

Renogy 12V 30A DC to DC Charger with MPPT

Renogy 12V 30A DC to DC Charger with MPPT & Multi-Stage Charging User Manual

Model: 12V 30A DC to DC Charger with MPPT

Brand: Renogy

PRODUCT OVERVIEW

The Renogy 12V 30A DC to DC Charger with MPPT is a smart on-board battery charger designed for dual-source input from both solar panels and an alternator. It features multi-stage charging and multi-chemistry compatibility, supporting Lithium, AGM, Gel, and Flooded batteries. This unit is ideal for RVs, cars, and marine applications, ensuring your service battery remains fully charged.

Key features include:

- Dual-source charging capability (solar and alternator).
- Built-in MPPT for maximized solar power utilization.
- 3-phase charging (Bulk, Boost, Float) for optimal battery health.
- Compatibility with various battery types: Flooded, Gel, AGM, Lithium.
- Multiple smart protections for enhanced safety.
- Compact and sturdy design for versatile installation.
- RJ45 communication port for smart monitoring via Renogy One/RMS-DCDC screens and the DC Home App (with BT-2 Bluetooth Module, sold separately).



Image: Front view of the Renogy 12V 30A DC to DC Charger with MPPT, showing its compact black design and indicator lights.

SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of your Renogy DC to DC Charger. Ensure all connections are secure and follow local electrical codes.

Wiring Diagram Overview

The charger supports connections from both your vehicle's alternator (start battery) and solar panels to charge your house battery. It is recommended to install appropriate shut-off switches for both the solar input and the start battery input to allow for independent control and optimization of charging sources.

RJ45 Communication Port Featured

Elevate real-time monitoring experience with Renogy ONE & DC Home app



Image: A detailed wiring diagram illustrating the connection of the Renogy DC to DC Charger within an RV system, showing connections to solar panels, alternator (start battery), and house battery, along with fuses and ground points.

Physical Installation

The compact design of the Renogy DC to DC Charger allows for installation in various tight spaces within your vehicle or marine vessel. Ensure the mounting location provides adequate ventilation for optimal performance and heat dissipation.

