

Renogy

Dual Input DC-DC On-Board with MPPT Battery Charger

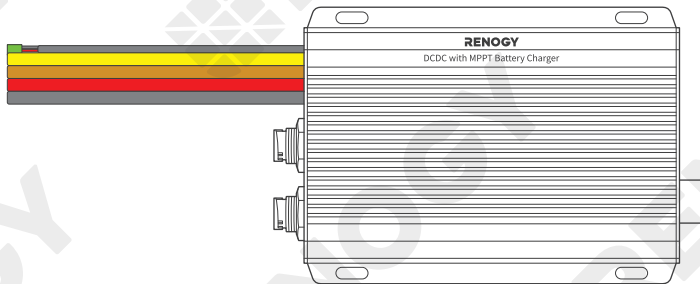
12V/24V | 50A | IP67

RBC2125DS-21W

 **RENOGY**[®]

Find Your Energy Freedom™

VERSION A0



QUICK GUIDE

Before Getting Started

The quick guide provides important operation and maintenance instructions for Renogy 12V/24V 50A IP67 Dual Input DC-DC On-Board with MPPT Battery Charger (hereinafter referred to as battery charger).

Read the quick guide carefully before operation and save it for future reference. Failure to observe the instructions or precautions in the quick guide can result in electrical shock, serious injury, or death, or can damage the battery charger, potentially rendering it inoperable.

Online Manual



Quick Guide



User Manual



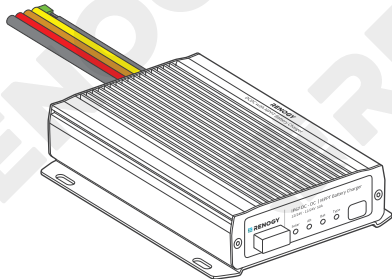
Table of Contents

What's In the Box?	1
Dimensions	2
Get to Know Renogy Battery Charger	3
System Setup	5
Required Tools	6
How to Install the 5/16 in Lugs (M8 Ring Terminals)?	7
How to Install Cables on the Battery Charger?	9
Step 1. Plan a Mounting Site	10
Step 2. Connect the Battery Charger to an Auxiliary Battery	11
Step 3. Connect the Battery Charger to a Solar Panel	13
Step 4. Connect the Battery Charger to a Starter Battery	15
Step 5. Tape over the Negative Common Cable	17
Step 6. Install a Battery Temperature Sensor	18
LED Indicators	19
Set a Battery Type	20

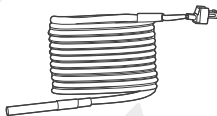
USER Mode	21
Monitor the Battery Charger	22
Short-Range Monitoring via DC Home App.....	23
Wireless Long-Range Monitoring.....	24
Important Safety Instructions	25
Renogy Support	27
FCC Statement	29
FCC Radiation Exposure Statement	30
Disclaimer	30

What's In the Box?

Renogy 12V/24V 50A IP67
Dual Input DC-DC On-Board
with MPPT Battery Charger x 1



Quick Guide x 1

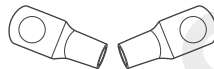


Battery Temperature
Sensor (3 m) x 1

ST4*20 mm



Mounting Screws x 4



5/16 in Lugs
(M8 Ring Terminals) x 4

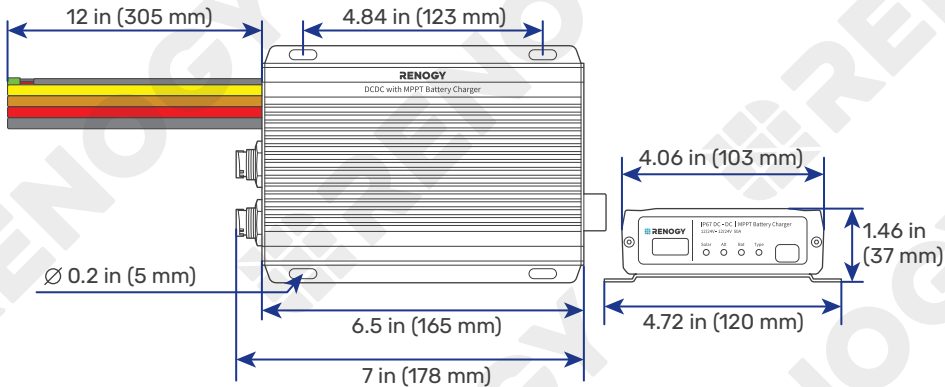


Make sure that all accessories are complete and free of any signs of damage.



