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> [LiTime 24V 20A LiFePO4 Battery Charger Instruction Manual](#)

## LiTime 24V 20A

# LiTime 24V 20A LiFePO4 Battery Charger Instruction Manual

Model: 24V 20A

## INTRODUCTION

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This manual provides detailed instructions for the safe and efficient operation of your LiTime 24V 20A LiFePO4 Battery Charger. Please read this manual thoroughly before using the product and retain it for future reference.

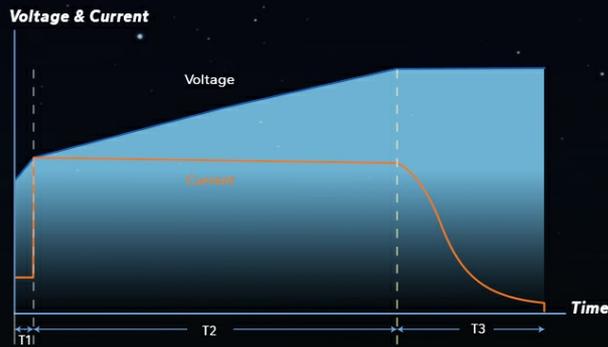
## IMPORTANT SAFETY INFORMATION

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- **Compatibility:** This charger is designed exclusively for 24V (25.6V) LiFePO4 Lithium Batteries. Do not use with other battery types.
- **Environment:** This charger is not waterproof. Do not use in marine environments such as boats, ships, yachts, or with trolling motors. Avoid exposure to water or excessive moisture.
- **Ventilation:** Ensure the charger is placed in a stable, well-ventilated area during use to prevent overheating. The built-in fan requires clear airflow.
- **Connections:** Always ensure battery terminals are tight to prevent overheating or melting. Connect the DC cable to the battery first, then the AC plug to grid power.
- **Polarity:** Observe correct polarity when connecting to the battery (Red = Positive, Black = Negative).
- **Disassembly:** Do not disassemble the charger. Disassembly may cause malfunction and void the warranty.
- **Voltage Matching:** The charger voltage must match the battery voltage. For adjustable voltage chargers, ensure settings match before connecting.

# 3 CHARGING MODES

with BMS Activation



## T1 Pre-Charge Stage

Charges the battery at a limited current to activate it.

## T2 Constant Current Charging Stage

Charges the battery with a 20A current in the main charging time.

## T3 Constant Voltage Charging Stage

Current decreases and charging completes.

Image: Visual guide to important precautions for using LiTime battery chargers, including correct voltage matching, secure terminal connections, polarity, ventilation, and avoiding disassembly.

## PRODUCT FEATURES

- **29.2V Lithium Battery Charger:** Specifically designed for charging 24V (25.6V) Lithium Batteries.
- **0V Activation Function:** Can wake up deeply discharged batteries with triggered BMS cut-off protection.
- **Advanced Technology:** Utilizes LLC half-bridge resonant soft-switching power supply control for compact, lightweight, and portable design.
- **Safety & Reliability:** CE & RoHS Certificated. Features fully automatic transition of CC, CV, and Float/Cut off.
- **Built-in Protections:** Includes Over Temperature, Over Voltage, Short Circuit, and Reverse Polarity protection.
- **Real-time Monitoring:** LED indicators provide clear status of battery charging.
- **Durable Design:** High-grade aluminum alloy shell for good heat dissipation, with a built-in cooling fan.
- **Anderson Connector:** Equipped with an Anderson connector for secure and easy connection.

## WHAT'S IN THE BOX

# WHAT'S IN THE BOX



## Installation Screws \*4



## User Manual



## Installation Bracket \*1



Image: The package contents include the LiTime 24V 20A LiFePO4 Battery Charger unit, AC cable, DC cable with Anderson connector, installation screws, and a user manual.

