

## FOVAL 800W DC to DC Charger

# FOVAL 12V to 48V DC to DC Charger User Manual

Model: 800W DC to DC Charger

## 1. INTRODUCTION

This user manual provides comprehensive instructions for the safe and efficient operation of your FOVAL 12V to 48V DC to DC Charger. This 800W ultra-fast battery charger is designed to replenish various 48V battery types, including LiFePO<sub>4</sub>, Lead-Acid, AGM, Gel, and Lithium batteries, making it ideal for RVs, CVs, trailers, boats, and trucks.



*Image: FOVAL 12V to 48V DC to DC Charger, showcasing its compact and robust design.*

## 2. KEY FEATURES

- **Ultra Fast-Speed Charging:** The 800W alternator charger replenishes house batteries by 1kWh during a 75-minute drive. This efficiently utilizes excess alternator energy, minimizing waste and enhancing energy utilization for an eco-friendly and efficient journey.
- **Compatible Multiple Battery Types:** The DC-DC battery charger is compatible with various 48V battery types, including AGM, Gel, SLA, CA, and Lithium-ion batteries. It tailors the most suitable charging scheme for different battery types, ensuring a safer and more efficient charging process.
- **Multiple Safety Protections:** Built-in safety features such as overheating, short circuit, overvoltage, and undervoltage ensure the DC charger maintains an efficient and stable working state during driving, contributing to a safer experience.
- **Protect and Extend Battery Life:** The charger identifies when the generator is started, preventing the start battery from over-discharge and protecting the generator. Its advanced 3-stage charging technology intelligently adjusts the charging process to prevent overcharging, over-discharging, and overheating, thereby extending battery service life.
- **Easy to Install and Use:** The 12V DC to 48V DC charger is lightweight, compact, sturdy, and durable, designed to adapt to various extreme environments. It can be easily installed and put into use in recreational vehicles, ships, or commercial vehicles.

