaching the clips to the battery terminals (red to positive, black to negative), and (4) observing the LED indicator for charging status.

OPERATING INSTRUCTIONS

Once the charger is set up, it will automatically begin the charging process.

LED Indicator Status:

LED Color	Status
Red	Charging (when connected to battery)
Green	Fully Charged
Green (Idle)	Power On (not connected to battery or battery not detected)

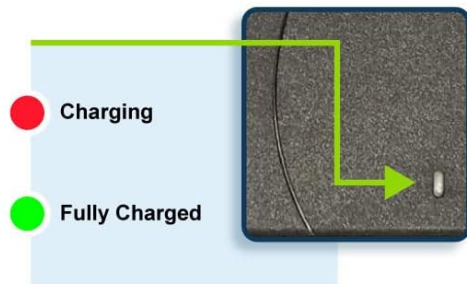
The charger will automatically switch from Constant Current (CC) to Constant Voltage (CV) mode as the battery approaches full charge. Once the battery is fully charged, the LED indicator will turn green.

BMS Reset Feature:

This charger is designed to reset a Battery Management System (BMS) that has triggered a low-voltage protection. By applying current to batteries reading down to 0V, the charger can reactivate the BMS, allowing the battery to be charged again.

Smart BMS Reset & Charge Technology

- The 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: A visual representation of the Smart BMS Reset & Charge Technology. It shows the charger connected to a LiFePO4 battery, with an arrow indicating a "0V Reset" capability. The diagram also illustrates the LED indicators: red for charging and green for fully charged.

CHARGING TIME

The charging time depends on the capacity (Ah) and the current state of charge of your LiFePO4 battery. Below is an approximate charging time guide for a fully discharged battery:

- 5 Ah Battery: Approximately 2.5 hours
- 10 Ah Battery: Approximately 5 hours
- 12 Ah Battery: Approximately 6 hours
- 20 Ah Battery: Approximately 10 hours

These times are estimates and may vary based on battery condition, ambient temperature, and other factors.

CHARGING TIME



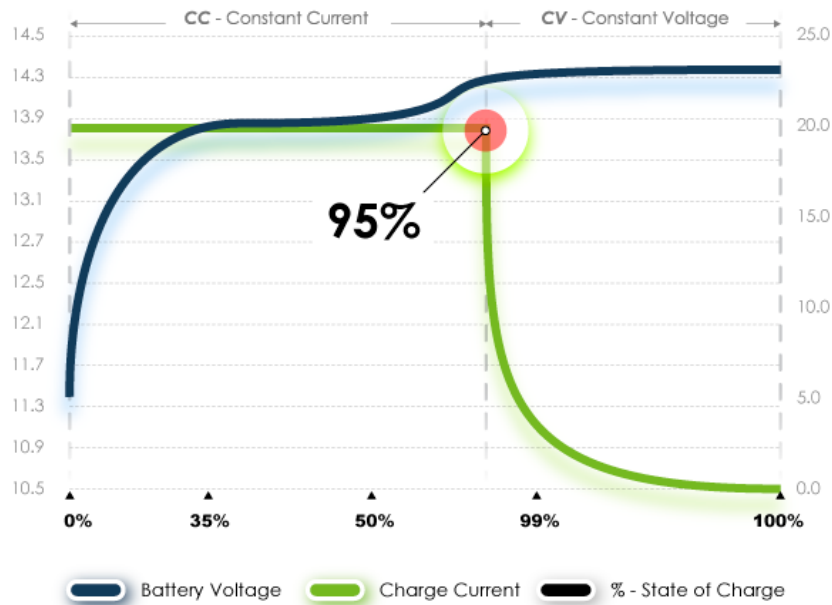
Image: A bar chart illustrating the approximate charging times for different LiFePO4 battery capacities (5 Ah, 10 Ah, 12 Ah, 20 Ah) when using the ExpertPower 2A charger.

2-STAGE CHARGING ALGORITHM (CC/CV)

The ExpertPower EPC122 charger employs a sophisticated 2-stage Constant Current/Constant Voltage (CC/CV) charging algorithm specifically optimized for 12V LiFePO4 batteries. This method ensures efficient charging while protecting the battery and maximizing its lifespan.

- **Constant Current (CC) Stage:** In the initial phase, the charger delivers a constant current (2A) to the battery. The battery voltage rises steadily during this stage. This phase charges the battery rapidly up to approximately 95% of its capacity.
- **Constant Voltage (CV) Stage:** Once the battery voltage reaches a predetermined level (14.4V), the charger switches to the Constant Voltage stage. During this phase, the voltage is held constant, and the charging current gradually decreases as the battery approaches full charge. This ensures the battery is safely topped off without overcharging.