- LiTime 24V 20A LiFePO4 Battery Charger
- AC Cable (47.24 inches)
- DC Cable with Anderson Connection Wire (9.84 inches)
- Installation Screws (x4)
- Installation Bracket (x1)
- User Manual (this document)

## SETUP AND INSTALLATION

### Connecting the Charger

1. Ensure the battery is compatible with the charger (24V LiFePO4).

2. Connect the DC cable (with Anderson connector) to your LiFePO4 battery. Ensure a secure and tight connection to prevent arcing or overheating. Observe correct polarity: Red to Positive (+), Black to Negative (-).
3. Plug the AC cable into the charger's AC port.
4. Plug the AC power cord into a standard 100-240V, 50/60Hz wall outlet.



Image: Step-by-step visual guide on connecting the charger: 1. Connect DC cable to battery. 2. Connect Anderson connector. 3. Plug AC into grid power.

## Mounting the Charger

The charger features mounting holes and an installation bracket for secure placement. Use the provided screws to mount the charger to a stable surface in a well-ventilated area. Ensure adequate space around the charger for airflow, especially around the cooling fan.

# MOUNTABLE BATTERY CHARGER

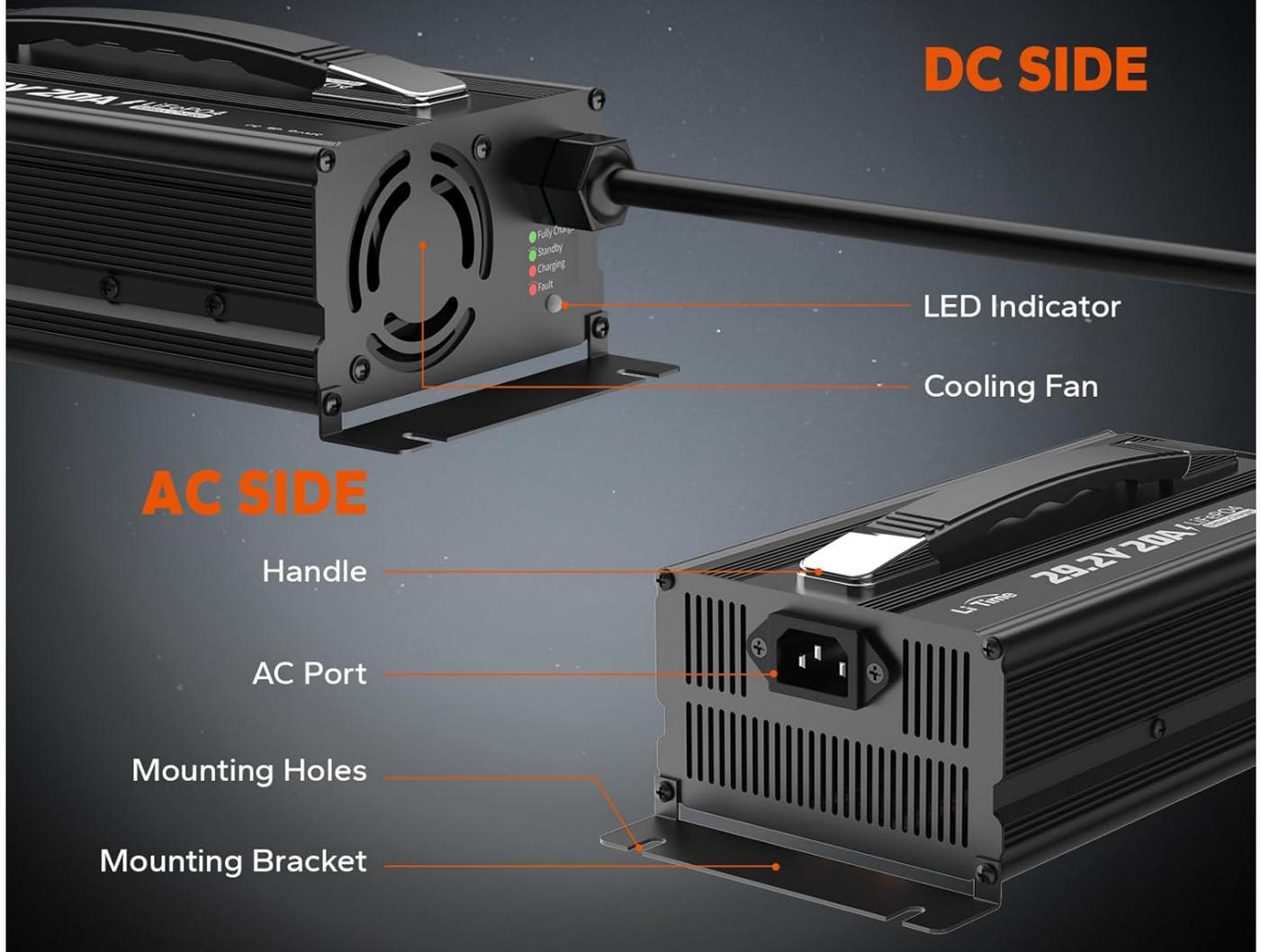


Image: The charger's design highlighting the handle, AC port, mounting holes, and mounting bracket for installation.

