

Renogy RBC40D1S

Renogy 12V 40A DC to DC Battery Charger with Solar Input MPPT User Manual

Brand: Renogy | Model: RBC40D1S

1. INTRODUCTION

The Renogy 12V 40A DC to DC Battery Charger with Solar Input MPPT is a versatile and robust charging solution designed for various battery types, including LiFePO₄, Gel, Flooded, and Sealed Lead Acid. This charger offers dual input capabilities, allowing you to charge your auxiliary battery from both your vehicle's alternator and solar panels, ensuring your power needs are met whether you're on the road or parked. Its intelligent 4-stage charging logic optimizes battery health and longevity, while comprehensive protection features ensure safe and reliable operation.

Key Features:

- **Two Charging Options:** Defaults to DC input priority, automatically switching to solar when primary input voltage drops.
- **Versatile Compatibility:** Supports LiFePO₄, Gel, Flooded, and Sealed Lead Acid batteries with adaptive 4-stage charging.
- **Comprehensive Protection:** Includes reverse polarity, over-voltage, under-voltage, and over-temperature safeguards.
- **Easy Operation & Visual Alerts:** One-touch battery type selection and LED indicators for status and errors.
- **Certified Quality:** FCC, RoHS, CE, and SAA certified for long-term reliability.

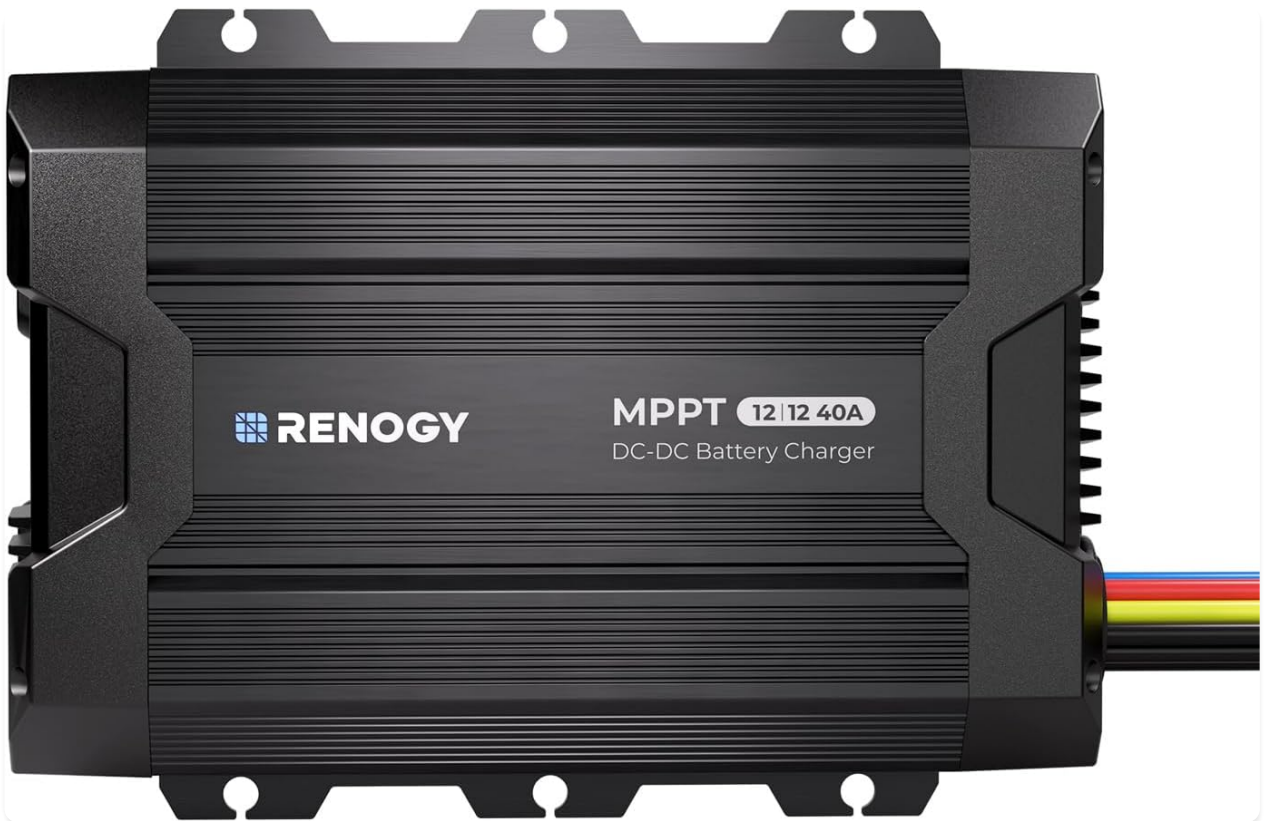


Figure 1: Renogy 12V 40A DC to DC Battery Charger with Solar Input MPPT.

2. PACKAGE CONTENTS

Upon opening the package, please verify that all the following components are included and in good condition:

- Renogy 40A DC-DC Charger (x1)
- Heat-shrink Tubings (x7)
