RENOGY®
Find Your Energy Freedom™

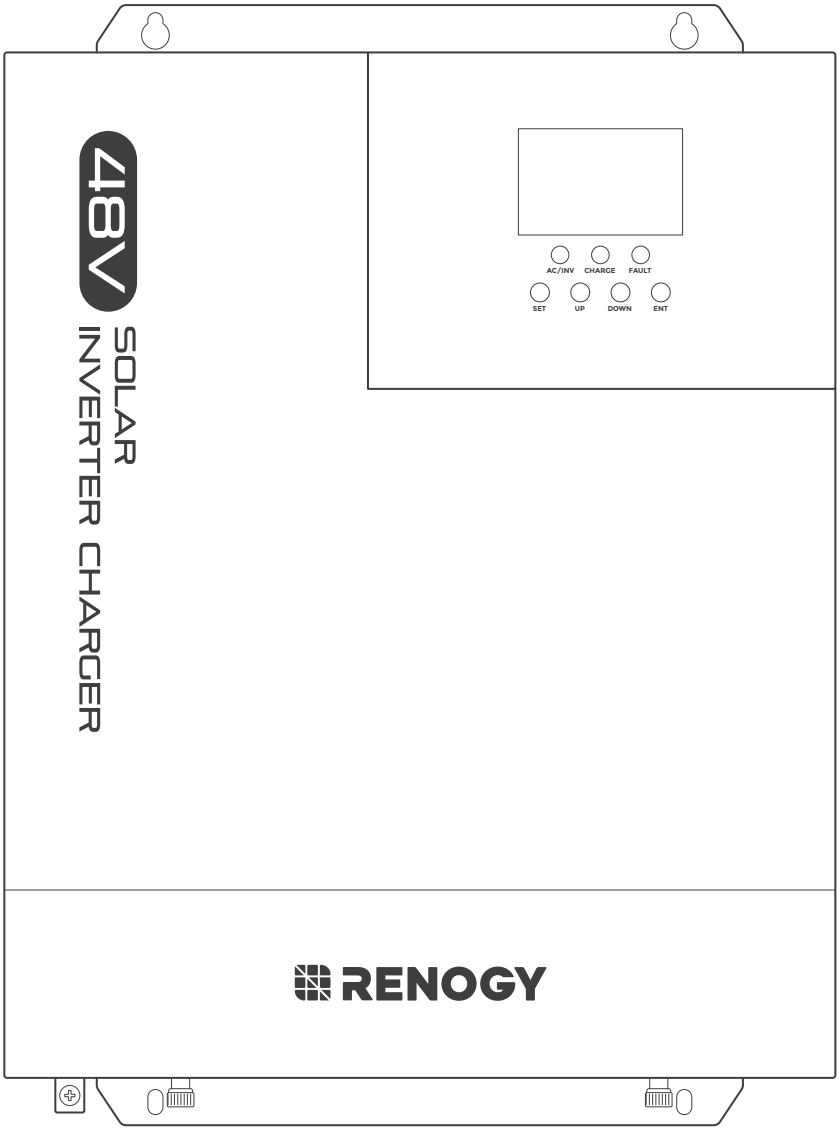
Renogy

Pure Sine Wave Solar Inverter Charger

48V | 3500W

RIV4835PCS-1SS

VERSION A3



QUICK GUIDE

Before Getting Started

The quick guide provides important operation and maintenance instructions for RENOGY 48V 3500W Pure Sine Wave Solar Inverter Charger (hereinafter referred to as inverter 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 inverter charger, potentially rendering it inoperable.

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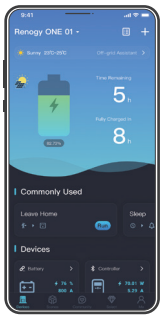
DC Home App



DC Home App

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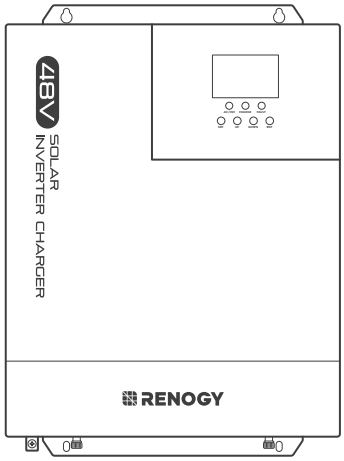
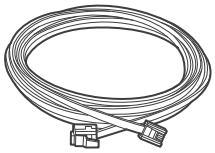
What's In the Box?