2-STAGE CHARGING ALGORITHM



ExpertPower EPC122 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: A graph depicting the 2-stage CC/CV charging algorithm. It shows battery voltage increasing during the Constant Current phase, then stabilizing at 14.4V during the Constant Voltage phase while the charge current decreases, reaching 95% charge efficiently.

PRECISE CHARGING VS. MULTI-TYPE CHARGERS

The ExpertPower Smart LiFePO4 Charger offers distinct advantages over generic multi-type chargers:

ExpertPower Smart LiFePO4 Charger	Generic Multi-Type Charger
Specifically designed for LiFePO4 12V Batteries.	System-wide operation solely based on SLA charging algorithms.
Resets and charges lithium iron phosphate batteries after a BMS 0V protection trigger.	Cannot charge a LiFePO4 battery after a BMS 0V protection trigger.
2-stage constant current/constant voltage (CC/CV) charge algorithm.	No 2-stage constant current/constant voltage (CC/CV) charge algorithm.
Protects your LiFePO4 battery's delicate structure without sacrificing charge time.	Generic charge cycling for LiFePO4 batteries regardless of BMS systems. Lack of efficient cycling can lead to potential BMS triggers or cell degradation.
Boosts charging efficiency up to 90%.	Keeps charging efficiency at a bare minimum.
Maximizes lifespan through its careful utilization of the CC/CV algorithm regardless if the battery has a BMS or not.	

Precise Charging VS Multi-Type Chargers



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 (CC/CV) current/constant voltage 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: A visual comparison highlighting the advantages of the ExpertPower Smart LiFePO4 Charger over generic multi-type chargers, detailing differences in design, BMS compatibility, charging algorithms, and efficiency.

MAINTENANCE

Proper maintenance ensures the longevity and optimal performance of your charger.

- **Cleaning:** Disconnect the charger from both the AC outlet and the battery before cleaning. Wipe the exterior with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Storage:** Store the charger in a cool, dry place when not in use. Keep it away from direct sunlight, heat sources, and moisture.
- **Cable Care:** Avoid kinking or stretching the cables. Store them neatly to prevent damage.
- **Inspection:** Periodically inspect the charger, cables, and connectors for any signs of wear, cuts, or damage. If any damage is found, discontinue use and contact customer support.

TROUBLESHOOTING

If you encounter issues with your ExpertPower Smart Charger, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Charger LED is off.	No power from AC outlet; Charger malfunction.	Check if the AC outlet is working by plugging in another device. Ensure the charger is securely plugged in. If still off, the charger may be faulty.
Charger LED is green but battery is not charging (or not fully charged).	Incorrect battery connection; Battery is already full; Battery is severely discharged (0V protection triggered); Faulty battery.	Ensure alligator clips are correctly and securely connected (red to +, black to -). Verify battery voltage. If battery is at 0V, the charger's BMS reset feature should activate; allow time. If battery is faulty, it may not accept a charge.
Charger LED is red but charging takes too long.	Battery capacity is larger than expected; Battery is deeply discharged; Ambient temperature is too low.	Refer to the "Charging Time" section for estimated durations. Ensure the battery capacity is within the charger's recommended range (up to 30Ah). Charge in a moderate temperature environment.
Charger gets hot during charging.	Normal operation; Poor ventilation.	A slight warmth is normal. Ensure the charger is placed in a well-ventilated area and not covered. If it becomes excessively hot, disconnect immediately and contact support.

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

SPECIFICATIONS

Feature	Detail
Model Number	EPC122
Input Voltage	100-240V AC, 50-60Hz
Output Voltage	14.4V DC
Charging Current	2.0A
Cut-off Current	0.15-0.25A
Compatible Battery Type	12V LiFePO4 (Lithium Iron Phosphate)
Recommended Battery Capacity	4 Ah and above (up to 30Ah max)
Dimensions (L x W x H)	6 x 2.5 x 1.8 inches (approx. 4.5 x 1.8 x 1.3 inches for main unit)
Weight	7.8 ounces (approx. 0.5 lbs)
Certification	UL Listed

WARRANTY AND SUPPORT

ExpertPower stands behind the quality of its products.

- **Warranty:** This product comes with a 1-Year Hassle-Free Warranty.
- **Money Back Guarantee:** Enjoy a 30-Day Money Back Guarantee from the date of purchase.

- **Customer Support:** For technical assistance, warranty claims, or any questions regarding your ExpertPower 12V 2A Smart Charger, please visit the official ExpertPower website or contact their customer service department.

For more information, please visit the [ExpertPower Store on Amazon](#).

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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