- User Manual (x1)
- Self-tapping Screws (x4)

Get the Proper Specs for Your System



Cable Sizing

Cable Lengths(ft)	Cable Lengths(m)	Recommended Cable Size
3-16	1-5	8 AWG
16-30	5-9	6 AWG



Fusing

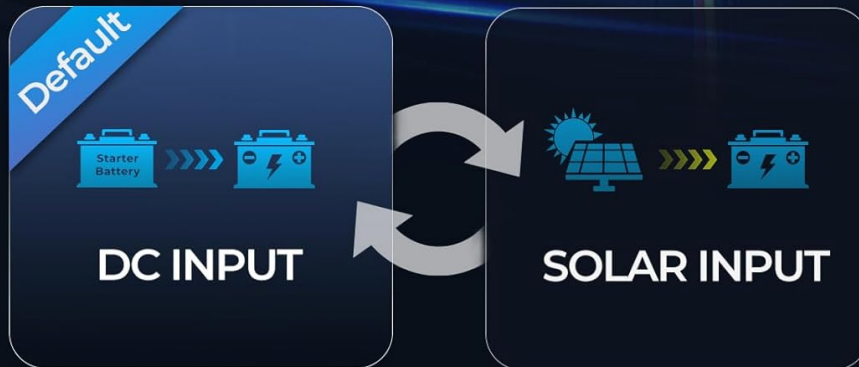
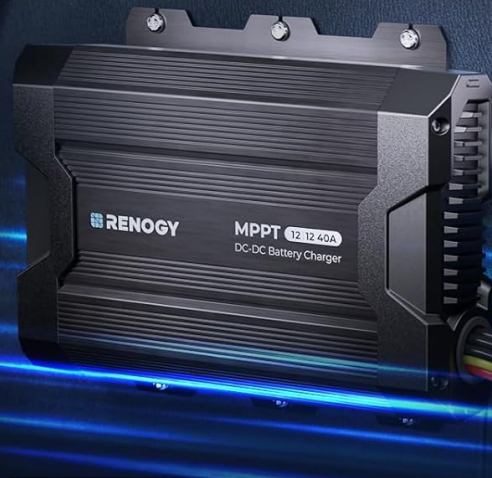
(Rated Charging Current: 40A)

Input (Starter Battery/PV)	Output (Service Battery)
60A	50A

Figure 2: Visual representation of the Renogy 40A DC-DC Charger package contents.

Adaptable Charging Options

Charge your house battery with solar panels or your vehicle's starter battery as needed



*This device cannot charge from both sources simultaneously.

Figure 4: Front view of the charger, illustrating the various input and output terminals for wiring.

For detailed wiring instructions, including connecting to the battery shunt and ensuring proper grounding, please refer to the following video:

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Video 1: An overview of the Renogy 12V 50A DC to DC Battery Charger with MPPT, including installation and wiring. This video demonstrates the physical connections and setup process for the charger within a power system.

4. OPERATION

The Renogy DC to DC Battery Charger is designed for intuitive operation with clear indicators and simple controls.

4.1 Charging Modes

The charger offers two primary charging modes: DC Input Priority and Solar Input Priority. By default, it operates in DC Input Priority mode, utilizing power from your vehicle's alternator. If the DC input voltage falls

below a certain threshold, it will automatically switch to solar input if available.

