

Renogy 40A

# Renogy 12V 40A DC to DC On-Board Battery Charger User Manual

Model: 40A | Brand: Renogy

|              |              |             |                 |                |                    |
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## 1. INTRODUCTION

The Renogy 12V 40A DC to DC On-Board Battery Charger is designed to efficiently charge your auxiliary or house batteries from your vehicle's alternator or starter battery. This charger is compatible with various battery types, including Flooded, Gel, AGM, and Lithium deep cycle batteries, making it suitable for RVs, commercial vehicles, boats, and yachts. It features multi-stage charging and multiple electronic protections to ensure optimal and safe battery charging.



Image: The Renogy 12V 40A DC to DC On-Board Battery Charger, a compact and robust unit designed for vehicle battery charging.

# VARIOUS APPLICATIONS



Image: The Renogy DC to DC charger is suitable for various applications including RVs, commercial vehicles, boats, and yachts.

## 2. SETUP & INSTALLATION

Proper installation is crucial for the safe and efficient operation of your Renogy DC to DC charger. Ensure all wiring is done according to the provided diagrams and local electrical codes. Use appropriate wire gauges and fusing for all connections.

### 2.1 Wiring Diagram Overview

The charger connects your starter battery (input) to your house battery (output), providing a stable charging current. It isolates the input from the output to prevent incorrect voltage transmission.