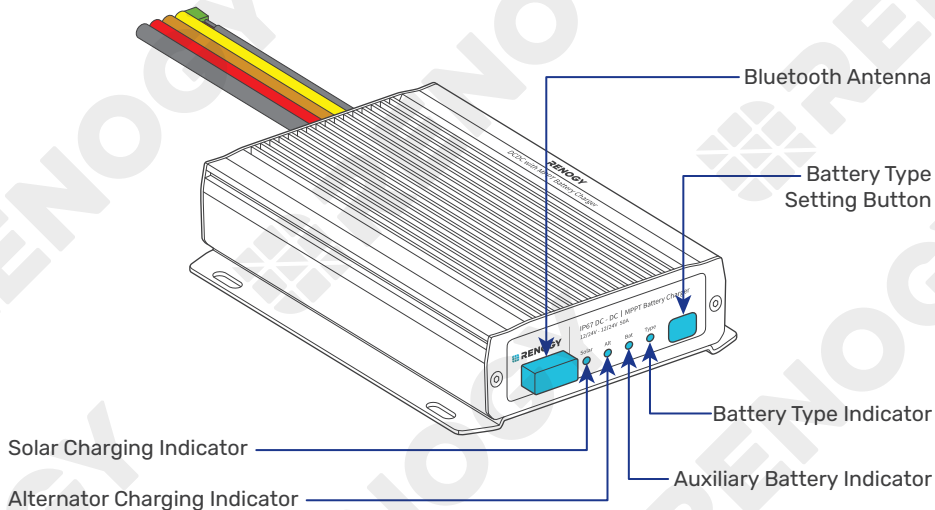
The accessories and product manual listed are crucial for the installation, excluding warranty information and any additional items. Please note that the package contents may vary depending on the specific product model.

Dimensions



Dimension tolerance: ± 0.2 in (0.5 mm)

Get to Know Renogy Battery Charger



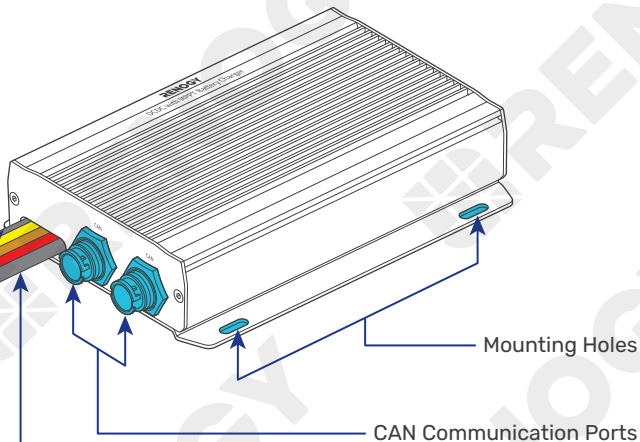
Positive Auxiliary
Battery Cable (brown)

Positive Solar
Cable (yellow)

Battery Temperature
Sensor Cable
(with connectors)

Positive Starter
Battery Cable (red)

Negative Common
Cable (black)

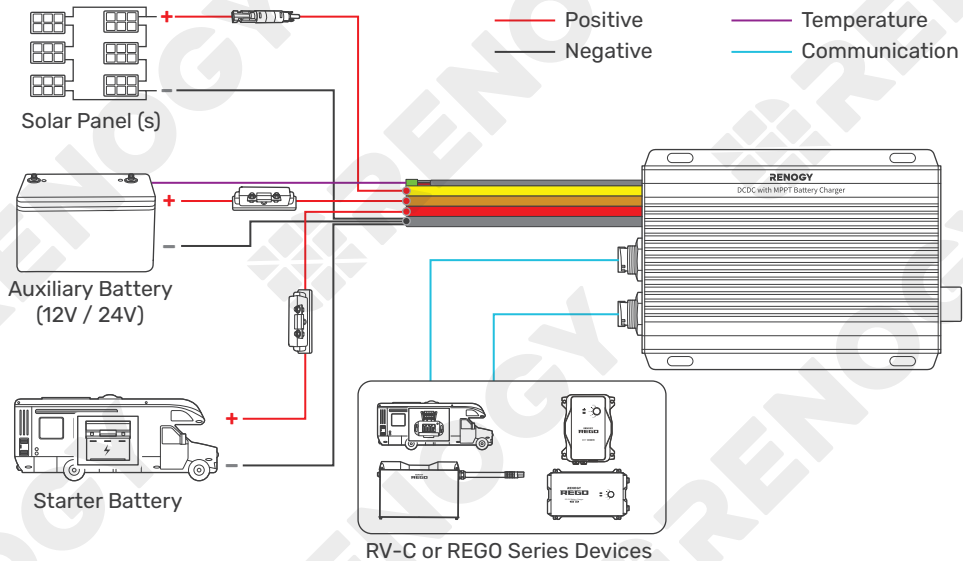


The battery temperature sensor cable can only be used with lead-acid batteries.



For CAN Communication Ports wiring details, refer to the user manual of the battery charger at <https://www.renogy.com/support/downloads>.