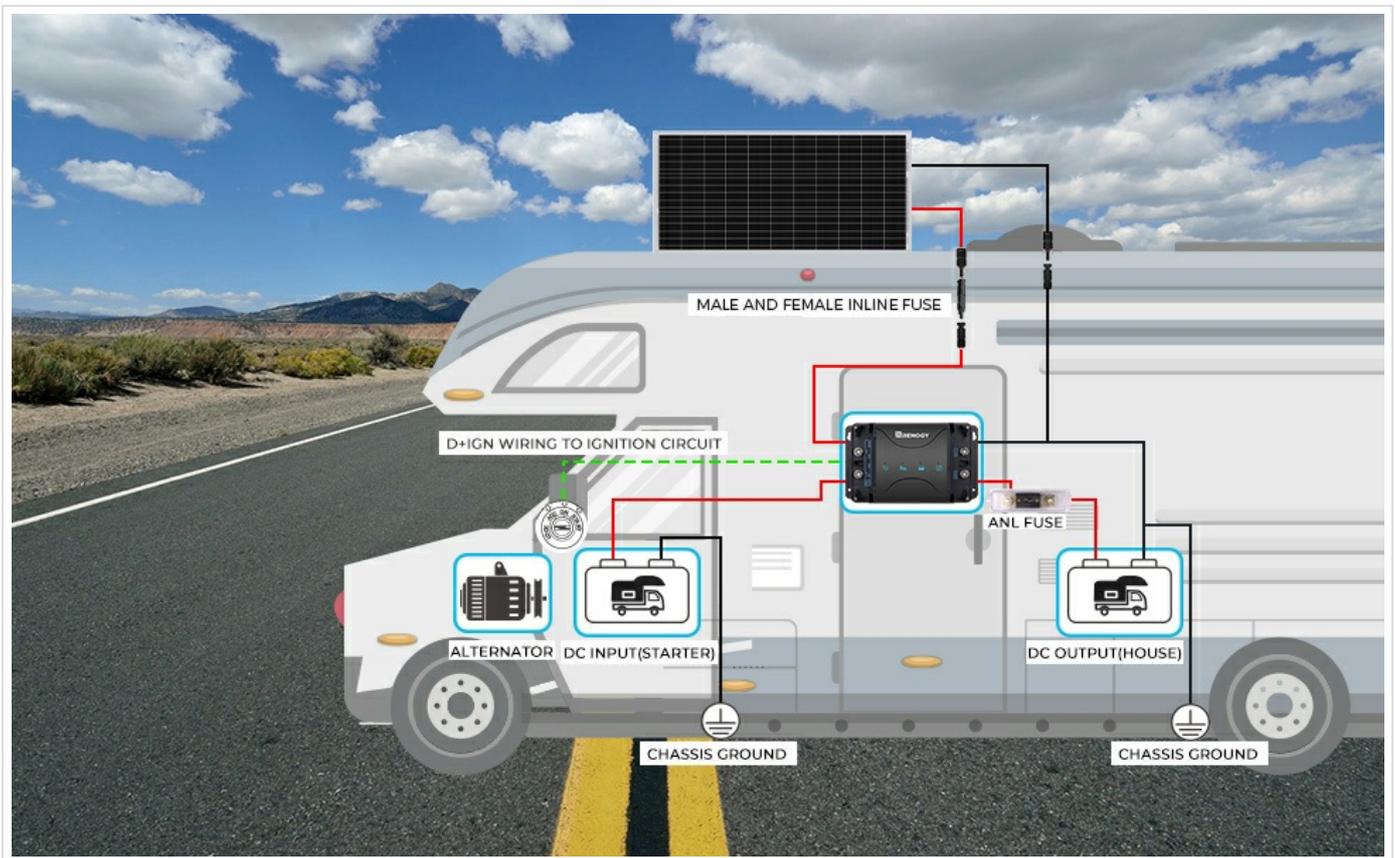


Image: Depicts the charger's sturdy and compact design, highlighting its suitability for various installation environments.

OPERATING INSTRUCTIONS

The Renogy DC to DC Charger intelligently manages power flow from your solar panels and alternator to efficiently charge your service battery.

Dual-Source Charging Logic

When both solar and alternator inputs are active, the charger prioritizes solar energy to reduce reliance on the alternator and save fuel. The unit can deliver up to 30A from either the solar input or the alternator input. To achieve the full 30A from a single source (e.g., alternator while driving or solar when parked), it is necessary to temporarily disconnect the other source using an external shut-off switch. This ensures the charger focuses its full capacity on the active input.

Support Multiple Battery Types



Gel



AGM



Flooded



Lithium



Image: Illustrates the multi-input capability of the charger, showing how it can receive power from both solar panels and a vehicle's alternator to charge a house battery.

MPPT and Multi-Stage Charging

Equipped with Maximum Power Point Tracking (MPPT) technology, the charger optimizes power extraction from your solar panels, achieving up to 97% charging efficiency. It employs a 3-phase charging process (Bulk, Boost, and Float) to ensure batteries are charged accurately and efficiently, prolonging their lifespan. The charger is compatible with various battery chemistries, including Flooded, Gel, AGM, and Lithium batteries.



Image: Highlights the built-in MPPT technology, emphasizing its role in maximizing solar power conversion for efficient battery charging.

Multiple Smart Protections

Ensure charging safety

Temperature Compensation

Over-voltage Protection

Over-current Protection

Built-in VSR

Reverse Prevention Circuit

Reverse Current Protection

Image: Shows the charger's compatibility with multiple battery types, including Gel, AGM, Flooded, and Lithium.

Smart Monitoring

The charger features an RJ45 communication port, allowing real-time monitoring of voltage, temperature, and fault codes via Renogy One/RMS-DCDC screens or the Renogy DC Home App. A BT-2 Bluetooth Module (sold separately) is required for app connectivity.

