Portable LFP Battery Charger

Quick Guide

SKU: RBC20A1P

VERSION B2

⚠ Important Safety Instructions ⚠

Please save these instructions.

- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

- Children should be supervised to ensure that they do not play with the appliance.

- This battery charger is specifically designed for 12V lithium batteries. It is compatible with a charging voltage of 14.4V and allows a maximum charging current of 20A for 12V lithium batteries.

- This charger has a grounding function and is equipped with a built-in grounding point.



Important Safety Instructions

WARNING Indicates a potentially dangerous condition. Use extreme caution when performing this task.

CAUTION Indicates a critical procedure for the safe and proper installation and operation of the battery.

NOTE Indicates a procedure or function that is important to the safe and proper operation of the battery.

Disclaimer

The manufacturer accepts no liability for any damage caused by:

- Force majeure including fire, typhoon, flood, earthquake, war, and terrorism.
- Intentional or accidental misuse, abuse, neglect or improper maintenance, and use under abnormal conditions.
- Improper installation, improper operation, and malfunction of a peripheral device.
- Contamination with hazardous substances, diseases, vermin, or radiation.
- Alterations to the product without expressed written consent from the manufacturer.

General Safety Information

- Please keep the battery away from water, heat sources, sparks, and hazardous chemicals.
- DO NOT puncture, drop, crush, burn, penetrate, shake, or strike the battery.
- DO NOT open, dismantle, or modify the battery.
- DO NOT touch any terminals or connectors.

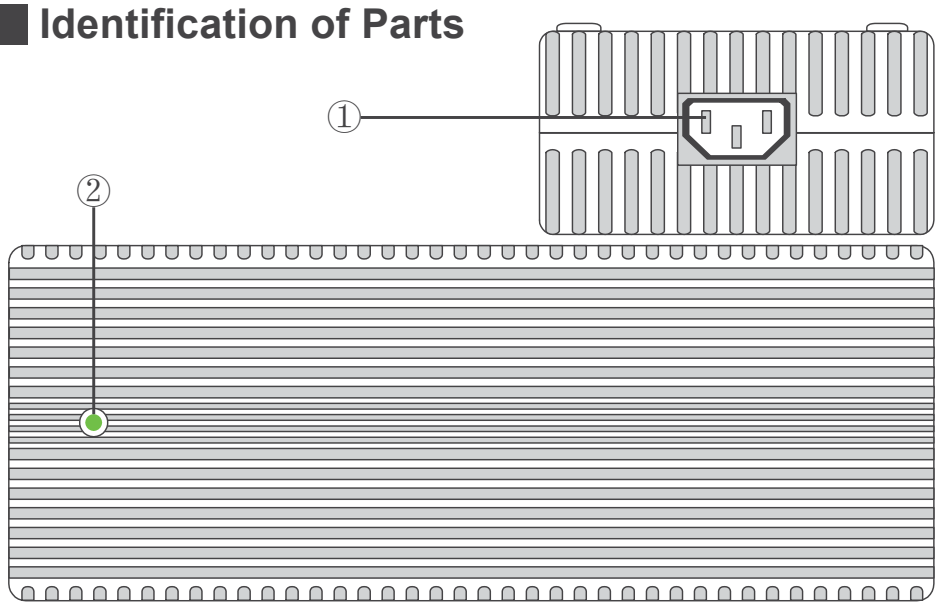
- Any uncovered battery material, such as electrolyte or powder, that has contacted skin or the eyes must be flushed out with plenty of clean water immediately. Seek medical attention afterwards. Spills on clothing should be rinsed out with water.
- DO NOT touch the exposed electrolyte or powder if the battery casing is damaged.
- Please make sure any battery charger(s) or charge controller(s) are disconnected when working on the battery.
- DO NOT connect or disconnect terminals to/from the battery without first disconnecting loads.
- Do not expose charger to rain or snow.
- Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock, or injury to persons.
- To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.
- Do not operate charger with damaged cord or plug – replace the cord or plug immediately.
- Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way.
- Do not disassemble charger.
- To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.
- The charger outputs 20A and is intended for the use of charging 12.8V Lithium-iron phosphate (LFP, LiFePO4) batteries that can handle the charge current.
- Ensure that the LiFePO4 batteries include a PCM/BMS when using this charger.