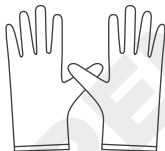
System Setup



Required Tools



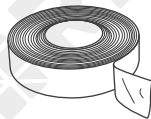
Phillips
Screwdriver (#1)



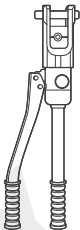
Insulating Gloves



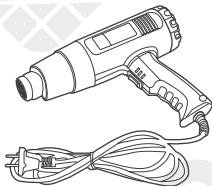
Wire stripper



Insulation Tape



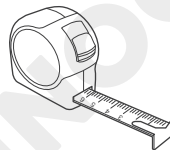
Manual Hydraulic Pliers



Heat Gun



Heat Shrink Tubing



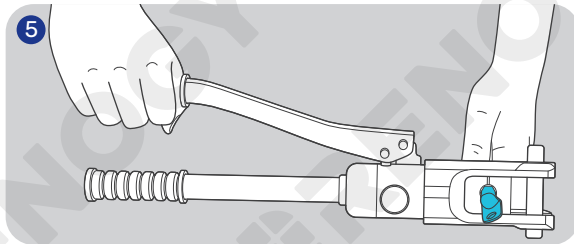
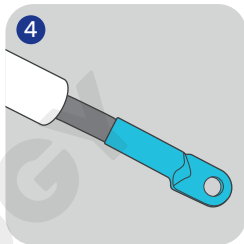
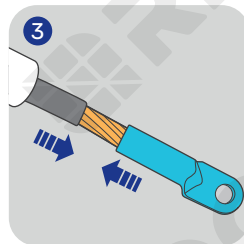
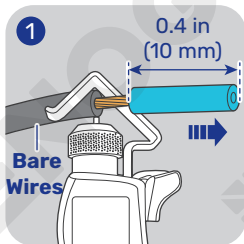
Measuring Tape

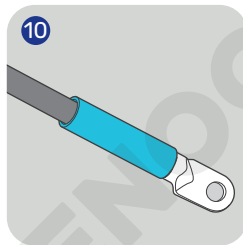
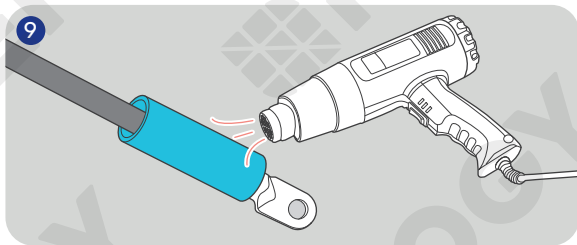
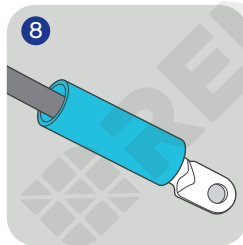
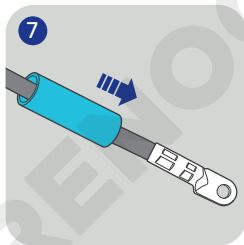
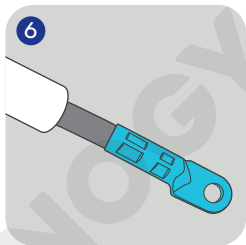


Prior to installing and configuring the battery charger, prepare the recommended tools, components, and accessories.

How to Install the 5/16 in Lugs (M8 Ring Terminals)?

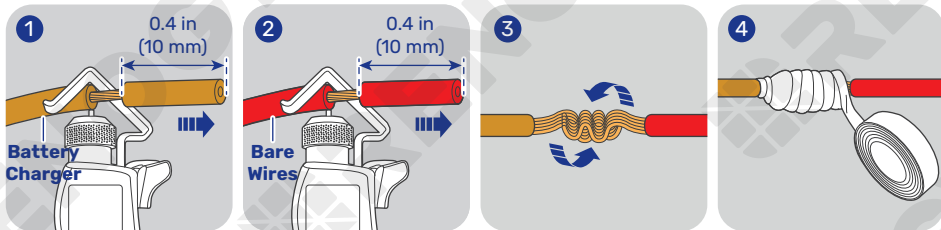
You can connect your auxiliary battery and starter battery to the battery charger via the included 5/16 in Lugs (M8 Ring Terminals).








How to Install Cables on the Battery Charger?

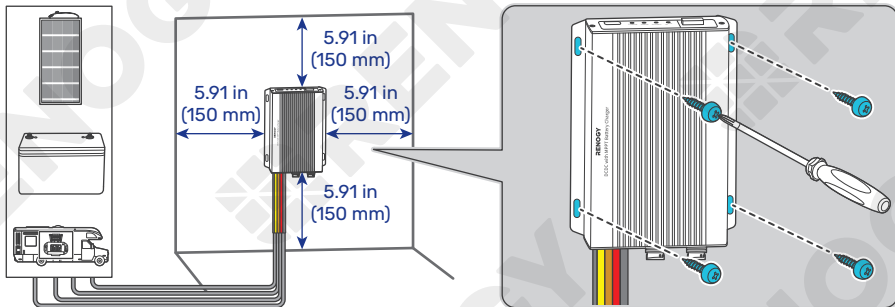
The illustrations are based on the Positive Auxiliary Battery Cable.