Wide Input Voltage Range

Optimizes solar input, supporting higher voltage ranges for efficient and reliable charging

 **11.2V-24V**

 **12V-30V**



Figure 5: The charger intelligently switches between DC and solar inputs to maximize charging efficiency.

4.2 Battery Type Selection

The charger is compatible with various battery chemistries. Use the one-touch selection button to choose the correct battery type (LiFePO₄, Gel, Flooded, or Sealed Lead Acid) for optimized charging parameters.

Maximized Charging Efficiency

Easily switch between DC and solar priority for high-efficiency charging tailored to your needs

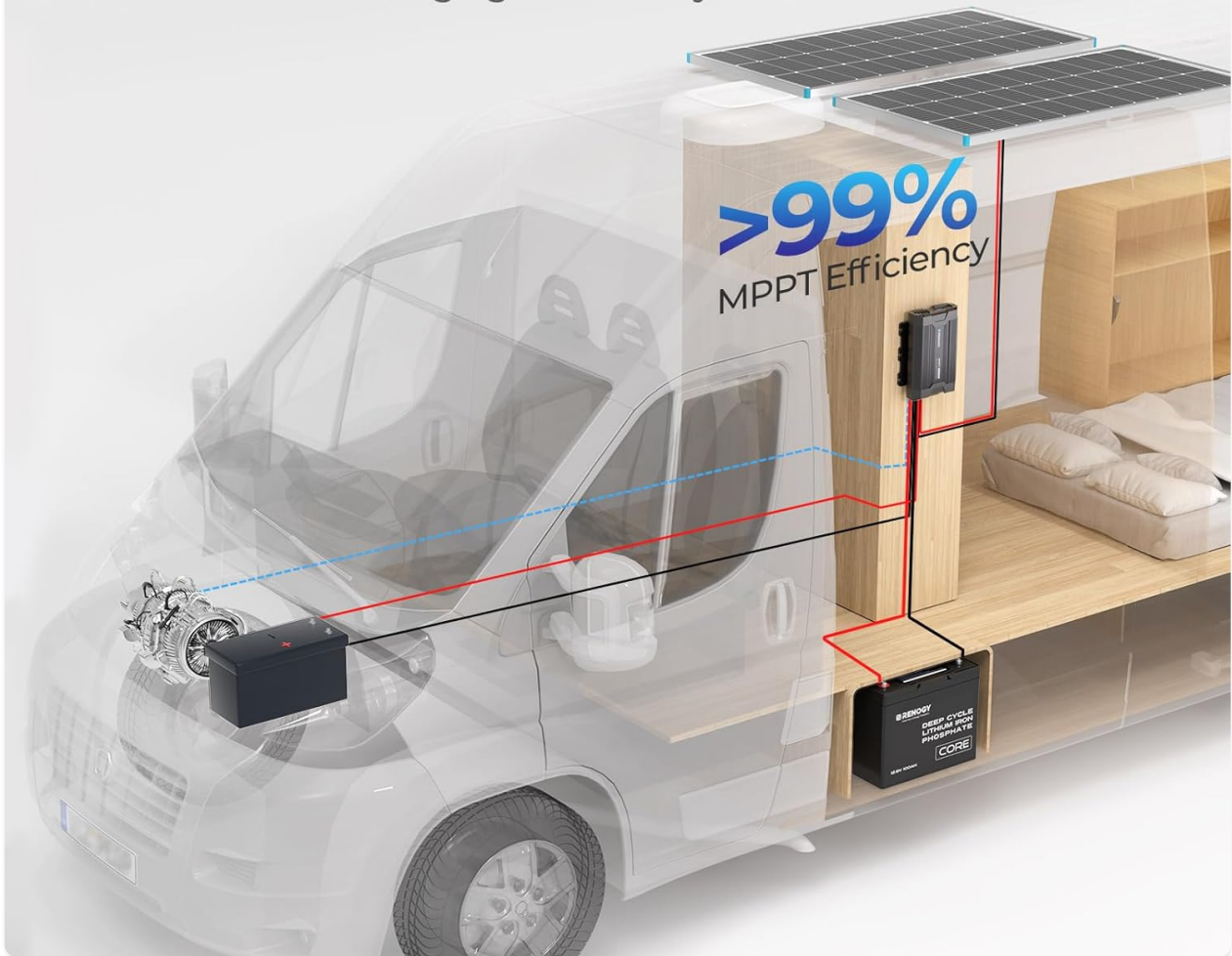


Figure 6: Press the **SELECT** button to switch between solar input priority and default DC input priority, and to choose battery type.