# High Speed Quick Charge

Charge **1KW/H** of electricity

 **1.3 hours** ... ⚡ **8X**

**FOVAL Battery Chrager**  
DC12V~16V 800W Max



**2.3 hours**

**220W Portable Solar Panel x2**  
21.8V 13A 440W Max



**10 hours**

**Car Cigarette Lighter**  
Charger12.6V 10A ~100W

**15A DC Charger**



**House Battery** +



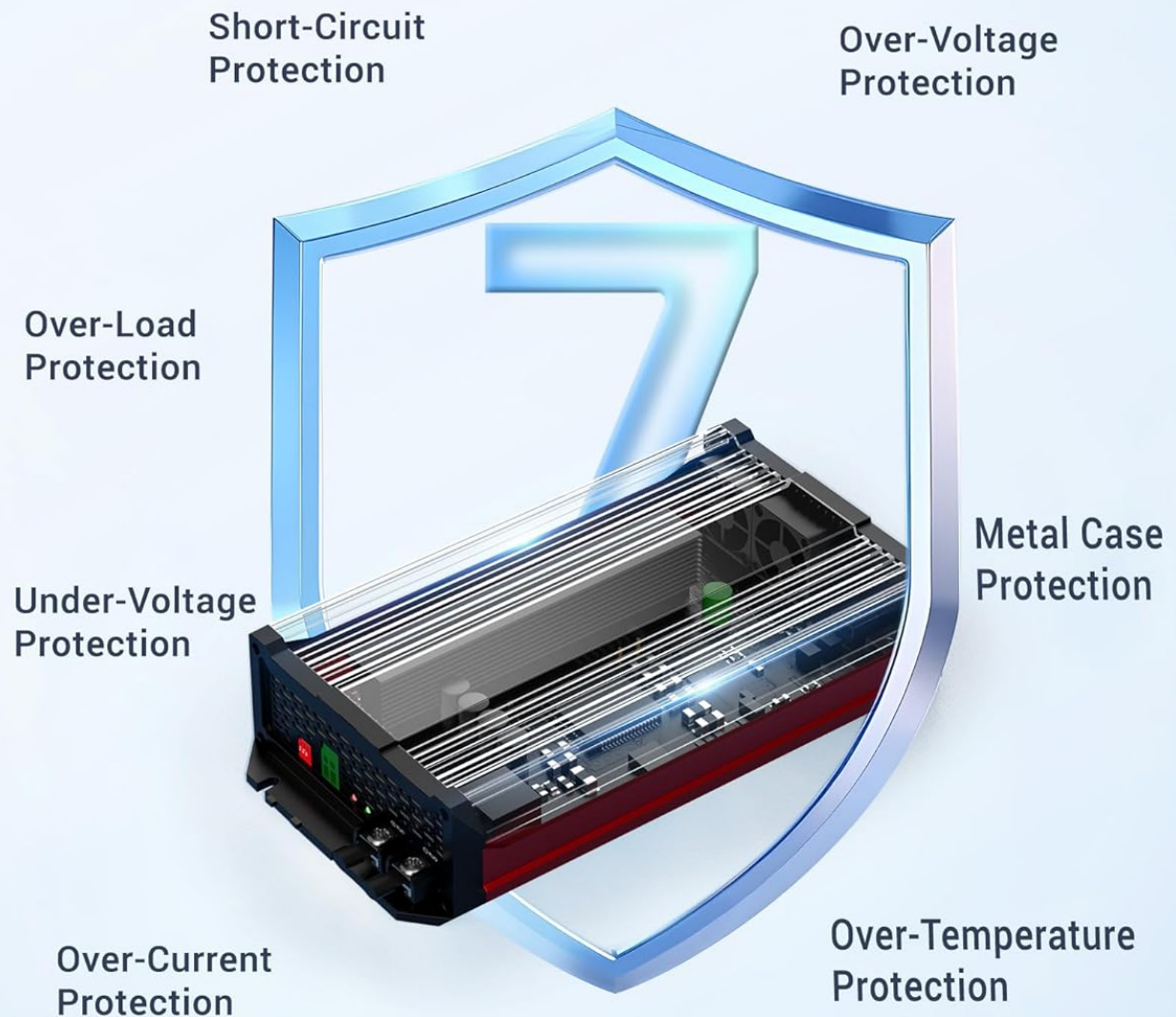
**Starter Battery**

*Image: Diagram illustrating the charger's high-speed charging capability, replenishing 1kWh of electricity.*

### 3. SAFETY INFORMATION

The FOVAL DC to DC Charger incorporates a 7-point safety system to ensure reliable and secure operation. Always adhere to safety guidelines during installation and use.

# 7-Point Safety System



*Image: Visual representation of the charger's 7-Point Safety System.*

The integrated safety system includes:

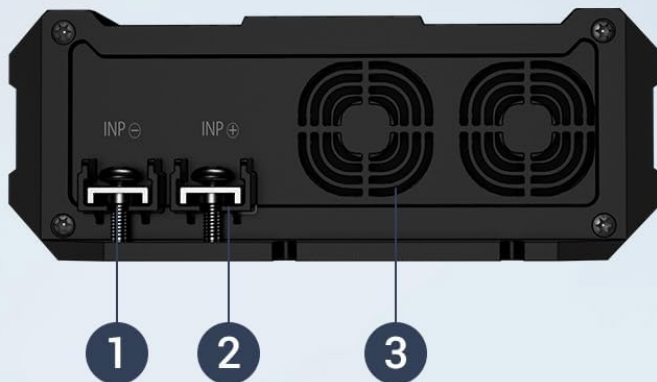
- Short-Circuit Protection
- Over-Voltage Protection
- Over-Load Protection
- Under-Voltage Protection
- Over-Current Protection
- Over-Temperature Protection
- Metal Case Protection



## 4. PRODUCT OVERVIEW AND COMPONENTS

Familiarize yourself with the various components and connection points of your FOVAL DC to DC Charger.

# Product Overview



1.Negative DC Input Terminal

2.Positive DC Input Terminal

3.Dual Cooling Fans

1.Dip Switches

2.D+ Switch Control

3.Low Current Control

4.Fault LED

5.Power LED

6.Positive DC Output Terminal

7.Negative DC Output Terminal



*Image: Detailed view of the charger's input/output terminals, cooling fans, and control switches.*

### Front Panel Controls and Indicators:

1. **Dip Switches:** Used for configuring battery type and charging parameters.
2. **D+ Switch Control:** For alternator detection and control.
3. **Low Current Control:** Adjusts charging current.
4. **Fault LED:** Indicates operational errors or warnings.