-  Wear insulating gloves before wiring.
-  You are allowed to make connections using insulated conduit, junction boxes, or welding methods. If the battery charger is installed outdoors, please ensure that the wiring connections are waterproof.
-  After completing all the positive cable connections for relative devices, you can tape over the negative common cable (black) in the cutoff areas.

Step 1. Plan a Mounting Site

The battery charger requires adequate clearance for installation, wiring, and ventilation. The minimum clearance is provided below.



-31°F to 176°F
-35°C to 80°C



0% to 95%



FRAGILE



VENTILATION

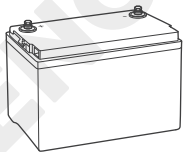


The battery charger should be installed on a flat surface protected from direct sunlight.

Step 2. Connect the Battery Charger to an Auxiliary Battery

The battery charger can only be connected to deep-cycle gel-sealed lead-acid batteries (GEL), flooded lead-acid batteries (FLD), sealed lead-acid batteries (SLD/AGM), or lithium iron phosphate batteries (LI).

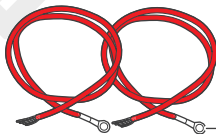
Recommended Components & Accessories



*12V/24V Battery
(11V to 32V)



*ANL Fuse
(60A) × 1



Battery Adapter Cables
(6 AWG) × 2

3/8 in
(M10)



Bare Wire (6 AWG) × 1



Accessories marked with "*" are available on [renogy.com](https://www.renogy.com).

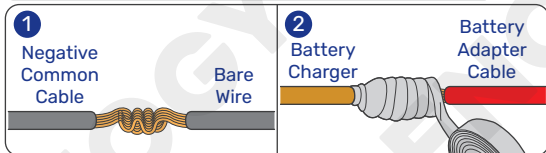


For installation details, see the user manual of the battery in use.

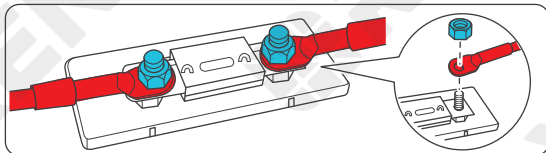


To ensure optimal system performance, a 6 AWG cable should be no longer than 3 meters. Choose higher gauge cables for longer distances. For details, see the user manual of the battery charger at www.renogy.com/support/downloads.

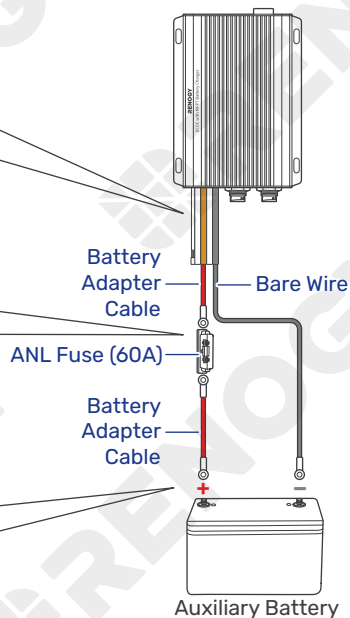
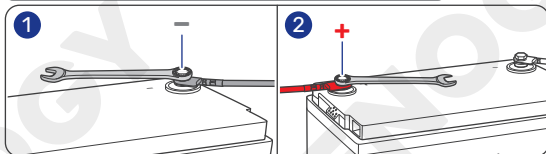
STEP-1 Install cables on the battery charger



STEP-2 Install an ANL fuse



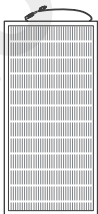
STEP-3 Install the cables on the battery



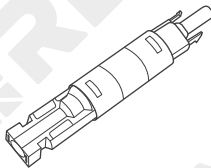
Step 3. Connect the Battery Charger to a Solar Panel

- For 12V batteries, the maximum charging current from solar panels is 50A.
- For 24V batteries, the maximum charging current from solar panels is 25A.

Recommended Components & Accessories



*Solar Panel (s)



*Solar Panel Fuse



*Solar Panel Extension
Cables (4 AWG) × 2



Accessories marked with "*" are available on [renogy.com](https://www.renogy.com).

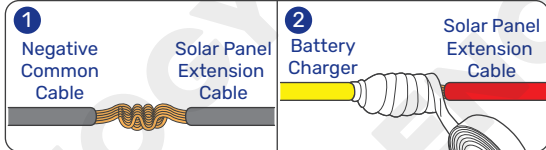


Connecting the battery charger to a solar panel exceeding 720W ($\leq 50V$) results in damage to the battery charger.

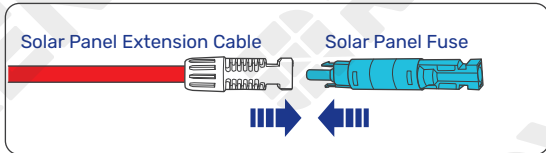


The appropriate current rating for the solar panel fuse should be determined by multiplying the total amperage of the solar panel array by 1.56.