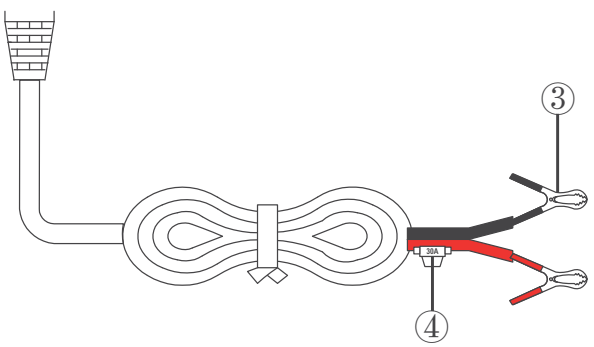
General Information

Renogy 20A AC to DC Charger (RBC20A1P) is an automatic and portable charger intended for 12V LFP batteries. This charger includes 12AWG alligator clips and outputs power based on the power, voltage, and current condition of the battery. The charger has an LED status indicator for providing a visual means to determine the operating mode and condition of the battery connected to the charger. The AC-DC portable charger will automatically monitor and maintain the battery at full charge.

Product Overview

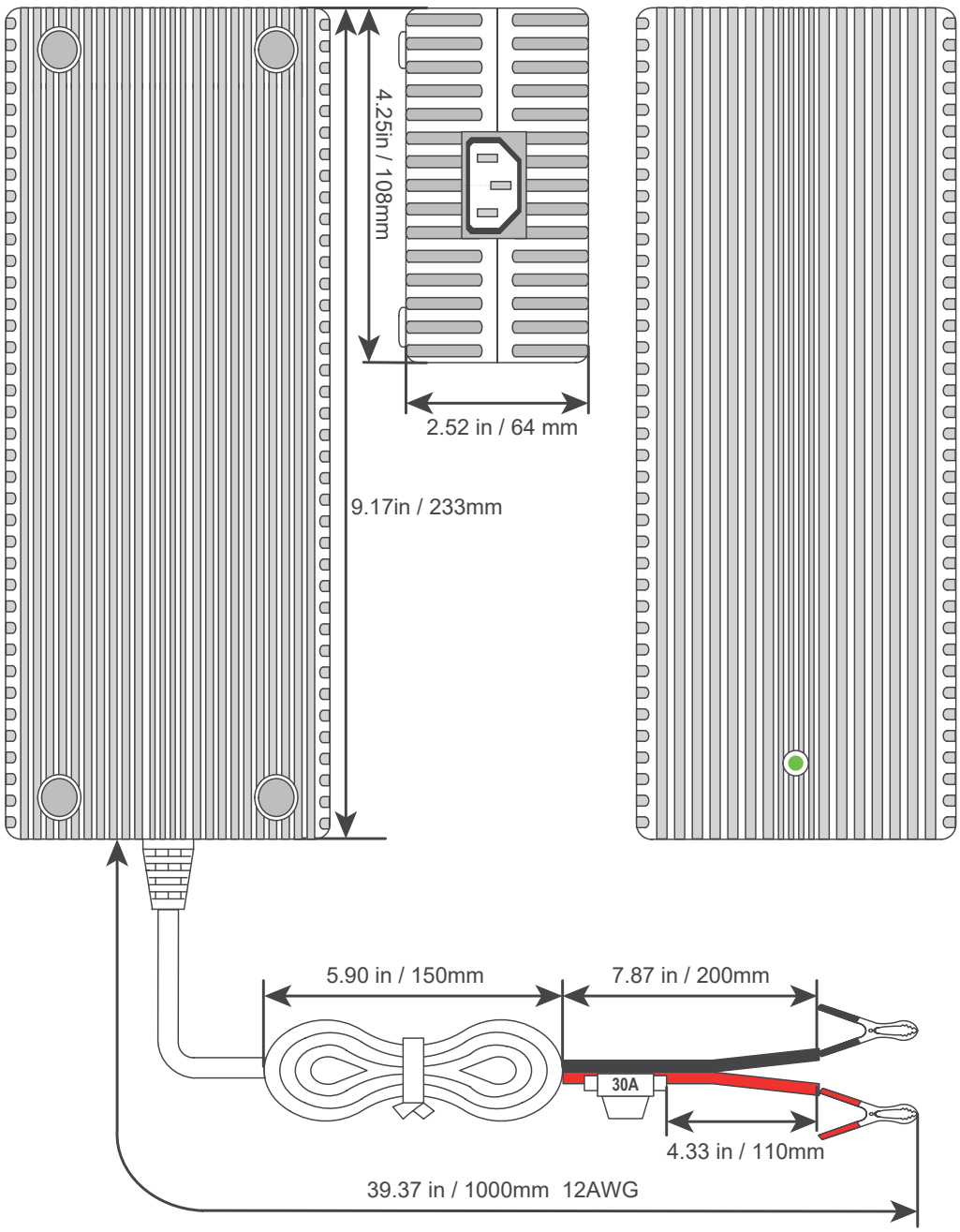
Identification of Parts





1.AC Port
2.LED Status Indicator
3.Alligator Clips
4.Blade Fuse (30A)

Dimensions


4.25in / 108mm
2.52 in / 64 mm
9.17in / 233mm
5.90 in / 150mm
7.87 in / 200mm
30A
4.33 in / 110mm
39.37 in / 1000mm 12AWG

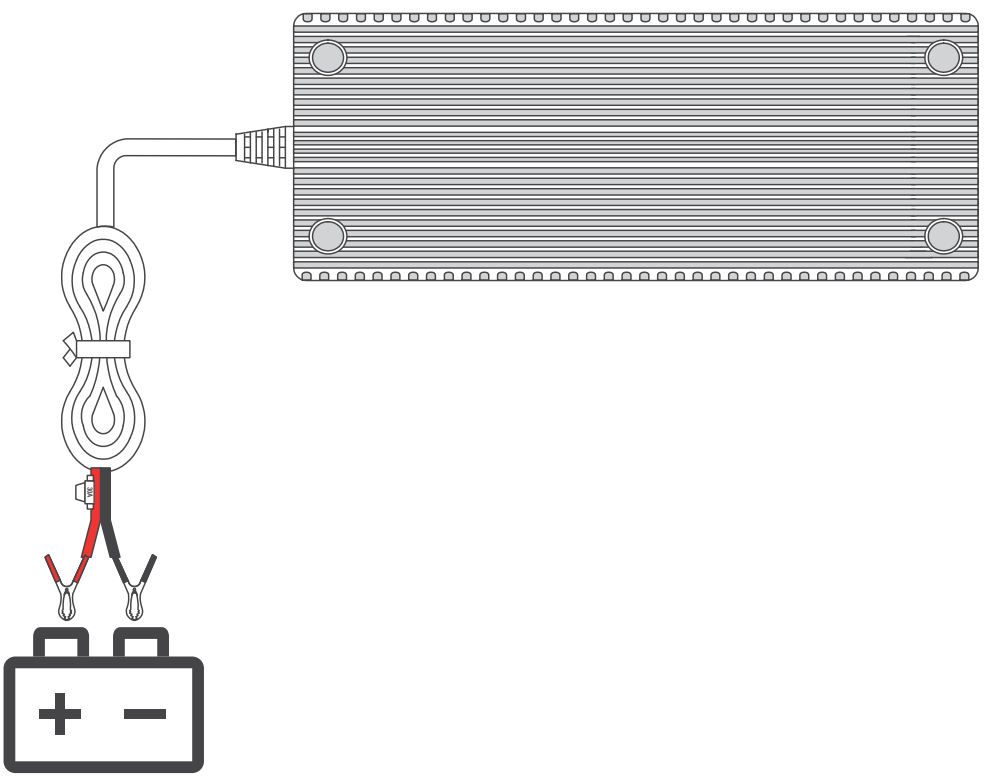
Operation

WARNING Never alter AC cord or plug provided on the charger.

IMPORTANT: Place the charger on a hard-flat surface. Do not place it on a plastic, leather or textile surface.

- Locate the charger as far away from the battery as DC cables permit.
- Never place the charger directly above the battery being charged.
- Do not operate the charger in a closed-in area or restrict the ventilation in any way.
- Never allow the alligator clips to touch each other.

To get started, connect the positive alligator clip to the positive terminal on the LFP battery. Do the same for the negative terminal. Upon successful connection, the status indicator will display Red or Green depending on the status of the battery.



LED Status

LED Status	Description
Solid red	This indicates the charger is charging normally.
Always-on green light	There are two conditions when the indicator light is always green. Condition 1: When the charger is first connected to the AC utility terminal, but the AC charger output is not connected to the battery (meaning the charger is in an idle state); Condition 2: When the charging current of the charger is lower than 2A (meaning the battery is fully charged).
Indicator light off	The LED indicator immediately goes out when the charger triggers one of the following protection mechanisms: ● Over-current protection ● Over-voltage protection ● Under-voltage protection ● Short-circuit protection In this case, please follow the steps in Troubleshooting below.