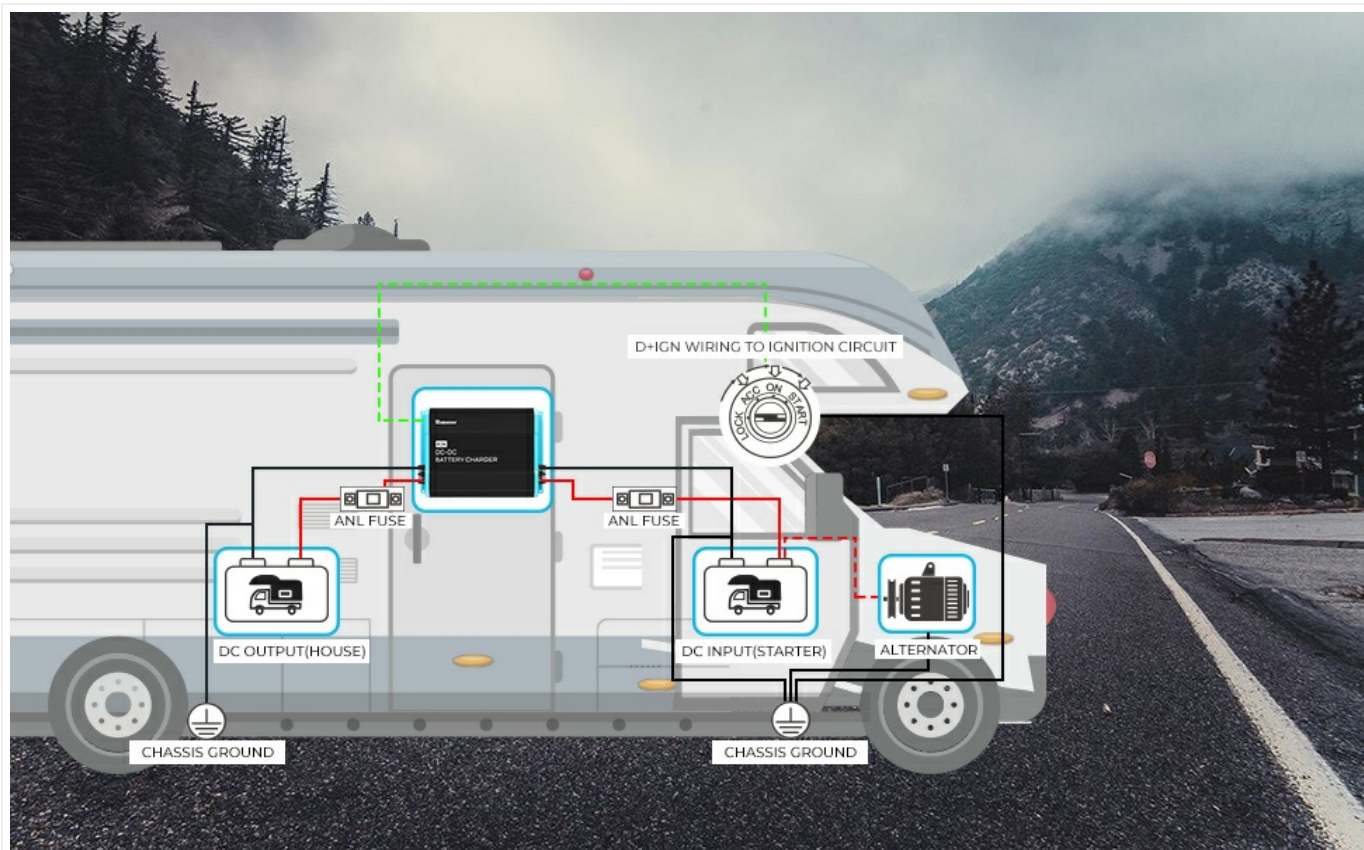
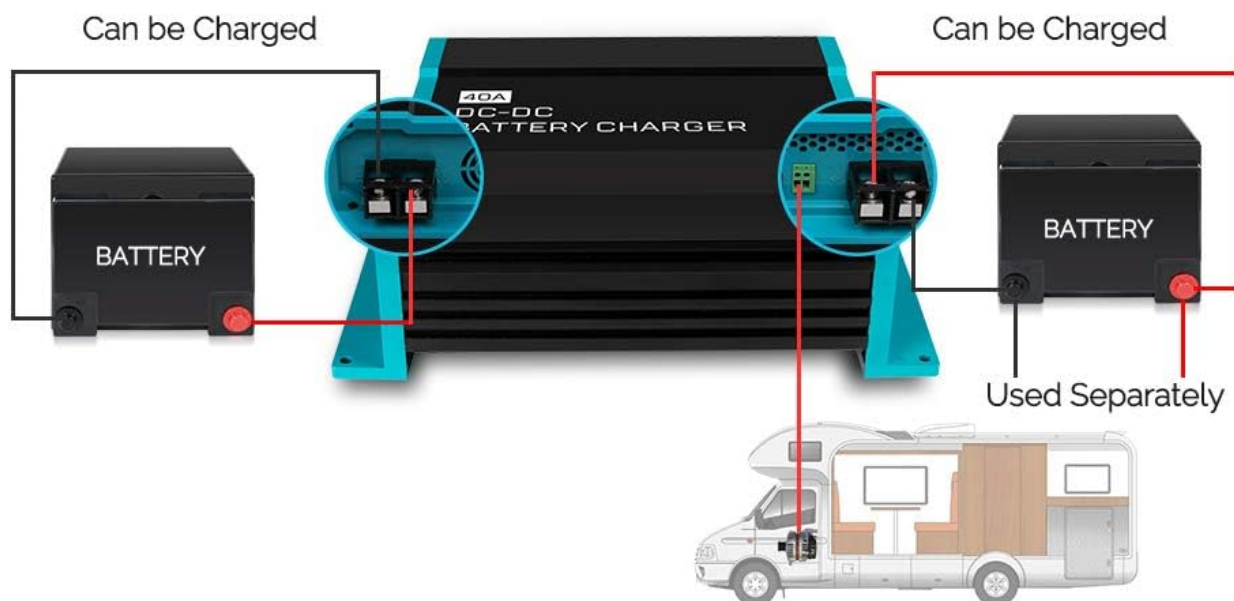


Image: A typical wiring diagram showing the Renogy DC to DC charger installed in an RV, connecting the starter battery and alternator to the house battery.



Provide stable and convenient electricity for RV

Image: Diagram illustrating the input-output isolation feature of the charger, ensuring separate power management for starter and house batteries.