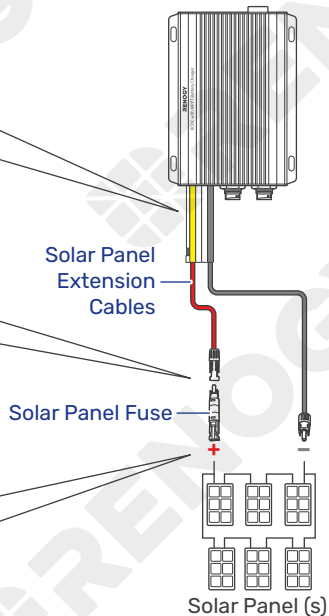
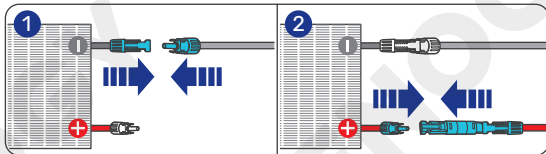
STEP-1 Install cables on the battery charger



STEP-2 Install an solar panel fuse



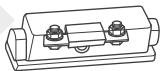
STEP-3 Install the cables on the solar panel



Step 4. Connect the Battery Charger to a Starter Battery

Before installing the charger, consult your vehicle's user manual or contact the vehicle manufacturer to ensure that the alternator power does not exceed 720W with the output current within the range of 75A to 100A.

Recommended Components & Accessories



*ANL Fuse
(100A) × 1



3/8 in
(M10)
Battery Adapter Cables
(4 AWG) × 2



Bare Wire (4 AWG) × 1

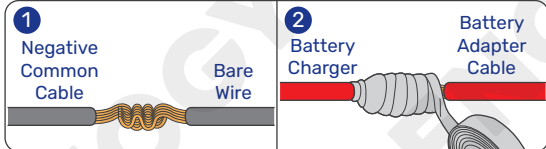


Accessories marked with "*" are available on [renogy.com](https://www.renogy.com).

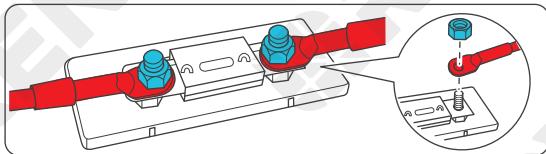


The starter battery stops charging the auxiliary battery when the starter battery voltage drops below 12.7V for 12V systems or 25.4V for 24V systems.

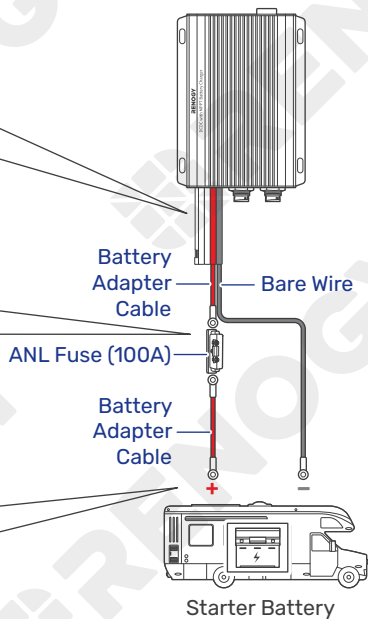
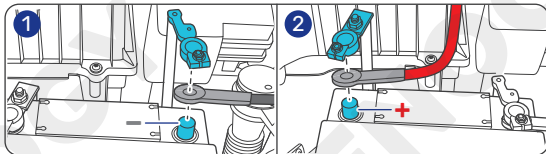
STEP-1 Install cables on the battery charger