## OPERATING INSTRUCTIONS

### Charging Process (3 Stages with BMS Activation)

The LiTime charger employs a smart 3-stage charging process to optimize battery life and performance, including a 0V activation function for deeply discharged batteries.

1. **T1: Pre-Charge Stage:** If the battery is deeply discharged (e.g., below 18V for a 24V battery), the charger will initiate a pre-charge stage. It charges the battery at a limited current to safely activate it and bring its voltage to a normal level. This stage is crucial for batteries that have entered BMS cut-off protection.
2. **T2: Constant Current Charging Stage:** Once the battery voltage is within a safe range, the charger delivers a constant 20A current, rapidly charging the battery.
3. **T3: Constant Voltage Charging Stage:** As the battery approaches full charge, the charger maintains a constant voltage (29.2V) while gradually decreasing the current until the battery is fully charged.

# 3 CHARGING MODES

## with BMS Activation

### ⚡ **T1** Pre-Charge Stage

Charges the battery at a limited current to activate it.

### ⚡ **T2** Constant Current Charging Stage

Charges the battery with a 20A current in the main charging time.

### ⚡ **T3** Constant Voltage Charging Stage

Current decreases and charging completes.

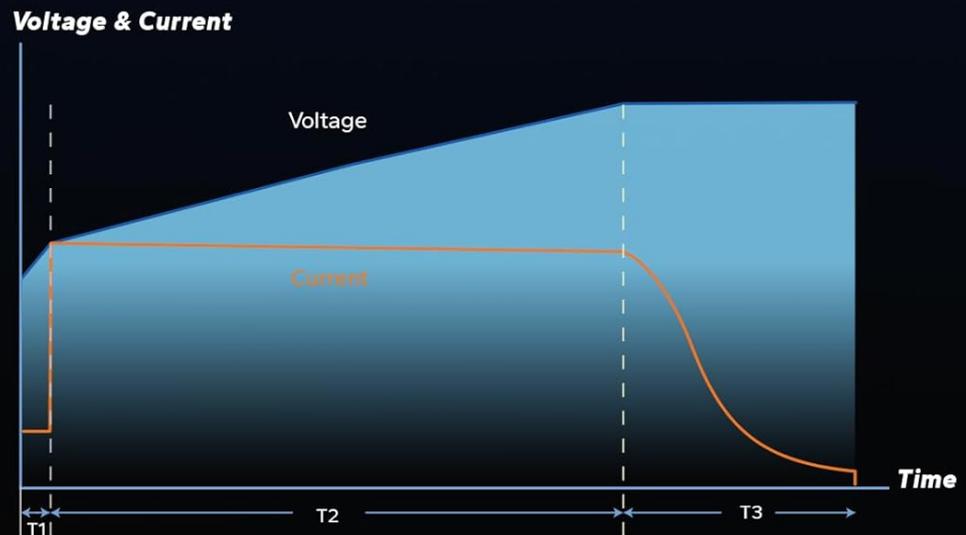


Image: A graph showing the voltage and current curves over time during the three charging stages (Pre-Charge, Constant Current, Constant Voltage) with BMS activation.