4.3 Indicator Lights

LED indicator lights provide visual alerts for charging status, input source, and any potential errors, ensuring a hassle-free charging experience.

Seamless Mode Switching

Press SELECT for a second to switch between solar input priority and default DC input priority



Figure 7: The charger optimizes solar input, supporting higher voltage ranges for efficient and reliable charging (11.2V-24V for battery, 12V-30V for solar).

Secure Your Journey

Enhanced protection integrated to ensure your peace of mind



Figure 8: Easily switch between DC and solar priority for high-efficiency charging tailored to your needs.

5. MAINTENANCE

To ensure the longevity and optimal performance of your Renogy DC to DC Battery Charger, regular maintenance is recommended:

- **Keep Clean:** Periodically wipe down the exterior of the charger with a dry cloth to remove dust and debris.
- **Check Connections:** Regularly inspect all wiring connections to ensure they are secure and free from corrosion. Loose connections can lead to poor performance or safety hazards.
- **Ventilation:** Ensure the mounting area remains clear of obstructions to allow for adequate airflow and prevent overheating.
- **Environmental Conditions:** Avoid exposing the charger to extreme temperatures or moisture beyond its specified operating conditions.

6. TROUBLESHOOTING

If you encounter issues with your Renogy DC to DC Battery Charger, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Charger not outputting power.	Loose connections, incorrect wiring, blown fuse, battery selector switch off.	Check all wiring connections for tightness. Verify correct polarity. Inspect and replace any blown fuses. Ensure battery selector switch is in the correct position.
Low charging output (e.g., 8A instead of 40A).	Inadequate input power (alternator or solar), undersized wiring, battery type misconfiguration.	Ensure vehicle engine is running and alternator is providing sufficient voltage. Verify solar panels are receiving adequate sunlight. Check wire gauge for proper sizing. Confirm correct battery type is selected on the charger.
Charger or wires getting hot.	Overload, undersized wiring, poor ventilation.	Reduce load on the charger. Ensure wiring is of adequate gauge for the current. Improve ventilation around the charger. Check for short circuits.
Charger draining starting battery when engine is off.	Incorrect wiring or lack of isolation.	Ensure proper isolation between starting and house batteries when the engine is off. An additional breaker or relay may be needed to prevent discharge. Consult wiring diagram.

If the problem persists after attempting these solutions, please contact Renogy customer support for further assistance.

Versatile Installation with Compact Design

Small enough to fit behind seats
or in the trunk, without taking up your living space



Dimensions: 7.68 x 5.87 x 1.89 inches

Weight: 2.64 lbs

Figure 9: The charger features enhanced protection, including input/output reverse polarity, over-voltage, under-voltage, over-temperature, over-charging, over-discharging, charging timeout, and BMS protection for LFP batteries.

7. SPECIFICATIONS

Feature	Specification
Product Dimensions	1.89 x 7.68 x 5.87 inches (4.8 x 19.5 x 14.9 cm)
Item Weight	2.81 pounds (1.28 Kilograms)
Model Number	RBC40D1S
Output Voltage	12 Volts (DC)
Brand	Renogy

Feature	Specification
Color	Black
Manufacturer	Renogy
Country of Origin	China

8. WARRANTY AND SUPPORT

The Renogy 12V 40A DC to DC Battery Charger with Solar Input MPPT comes with **2-year comprehensive warranty**, providing robust assurance for your use. This warranty covers defects in materials and workmanship under normal use.

For technical support, warranty claims, or any questions regarding your product, please visit the official Renogy website or contact their customer service department. Ensure you have your product model number (RBC40D1S) and proof of purchase ready when contacting support.