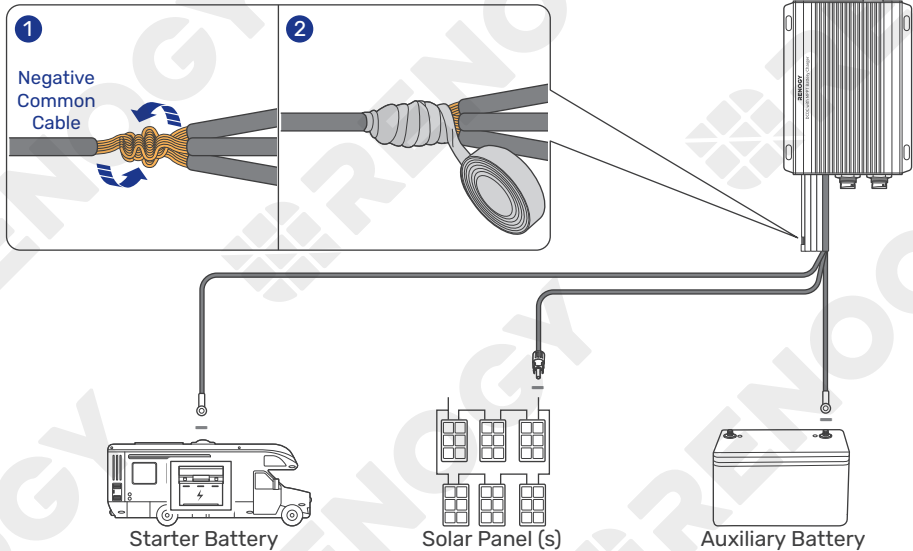
STEP-2 Install an ANL fuse



STEP-3 Install the cables on the RV starter battery



Step 5. Tape over the Negative Common Cable



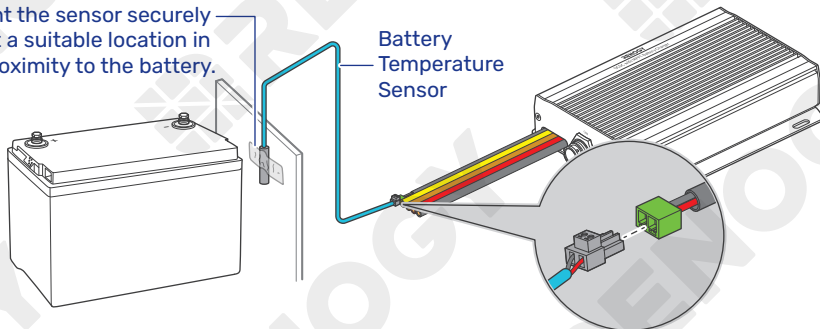
Step 6. Install a Battery Temperature Sensor

The temperature sensor measures the surrounding temperature of the battery and compensates the floating charge voltage when the battery temperature is low.



Do not use the temperature sensor on a LiFePO₄ (LFP) battery which comes with a battery management system (BMS).

Mount the sensor securely at a suitable location in close proximity to the battery.



LED Indicators

The battery charger turns on automatically after power on with the LED indicators working in accordance with the relative operating status.

Solar Charging Indicator

○ **Off:** Not charging

● **Solid:** MPPT charging

● **Slow flash :**

- **2s:** Boost charging

- **One time:** Float charging

- **Two times:** Limited-current charging

● **Fast flash (0.5s):** Equalization charging

Alternator Charging Indicator

○ **Off:** Not charging

● **Solid:** The alternator is charging the auxiliary battery.

● **Flash:** The solar panel is charging the starter battery.

Battery Type Indicator

● **Solid:** FLD

● **Solid:** GEL

● **Solid:** SLD/AGM

● **Solid:** 12V LI

● **Solid:** 24V LI

● **Solid:** User Mode

Auxiliary Battery Indicator

○ **Off:** No battery detected

● **Solid:** Full charge

● **Solid:** Normal battery voltage

● **Solid:** Undervoltage warning

● **Slow flash (2s):** Overdischarge warning

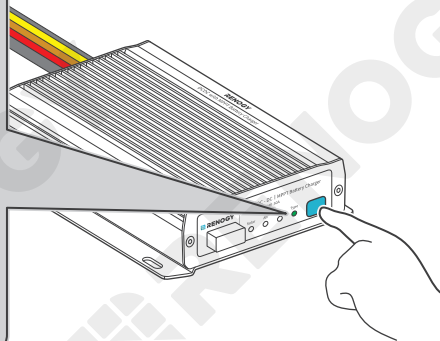
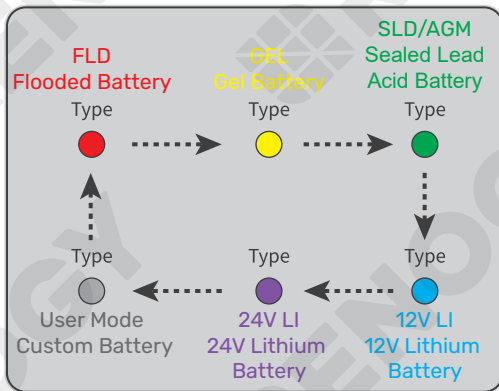
● **Fast flash (0.5s):** Overtemperature/
Overvoltage warning

Set a Battery Type

Upon installing the battery charger, set a correct battery type by using the Battery Type Setting Button. For non-lithium batteries, the battery charger can automatically detect their voltage (12V or 24V).

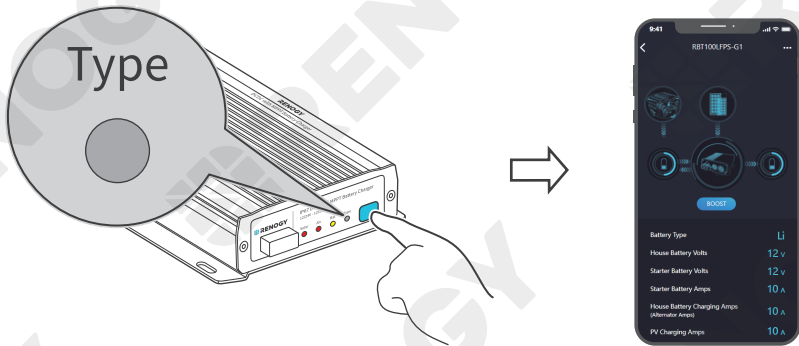


It is essential to ensure that the battery type setting is configured correctly to avoid any potential damage to the battery charger because any damage to the battery charger resulting from an incorrect battery type setting voids the warranty.