5. **Power LED:** Indicates power status.
6. **Positive DC Output Terminal:** Connects to the positive terminal of the house battery.
7. **Negative DC Output Terminal:** Connects to the negative terminal of the house battery.

**Rear Panel Components:**

1. **Negative DC Input Terminal:** Connects to the negative terminal of the starter battery/alternator.
2. **Positive DC Input Terminal:** Connects to the positive terminal of the starter battery/alternator.
3. **Dual Cooling Fans:** Provide active cooling for optimal performance.

## 5. SETUP AND INSTALLATION

---

Proper installation is crucial for the performance and safety of your charger. Refer to the diagram below for a typical installation setup.

# Easy to Install

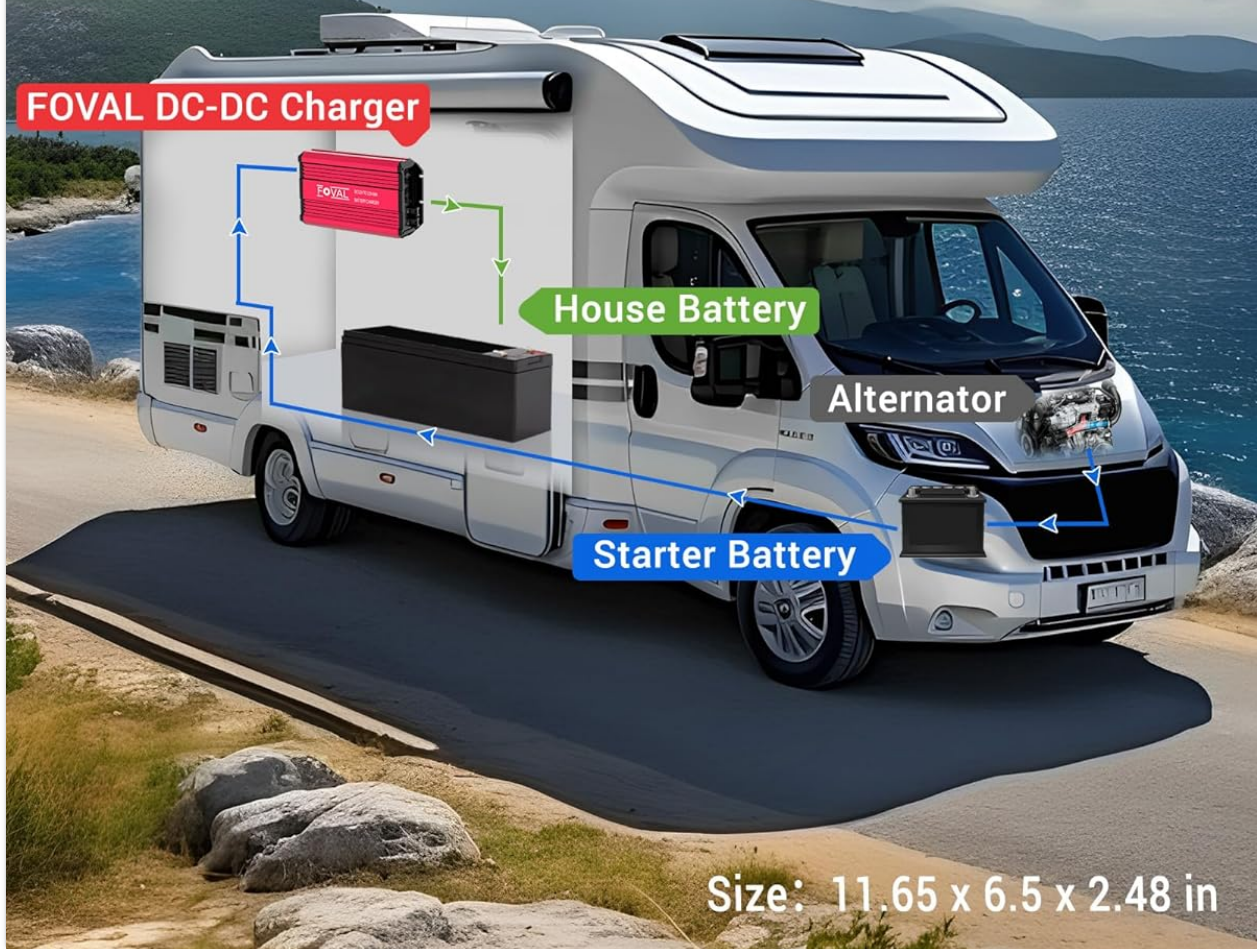


Image: Diagram showing the installation of the FOVAL DC-DC Charger connecting a starter battery to a house battery in an RV.

## Installation Steps:

1. **Mounting:** Choose a dry, well-ventilated location for mounting the charger, away from direct heat sources or flammable materials. Ensure adequate space around the unit for airflow to the cooling fans.
2. **Input Connection (12V DC):** Connect the positive input terminal (INP+) of the charger to the positive terminal of your starter battery or alternator. Connect the negative input terminal (INP-) to the negative terminal of your starter battery or vehicle chassis ground. Use appropriately sized cables to minimize voltage drop.
3. **Output Connection (48V DC):** Connect the positive output terminal (OUT+) of the charger to the positive

terminal of your 48V house battery bank. Connect the negative output terminal (OUT-) to the negative terminal of your 48V house battery bank.

4. **D+ Control (Optional):** If your vehicle's alternator provides a D+ signal, connect it to the D+ switch control terminal on the charger. This allows the charger to detect when the engine is running and optimize charging.
5. **Dip Switch Configuration:** Before powering on, configure the dip switches according to your specific 48V battery type (AGM, Gel, SLA, CA, Lithium-ion) to ensure correct charging parameters. Refer to the charger's label or a separate configuration table for specific settings.
6. **Initial Power-Up:** Once all connections are secure and dip switches are set, power on your vehicle. The charger's Power LED should illuminate, indicating proper operation.

**Warning: Incorrect wiring can cause damage to the charger, batteries, or vehicle. If unsure, consult a qualified technician.**

## 6. OPERATING INSTRUCTIONS

---

The FOVAL DC to DC Charger operates automatically once properly installed and configured. It employs a 3-stage charging technology to optimize battery health and longevity.

### 6.1. Automatic Operation

The charger automatically detects the presence of an input voltage from the starter battery/alternator and begins charging the house battery bank. It intelligently adjusts the charging process based on the battery's state of charge and type.