## 2.2 Key Connections

- **Input (Starter Battery):** Connect the charger to your vehicle's starter battery. It is recommended to use heavy gauge, minimum resistance wire (e.g., 6AWG Marine Duplex) for the main power circuits to minimize current loss and ensure optimal charging.
- **Output (House Battery):** Connect the charger to your auxiliary or house battery bank.
- **D+ Ignition Cable:** This cable signals the charger when the vehicle's engine is running, preventing over-discharge of the starting battery. Connect it to a circuit that is only active when the ignition is on (e.g., a cigarette lighter circuit).



Image: Illustration showing the connection point for the D+ ignition cable, which ensures the charger operates only when the engine is running.

- **LC+ Cable (Current Limit):** This optional cable allows you to limit the charging current to 20A from the full 40A. This can be useful in situations where you want to reduce the load on your vehicle's electrical system, such as when idling or when other high-current accessories are in use.



Image: Diagram indicating the LC+ cable connection, which enables the current limiting feature of the charger.

## 2.3 DIP Switch Settings

The charger features adjustable DIP switches to configure the charging mode and voltage settings for different battery types.

# ADJUSTABLE CHARGING MODE DIP SWITCHES

## S3 and S4.

Set floating voltage

## S1 and S2.

Switch voltage /  
constant voltage

## S5.

Set charging mode



Image: Close-up view of the adjustable DIP switches on the charger, used for setting floating voltage, switch voltage/constant voltage, and charging mode.

Refer to the detailed instructions in the official user manual for the correct DIP switch configurations for your specific battery type (Flooded, Gel, AGM, or Lithium).

## 3. OPERATION

### 3.1 Compatible Battery Types

The Renogy DC to DC charger is designed to work with a wide range of 12V deep cycle batteries, including:

- Flooded Batteries
- Gel Batteries
- AGM Batteries
- Lithium Batteries

# SUPPORTS MULTIPLE BATTERY TYPES



Flooded, Gel, AGM, and Lithium

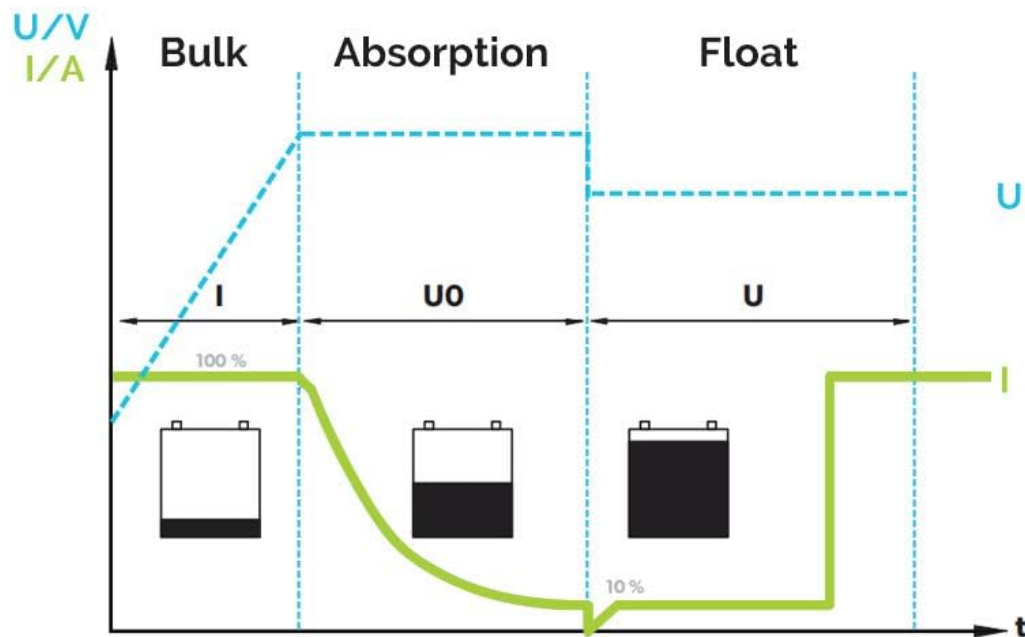
Image: Visual representation of the charger's compatibility with Flooded, Gel, AGM, and Lithium battery types.