USER Mode

Setting the battery type to User Mode allows you to customize your battery parameters. You can modify the parameters in the DC Home app.



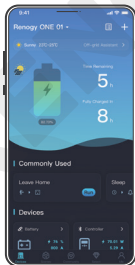
When customizing settings, consult the user manual provided by the battery manufacturer. If necessary, contact the manufacturer for further assistance.



For detailed parameter settings, see the user manual of the battery charger at [renogy.com/support/downloads](https://www.renogy.com/support/downloads).

Monitor the Battery Charger

Download the DC Home app. Login to the app with your account.



DC Home App



GTE IT ON
Google Play



Download on the
App Store



For CAN communication details, see the user manual of the battery charger at renogy.com/support/downloads.



The version of the DC Home app might have been updated. Illustrations in the user manual are for reference only. Follow the instructions based on the current app version.



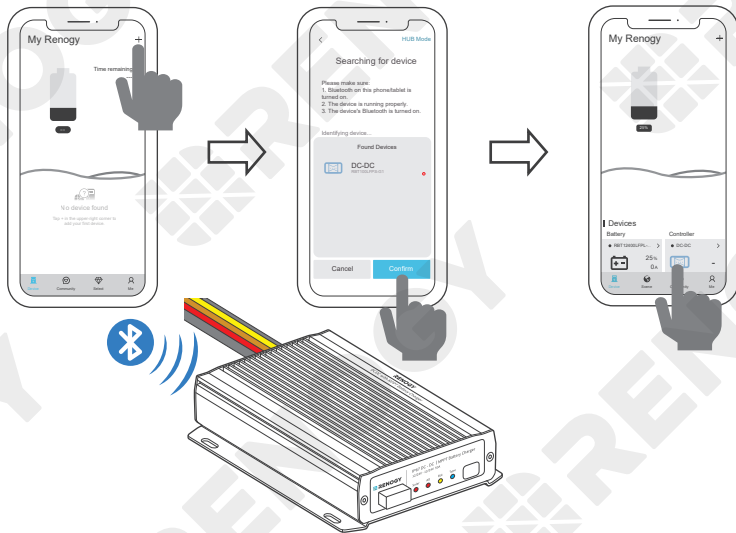
To ensure optimal system performance, keep the phone or RENOGY ONE within 10 feet (3 m) of the battery charger.



You can receive fault alarms on DC Home and Renogy ONE when the battery charger is faulty. Please login to the DC Home app or Renogy ONE for troubleshooting details.

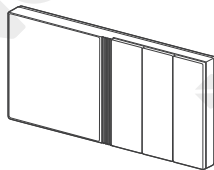
Short-Range Monitoring via DC Home App

Pair the battery charger with the DC Home app. Monitor and modify the parameters of the battery charger via the app.

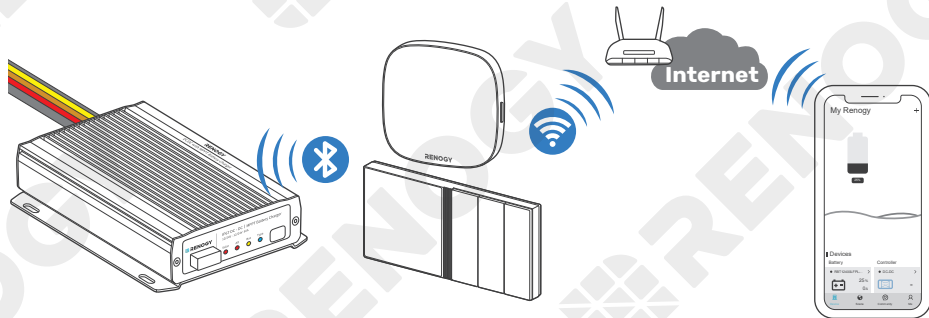


Wireless Long-Range Monitoring

Recommended Components.



*RENOGY ONE Core or Renogy ONE M1



Important Safety Instructions

■ General

- Wear proper protective equipment and use insulated tools during installation and operation. Do not wear jewelry or other metal objects when working on or around the battery charger.
- Keep the battery charger out of the reach of children.
- Do not dispose of the battery charger as household waste. Comply with local, state, and federal laws and regulations and use recycling channels as required.
- In case of fire, put out the fire with a FM-200 or CO₂ fire extinguisher.
- Installing the battery charger improperly on a boat may cause damage to components of the boat. Have the devices installed by a qualified electrician.
- Do not expose the battery charger to flammable or harsh chemicals or vapors.
- Clean the battery charger regularly.
- Do not puncture, drop, crush, penetrate, shake, strike, or step on the battery charger.
- Do not open, disassemble, repair, tamper with, or modify the battery charger.
- Connect the negative prior to the positive terminal when connecting any device.
- It is recommended that all cables should not exceed 10 meters because excessively long cables result in a voltage drop.
- The cable specifications listed in the quick guide account for critical, less than 3% voltage drop and may not account for all configurations.