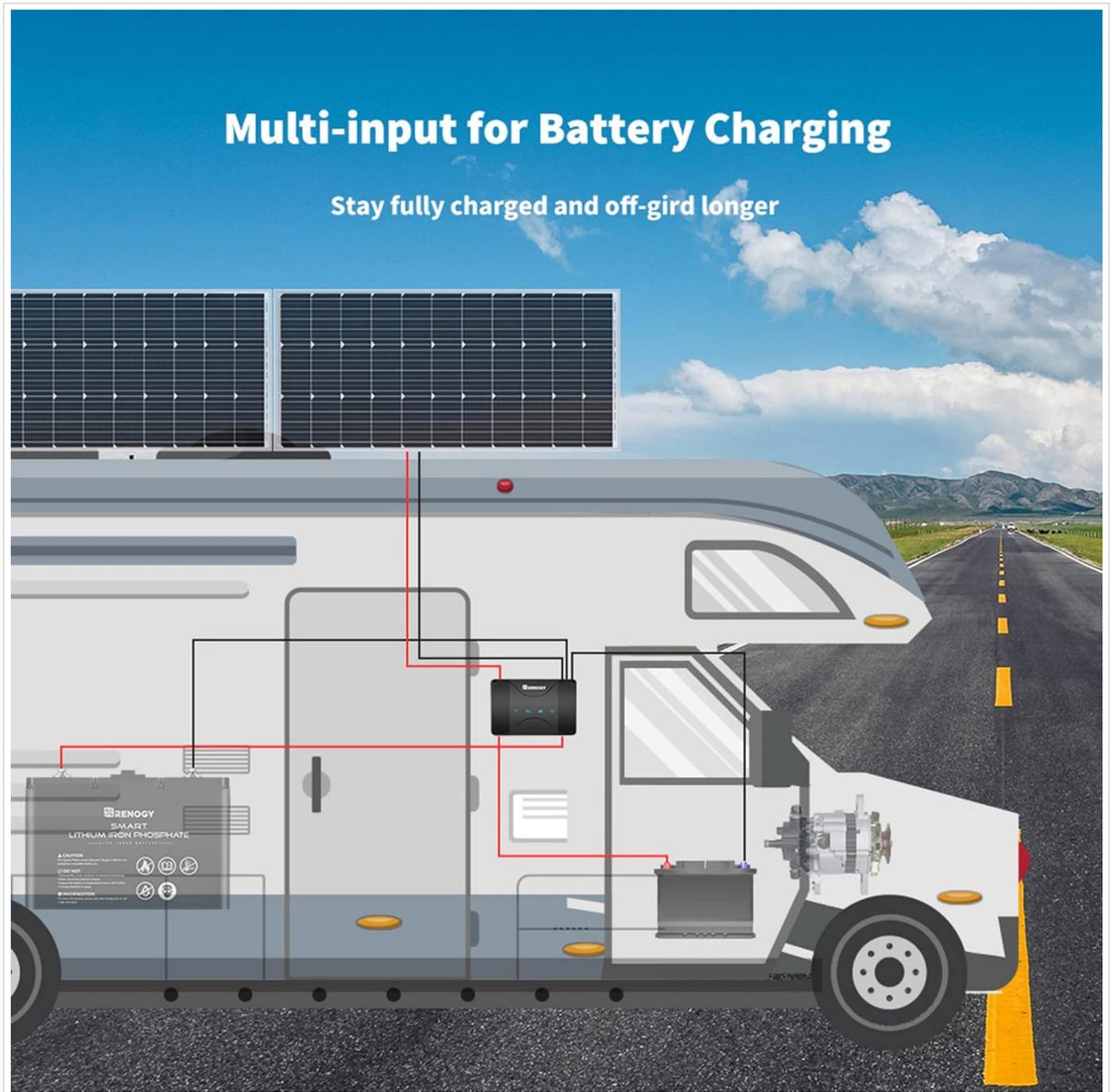


Image: Displays the RJ45 communication port and its integration with the BT-2 Bluetooth Module and the DC Home App for remote monitoring.

MAINTENANCE AND PROTECTION

The Renogy DC to DC Charger is designed with robust protection features to ensure long-term reliability and safety.

Built-in Protections

The unit incorporates several key protections:

- **Isolation:** Protects against electrical interference between the start and house battery systems.
- **Over-Voltage/Current/Temperature Protection:** Safeguards the charger and batteries from damaging conditions.

- **Reverse Polarity (Solar/Alternator):** Prevents damage from incorrect wiring.
- **Reverse Current Protection:** Stops current from flowing back to the source.
- **Overheat Protection:** Automatically reduces output or shuts down if temperatures exceed safe limits.



Image: Illustrates the various smart protection features of the charger, including temperature compensation, over-voltage, over-current, built-in VSR, reverse prevention circuit, and reverse current protection.

Temperature Management

The charger features temperature monitoring and compensation to maintain stable and efficient battery charging across varying environmental conditions. Its design also ensures silent and efficient heat dissipation, contributing to its durability.



Image: Shows the temperature monitoring and compensation capabilities of the charger, indicating its operational range.



Image: Depicts the charger's heat dissipation fins, highlighting its silent and efficient cooling mechanism.

TROUBLESHOOTING

This section provides guidance for common issues. For more detailed troubleshooting, refer to the official Renogy user manual or contact Renogy customer support.

Optimizing Charging Output

- **Full 30A from a Single Source:** If you require the full 30A output from either your solar panels or your alternator, ensure the other input source is temporarily disconnected. For example, when driving, turn off the solar input to allow the alternator to provide the full 30A. When parked and relying on solar, turn off the alternator input. This can be achieved using external shut-off switches on the respective input lines.
- **Low Charging Amperage:** Verify that all connections are secure and that the wire gauges are appropriate for the current draw. Ensure your solar panels are receiving adequate sunlight and are capable of producing the desired amperage. Check the health of your start battery and house battery.

Monitoring and Diagnostics

Utilize the Renogy DC Home App (with BT-2 module) or Renogy One/RMS-DCDC screens to monitor real-time charging data, including voltage, current, and temperature. This can help identify potential issues or abnormal operating conditions.

Overheating

Ensure the charger is installed in a location with sufficient airflow to prevent overheating. While the unit has built-in

thermal protection, prolonged operation in high ambient temperatures or enclosed spaces without ventilation can affect performance. Verify that the unit's heat dissipation fins are not obstructed.

SPECIFICATIONS

Feature	Detail
Product Dimensions	9.6 x 3 x 5.7 inches (9.6"D x 3"W x 5.7"H)
Item Weight	3.13 pounds (3.1 Pounds)
Output Voltage	12 Volts (DC)
Specification Met	UL, CE
Item Model Number	12V 30A DC to DC Charger with MPPT
Manufacturer	Renogy
Country of Origin	China
First Available Date	April 23, 2021

WARRANTY AND SUPPORT

For detailed warranty information, please refer to the official documentation provided with your product or visit the Renogy website. Renogy offers customer support for product inquiries, technical assistance, and warranty claims.

You can access the official User Manual (PDF) for this product via this link [Renogy 12V 30A DC to DC Charger User Manual](#).

For additional support or to explore other Renogy products, visit the official Renogy Store [Renogy Store on Amazon](#).