## 3.2 Smart Multi-Stage Charging

The 40A DC to DC smart charger employs a 3-stage charging process to ensure your house batteries are optimally and automatically charged to 100% capacity. These stages are:

- **Bulk Charge:** The initial stage where the battery is charged at its maximum current until it reaches approximately 80% of its capacity.
- **Boost Charge (Absorption):** The voltage is held constant, and the current gradually decreases as the battery approaches full charge. This stage ensures the battery is fully charged without overcharging.
- **Float Charge:** Once the battery is fully charged, the charger maintains a lower, constant voltage to compensate for self-discharge and keep the battery at 100% charge.

# MULTI-LEVEL INTELLIGENT CHARGING



100% fully charged for backup battery

Image: A graph illustrating the multi-level intelligent charging process (Bulk, Absorption, Float) to achieve 100% charge for the backup battery.

## 3.3 Safety Protections

The Renogy DC to DC charger incorporates several safety features to protect both the charger and your battery systems:

- **Over-voltage Protection:** Prevents damage from excessive voltage.
- **Over-temperature Protection:** Shuts down the unit if it overheats.
- **Reverse Polarity Protection:** Protects against incorrect wiring.
- **Short Circuit Protection:** Safeguards against short circuits.

# MULTIPLE PROTECTIONS

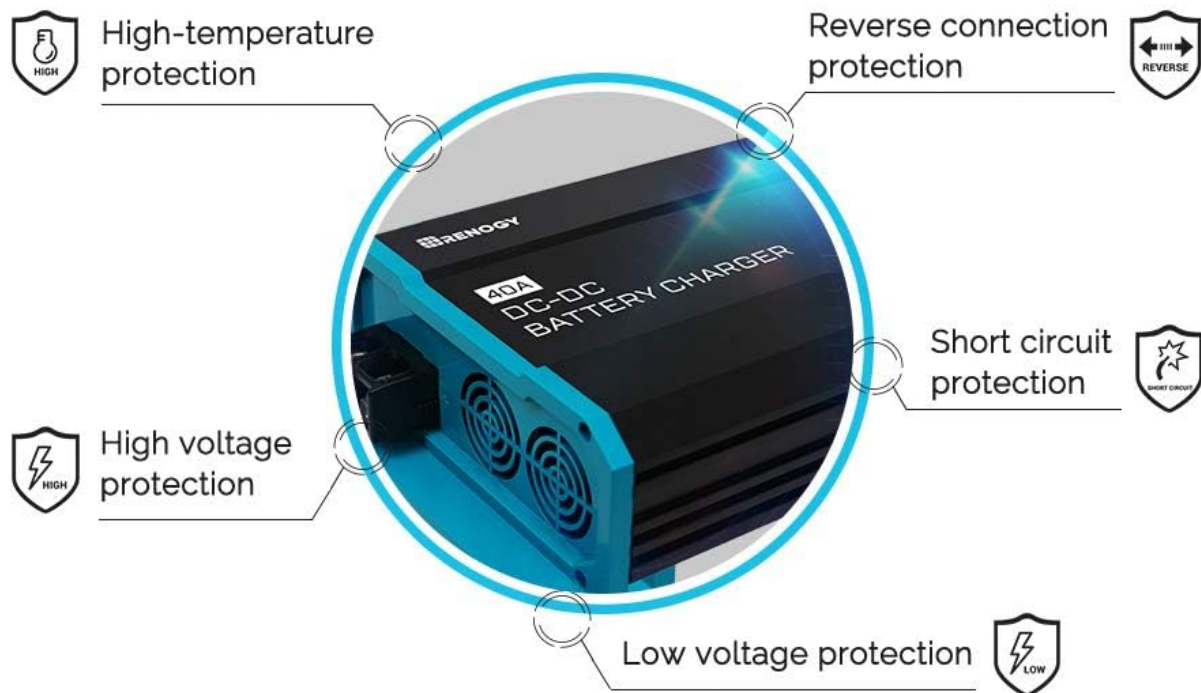


Image: Diagram highlighting the various protection features of the charger, including high-temperature, high voltage, reverse connection, short circuit, and low voltage protection.