■ Battery Charger Safety

- Install the battery charger on a vertical surface – protected from direct sunlight, high temperatures, and water. Make sure there is good ventilation.
- Keep the battery charger away from heating equipment.
- Do not insert foreign objects into the battery charger.
- Confirm the polarities of the devices before connection. A reverse polarity contact can result in damage to the battery charger, thus voiding the warranty.
- Do not touch the connector contacts while the battery charger is in operation.
- Disconnect all connectors from the battery charger before maintenance or cleaning.

■ Battery Safety

- Do not use batteries if there is any damage.
- Do not touch the exposed electrolyte or powder if the battery is damaged.
- Risk of explosion! Never install the battery charger in a sealed enclosure with flooded batteries! Do not install the battery charger in a confined area where battery gases can accumulate.
- Prior to installing the battery charger, ensure all battery groups are installed properly.

■ Solar Panel Safety

- Do not use the solar panel(s) if there is any damage.
- Prior to connecting the battery charger to the solar panel(s), shade the solar panel(s).
- Always connect the battery charger to the battery first before connecting it to the solar panel. This prevents damage caused by open-circuit voltage from the solar panel.

Renogy Support

To discuss inaccuracies or omissions in this quick guide or user manual, visit or contact us at:

 | renogy.com/support/downloads



→ contentservice@renogy.com



Questionnaire Investigation



To explore more possibilities of solar systems, visit Renogy Learning Center at:

 | renogy.com/learning-center



For technical questions about your product in the U.S.: contact the Renogy technical support team through:

 | renogy.com/contact-us



1(909)2877111

For technical support outside the U.S.: visit the local website below:

Canada |  | ca.renogy.com

Australia |  | au.renogy.com

South Korea |  | kr.renogy.com

United Kingdom |  | uk.renogy.com

China |  | www.renogy.cn

Japan |  | renogy.jp

Germany |  | de.renogy.com

Other Europe |  | eu.renogy.com

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- (1) Reorient or relocate the receiving antenna.
- (2) Increase the separation between the equipment and receiver.
- (3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- (4) Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Disclaimer

Renogy 12V/24V 50A IP67 Dual Input DC-DC On-Board with MPPT Battery Charger Quick Guide © 2023 Renogy. All rights reserved.

RENOGY and **RENOGY** are registered trademarks of Renogy.

- All information in the quick guide is subject to copyright and other intellectual property rights of Renogy and its licensors. The quick guide may not be modified, reproduced, or copied, in whole or in part, without the prior written permissions of Renogy and its licensors.
- The registered trademarks in the quick guide are the property of Renogy. The unauthorized use of the trademarks is strictly prohibited.
- Renogy ensures the accuracy, sufficiency, and the applicability of information in the quick guide at the time of printing due to continual product improvements that may occur.

- Renogy assumes no responsibility or liability for personal and property losses, whether directly and indirectly, caused by the user's failure to install and use the product in compliance with the quick guide.
- Renogy is not responsible or liable for any failure, damage, or injury resulting from repair attempts by unqualified personnel, improper installation, and unsuitable operation.
- The illustrations in the quick guide are for demonstration purposes only. Details may appear slightly different depending on product revision and market region.
- Renogy reserves the right to change the information in the quick guide without notice. For the latest quick guide, visit [renogy.com](https://www.renogy.com).



Renogy Power **PLUS**

Renogy Power Plus allows you to stay in the loop with upcoming solar energy innovations, share your experiences with your solar energy journey, and connect with like-minded people who are changing the world in the Renogy Power Plus community.



@Renogy Solar



@renogyofficial



@Renogy

Renogy reserves the right to change the contents of this quick guide without notice.

Manufacturer: RENOGY New Energy Co.,Ltd

Address: No.66, East Ningbo Road Room 624-625

Taicang German Overseas Students Pioneer Park

JiangSu 215000 CN

EC REP

eVatmaster Consulting GmbH
Battinastr. 30
60325 Frankfurt am Main, Germany
contact@evatmaster.com

Manufacturer: RENOGY New Energy Co.,Ltd

Address: No.66, East Ningbo Road Room 624-625

Taicang German Overseas Students Pioneer Park

JiangSu 215000 CN

UK REP

EVATOST CONSULTING LTD
Suite 11, First Floor, Moy Road Business
Centre, Taffs Well, Cardiff, Wales, CF15 7QR
contact@evatmaster.com

RENOGY.COM



RENOGY