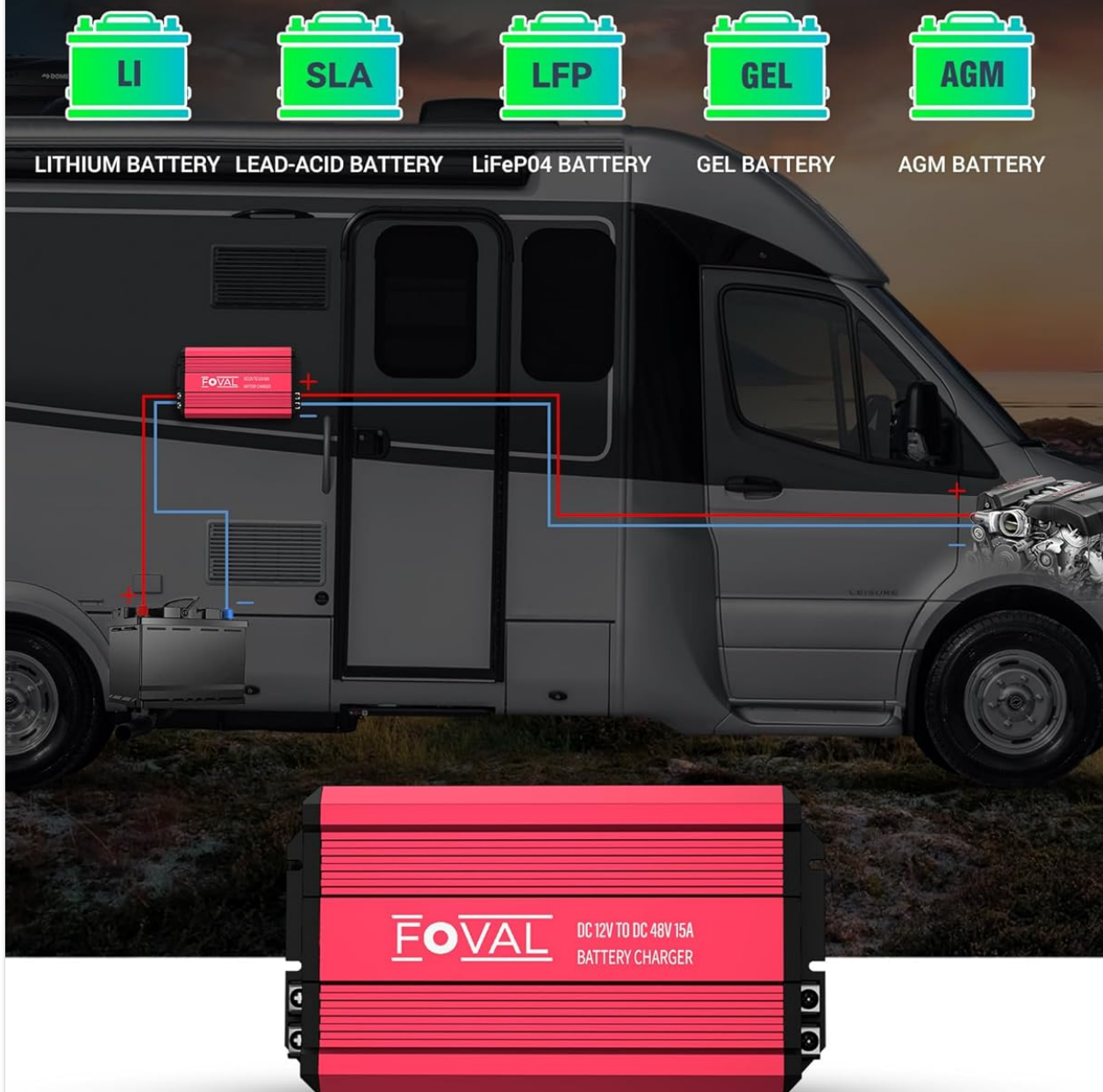
### 6.2. Multi-Battery Compatibility

This charger is designed to work with a wide range of 48V battery chemistries. Ensure the dip switches are correctly set for your battery type.



# Just **One** Charger Will Do Everthing

Compatible multiple battery types



*Image: Visual representation of the charger's compatibility with various battery types.*

Supported Battery Types:

- Lithium Battery (LiFePO4, Lithium-ion)
- Lead-Acid Battery (SLA, CA)
- Gel Battery
- AGM Battery

## 6.3. Charging Stages

The charger utilizes an advanced 3-stage charging process:

1. **Bulk Charge:** Delivers maximum current to rapidly bring the battery to approximately 80% of its capacity.

2. **Absorption Charge:** Charges at a decreasing current to bring the battery to 100% capacity, preventing overcharging.
3. **Float Charge:** Maintains the battery at full charge with a low, constant voltage, compensating for self-discharge.

## 7. MAINTENANCE

---

The FOVAL DC to DC Charger requires minimal maintenance. Regular checks can help ensure its longevity and optimal performance.

- **Cleanliness:** Keep the charger clean and free from dust and debris. Use a dry cloth to wipe the exterior. Do not use liquid cleaners.
- **Connections:** Periodically inspect all cable connections to ensure they are tight and free from corrosion. Loose connections can lead to overheating and inefficient charging.
- **Ventilation:** Ensure that the cooling fans and ventilation openings are not obstructed. Blocked airflow can lead to overheating and reduced performance.
- **Environmental Conditions:** Avoid exposing the charger to extreme temperatures, direct sunlight, or excessive moisture.

## 8. TROUBLESHOOTING

---

If you encounter issues with your FOVAL DC to DC Charger, refer to the following common problems and solutions. If the problem persists, contact customer support.