## 4. MAINTENANCE

To ensure the longevity and optimal performance of your Renogy DC to DC charger, follow these general maintenance guidelines:

- **Regular Inspection:** Periodically check all wiring connections to ensure they are secure and free from corrosion.
- **Cleanliness:** Keep the charger unit clean and free from dust and debris. Ensure ventilation openings are not obstructed.
- **Environmental Conditions:** While robust, avoid exposing the charger to extreme moisture or temperatures beyond its operating range.
- **Remote Temperature Sensor:** The charger supports a remote temperature sensor (not included) which can be connected to prolong battery lifespan by adjusting charging parameters based on battery temperature.



Image: The charger features a port for an optional remote temperature sensor, which helps prolong battery lifespan by optimizing charging based on ambient temperature.

## 5. TROUBLESHOOTING

If you encounter issues with your Renogy DC to DC charger, consider the following common problems and solutions:

- **Charger Not Activating / No Output**
  - Ensure the D+ ignition cable is correctly wired and receiving a signal when the engine is running.
  - Check all input and output connections for looseness or corrosion.
  - Verify that the input voltage from the starter battery is within the charger's operating range.
- **Circuit Breaker Tripping / Fuse Blowing:**
  - This can occur if the input current draw is too high, especially during the initial charging phase. Ensure you are using the recommended wire gauge (e.g., 6AWG) and appropriate fuses (e.g., 60A for 40A charger).
  - Some users have reported that a 'slow blow' fuse may be required on the input side, as normal timed fuses can trip during power-on or sustained high current draw.
  - Check for any short circuits in the wiring.
  - If the LC+ cable is connected, try enabling the 20A current limit to reduce the load on the vehicle's electrical system.
- **Battery Not Charging Optimally:**
  - Verify that the DIP switch settings on the charger are correctly configured for your specific battery type (Flooded, Gel, AGM, or Lithium). Incorrect settings can lead to under or overcharging.
  - Ensure the house battery is not severely discharged or damaged.
  - Check for significant voltage drop across long or undersized wiring.
- **Overheating:**
  - Ensure the charger has adequate ventilation and is not installed in an enclosed space without airflow.
  - Check for any obstructions around the cooling fins or fans.

If these steps do not resolve the issue, please contact Renogy customer support for further assistance.

## 6. SPECIFICATIONS

| Feature            | Detail                                           |
|--------------------|--------------------------------------------------|
| Product Dimensions | 6.9 x 10.3 x 2.7 inches (6.9"D x 10.3"W x 2.7"H) |
| Item Weight        | 5.3 pounds                                       |
| Model Number       | 40A                                              |

| Feature                  | Detail                       |
|--------------------------|------------------------------|
| Brand                    | Renogy                       |
| Color                    | Black                        |
| Output Voltage           | 12 Volts (DC)                |
| Compatible Battery Types | Flooded, Gel, AGM, Lithium   |
| Charging Stages          | 3-stage (Bulk, Boost, Float) |
| Idle Power Consumption   | <0.4A                        |

## 7. WARRANTY & SUPPORT

### 7.1 Warranty Information

For detailed warranty information regarding your Renogy 12V 40A DC to DC On-Board Battery Charger, please refer to the warranty card included with your product or visit the official Renogy website. Warranty terms typically cover manufacturing defects and material flaws for a specified period from the date of purchase.

### 7.2 Customer Support

If you require technical assistance, have questions about installation, or need to report a product issue, please contact Renogy customer support. You can find contact information and additional resources on the official Renogy website:

[Visit Renogy Official Website](#)

You may also find helpful resources and FAQs on the Renogy Brand Store on Amazon:

[Visit Renogy Brand Store on Amazon](#)

### 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