## LED Indicator Meanings

The charger features LED indicators to provide real-time status updates:

- **Solid Red:** Battery is charging.
- **Solid Green:** Battery is fully charged.
- **Flashing Green:** Charger is on standby.
- **Flashing Red:** Charger fault or under protection.

# LED INDICATOR



Image: A detailed view of the LED indicator panel, showing the meanings of solid red (charging), solid green (fully charged), flashing green (standby), and flashing red (fault/protection).

## 0V Activation Function

If your LiFePO<sub>4</sub> battery's Battery Management System (BMS) has triggered its cut-off protection due to deep discharge, this charger can activate it. The charger will send a gentle current to safely raise the battery's voltage above the BMS cut-off threshold, allowing it to resume normal charging.

# COMPATIBLE WITH LITHIUM BATTERY ONLY

**29.2V 20A**

Activate the lithium battery after BMS protection

**29.2V DC**

Output Voltage

**20A**

Output Current



Image: The LiTime 24V 20A LiFePO4 Battery Charger connected to a 24V 100Ah battery, illustrating its capability to activate the battery after BMS protection with 29.2V DC output voltage and 20A output current.

Your browser does not support the video tag.

Video: This video demonstrates how to revive a LiFePO4 battery that has stopped working or won't charge, often due to BMS protection. It shows steps like disconnecting devices, letting the battery rest, and using a charger with an activation function. It also explains voltage thresholds for 12V and 24V batteries.

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Video: This video explains the internal processes of a LiFePO4 charger during its 3-stage charging cycle: pre-charge, constant current, and constant voltage. It highlights how the charger safely raises voltage, delivers full power, and then steadily reduces current to protect battery cells and ensure full absorption of energy.

## MAINTENANCE

- **Cleaning:** Keep the charger clean and free from dust and debris. Use a dry, soft cloth for cleaning. Do not use liquid cleaners.

- **Storage:** Store the charger in a cool, dry, and well-ventilated area when not in use.
- **Cable Inspection:** Regularly inspect the AC and DC cables for any signs of damage, fraying, or loose connections. Replace damaged cables immediately.
- **Ventilation:** Ensure the cooling fan is not obstructed during operation. Periodically check for dust buildup in the fan area.

## TROUBLESHOOTING

### Charger Won't Start or Battery Won't Charge

If your charger is not initiating a charge or your battery is not responding, consider the following:

1. **Check Connections:** Ensure all connections (AC power, DC to battery) are secure and correctly polarized.
2. **Battery Voltage:** If your 24V battery's voltage is below 18V, its BMS might have activated protection. The LiTime charger has a 0V activation function to revive such batteries. Follow the steps in the "0V Activation Function" section.
3. **External Devices:** If an inverter or other device is plugged into the battery, it might block the charger's initial "wake-up" pulse.
  - Unplug the inverter from the battery.
  - Let the charger activate the battery.
  - Reconnect the inverter after charging is complete.
4. **Charger Fault:** If the LED indicator is flashing red, there might be a charger fault or it's under protection (e.g., over-temperature, short circuit). Disconnect the charger, allow it to cool, and re-attempt connection. If the fault persists, contact customer service.



Image: A three-step visual guide demonstrating how to troubleshoot a charger that won't start when an inverter is connected: 1. Unplug the inverter. 2. Activate the battery with the charger. 3. Reconnect the inverter after charging.

## SPECIFICATIONS

Feature	Detail
Brand	LiTime
Model	24V 20A LiFePO4 Battery Charger
Product Dimensions	10.87 x 4.75 x 3.52 inches
Item Weight	6.25 pounds
Output Voltage	29.2 Volts
Output Current	20 Amps

Feature	Detail
Input Voltage	100-240V AC, 50/60Hz
Color	Black
Certifications	CE, RoHS, FCC

## WARRANTY AND SUPPORT

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LiTime provides a **2-year quality warranty** for this charger. For any technical support or customer service inquiries, please contact LiTime customer service. They offer professional technical support and online services with quick feedback within 24 hours.

You can find more information and contact details on the official LiTime website: [www.litime.com](http://www.litime.com)