Troubleshooting

Condition	Steps to Take
Short Circuit Protection	1. When there is a short circuit between the two poles of the ring terminals in the battery charger, the Short Circuit Protection will be triggered. The charger stops working immediately, and the LED indicator goes out. 2. Disconnect the connecting wire of the AC terminal immediately. When the short circuit between the live wire and the neutral wire is resolved, wait for 10 seconds, and then reconnect the AC terminal wire, and the charger will restart.
Undervoltage Protection	1. When the battery voltage is between 4V and 5V, the Undervoltage Protection of the charger will be triggered. 2. The 12V battery has almost reached its end of lifespan when its voltage drops to a range of 4V to 5V. Please contact the battery manufacturer for further support.
Overvoltage Protection	1. When the voltage at the output terminal of the charger is greater than 16V, the Overvoltage Protection will be triggered. At this time, the indicator light will go out and the charger will stop working. 2. Disconnect the battery immediately and check the charger.

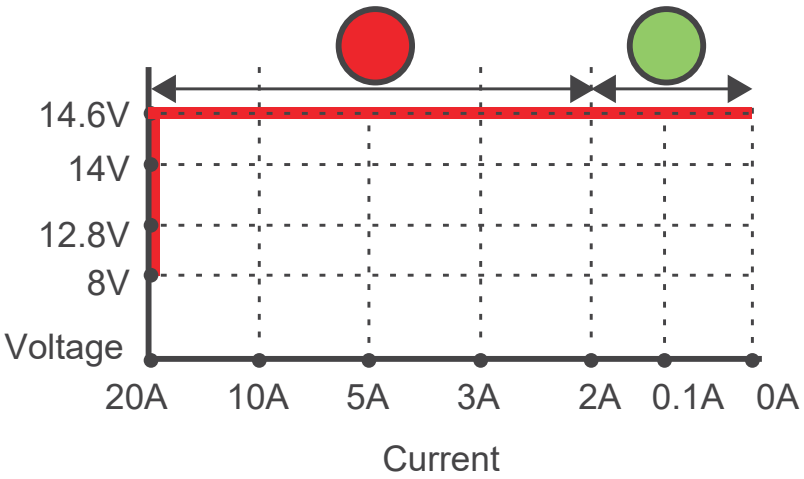
Condition	Steps to Take
Reverse Connection Protection	1. When the charger triggers the Reverse Connection Protection, the external fuse on the connection line will blow, the charger will not work normally. 2. Replace the fuse on the connection line immediately. The specification of the fuse is 250V 30A.

Technical Specifications

Model	RBC20A1P
Input Voltage	100V to 240V AC, 50 Hz/60 Hz
Input Amps	5A Max
Output/Charge Voltage	14.5(±0.1)V DC
Output/Charge Current	20(±2)A
Minimum Battery Voltage	4V to 5V DC
Efficiency	110V AC 90% Min 230V AC 91% Min
Room Operating Temperature*	-29°C to 45°C / -20°F to 113°F
Storage Temperature	-40°C to 75°C / -40°F to 167°F
Self-Consumption	50mA Max
Current Protection	250V 10A Fuse built in
Dimensions	9.2 x 4.3 x 2.5 in / 233 x 108 x 64 mm
Weight	3.8 lbs / 1.7 kg
Cable Length	approx. 39.4 in / 1000 mm

**LFP batteries should not be charged below 0°C/32°F. Otherwise, the BMS cuts off the charging.

Charge Curve



The battery charger works in accordance with the following:

- Maximum Chagre Voltage: 14.5(±0.1)V DC
- Hold Charge Voltage: 14.5(±0.1)V DC
- Minimum Charge Voltage: 4.5(±0.5)V DC
- Charge Current: 20(±2)A

When the charger enters the constant voltage charging phase and detects that the charging current falls within the range of 15.5A to 17.5A, the current is reduced to 3A to 4.5A. This current adjustment function is achieved through current detection.

When the charging current of the charger is lower than 2A (meaning the battery is fully charged), the LED Status Indicator turns solid green.

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
Office 101 32 Threadneedle Street,
London, United Kingdom, EC2R 8AY
contact@evatost.com