Problem	Possible Cause	Solution
Charger not powering on (Power LED off)	No input voltage; Loose connections; Blown fuse (external); Internal fault.	Check input voltage from starter battery/alternator. Verify all connections are secure. Check any inline fuses on the input line. If problem persists, contact support.
Fault LED illuminated	Overheating; Over-voltage/Under-voltage; Short circuit; Overload.	Check for obstructions around cooling fans. Verify input/output voltages are within specified range. Disconnect output to check for short circuit. Reduce load if possible. Allow unit to cool down.
Slow charging or no charging	Incorrect dip switch settings; Undersized cables; Battery fault; Alternator issue.	Verify dip switch settings match battery type. Ensure cables are of adequate gauge. Have battery tested. Check alternator output.
Excessive heat from unit	Poor ventilation; Overload; Internal fan failure.	Ensure adequate airflow around the unit. Check if the load exceeds the charger's capacity. Listen for fan operation; if not spinning, contact support.

## 9. SPECIFICATIONS

---

Technical specifications for the FOVAL 12V to 48V DC to DC Charger.

Attribute	Value
Brand	FOVAL
Color	Red
Product Dimensions	11.65"D x 6.5"W x 2.48"H
Output Voltage	48 Volts (DC)
Specification Met	CE, FCC, RoHS
Input Voltage	12 Volts (DC)
Power Output	800W

## 10. APPLICATIONS

The FOVAL 12V to 48V DC to DC Charger is versatile and suitable for a variety of mobile and off-grid applications.

# Wide Application



*Image: Examples of vehicles and setups where the charger can be used.*

- Commercial Vehicles (CV)
- SUVs
- Boats
- Trailers
- RVs (Recreational Vehicles)
- Trucks

## 11. WARRANTY AND CUSTOMER SUPPORT







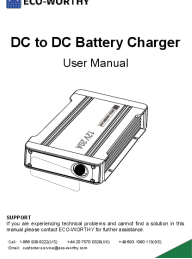

FOVAL provides a **24-month warranty** for this 800W DC to DC charger, ensuring peace of mind regarding product quality and performance.

For any inquiries, technical assistance, or warranty claims, please contact FOVAL customer service. We are committed to providing 100% satisfaction.

#### Contact Information:

Please refer to the product packaging or the official FOVAL website for the most current customer support contact details.

### Related Documents - 800W DC to DC Charger

	<a href="#">NOCO GENIUS2AU User Guide &amp; Warranty: 6V/12V Smart Battery Charger</a> Comprehensive user guide and warranty information for the NOCO GENIUS2AU, a smart 6V/12V battery charger compatible with Lead-Acid, AGM, and Lithium batteries. Learn about safety, operation, and specifications.
	<a href="#">NOCO Genius Multi-Bank Series Battery Charger User Guide &amp; Warranty</a> Comprehensive user guide and warranty information for NOCO Genius Multi-Bank Series battery chargers (GENIUS2X2, GENIUS2X4), covering safety, charging modes, technical specifications, and warranty details.
	<a href="#">NOCO GENIUS1UK Battery Charger User Guide and Warranty</a> This user guide and warranty document provides detailed information on the NOCO GENIUS1UK battery charger, covering its features, charging modes for 6V and 12V batteries (Lead-Acid, AGM, Lithium), essential safety precautions, technical specifications, and warranty terms.
	<a href="#">NOCO GENIUS5 Battery Charger User Guide and Warranty</a> User guide and warranty information for the NOCO GENIUS5 battery charger. Covers safety, charging modes, technical specifications, and warranty for 6V/12V lead-acid, AGM, and Lithium batteries.
	<a href="#">ECO-WORTHY 12V 20A DC to DC Battery Charger User Manual</a> User manual for the ECO-WORTHY 12V 20A DC to DC Battery Charger, covering features, installation, operation, specifications, and troubleshooting.
	<a href="#">AL-KO BC122 Switch-Mode Battery Charger User Manual</a> Comprehensive user manual for the AL-KO BC122 switch-mode battery charger. Covers installation, operation, charging modes, connections, alarms, and technical specifications for 12V batteries. Includes safety warnings and product details.