RENOGY 48V 3500W Pure Sine Wave Solar Inverter Charger × 1

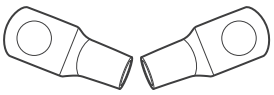


Quick Guide × 1

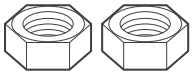
Wired Remote Control × 1



RJ12 Network Cadle (5m) x 1



Ring Terminals (M6) × 2

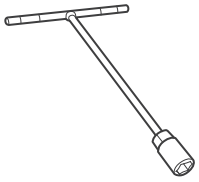


Screw Nuts (M6) × 2

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

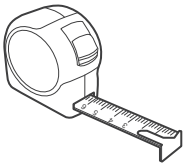
Required Tools

Phillips Screwdriver (#1)

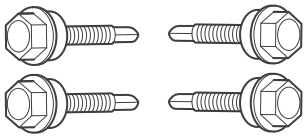


Socket Wrench (7/16 inches)

Manual Hydraulic Pliers



Measuring Tape



Self-tapping Screws (ST6) × 4

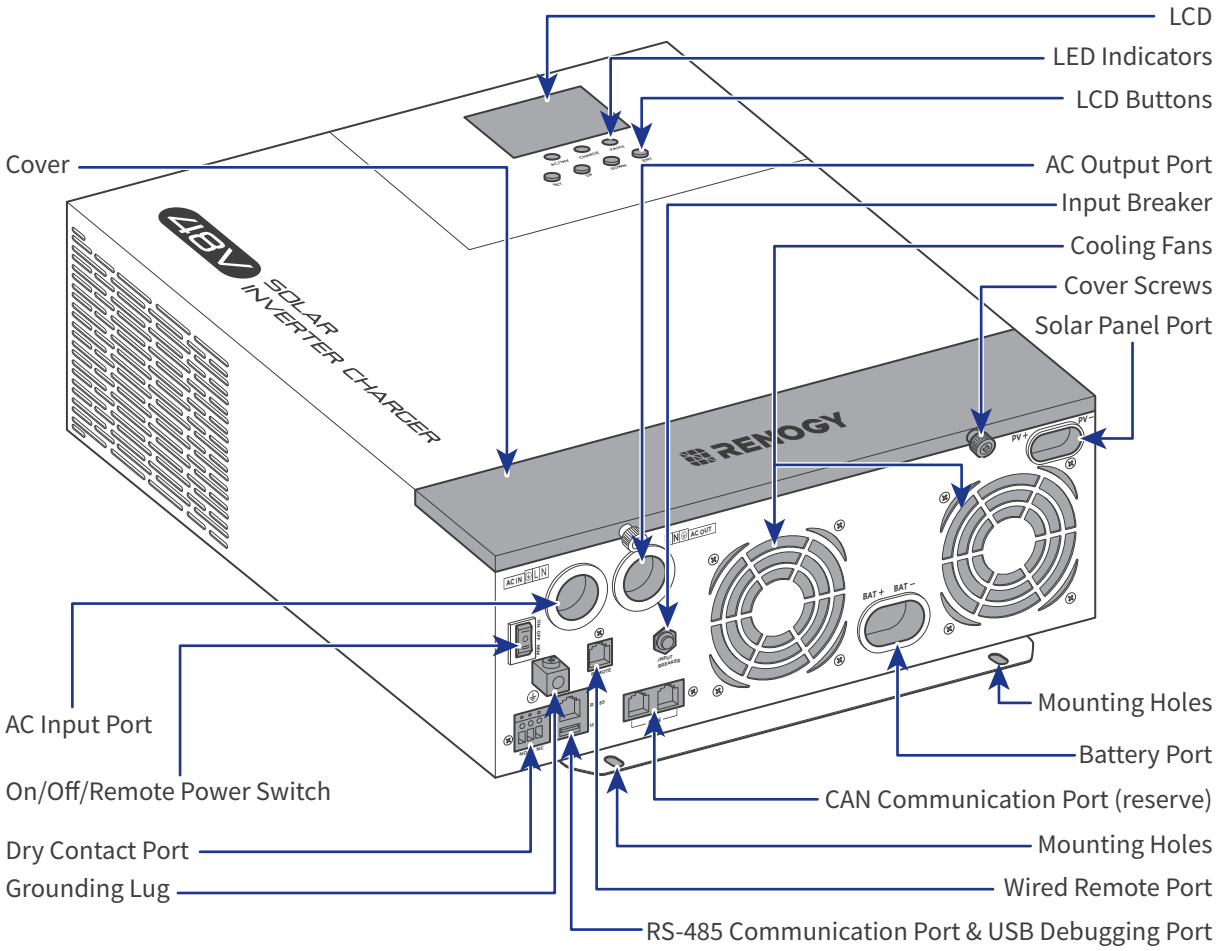
Wire Stripper

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

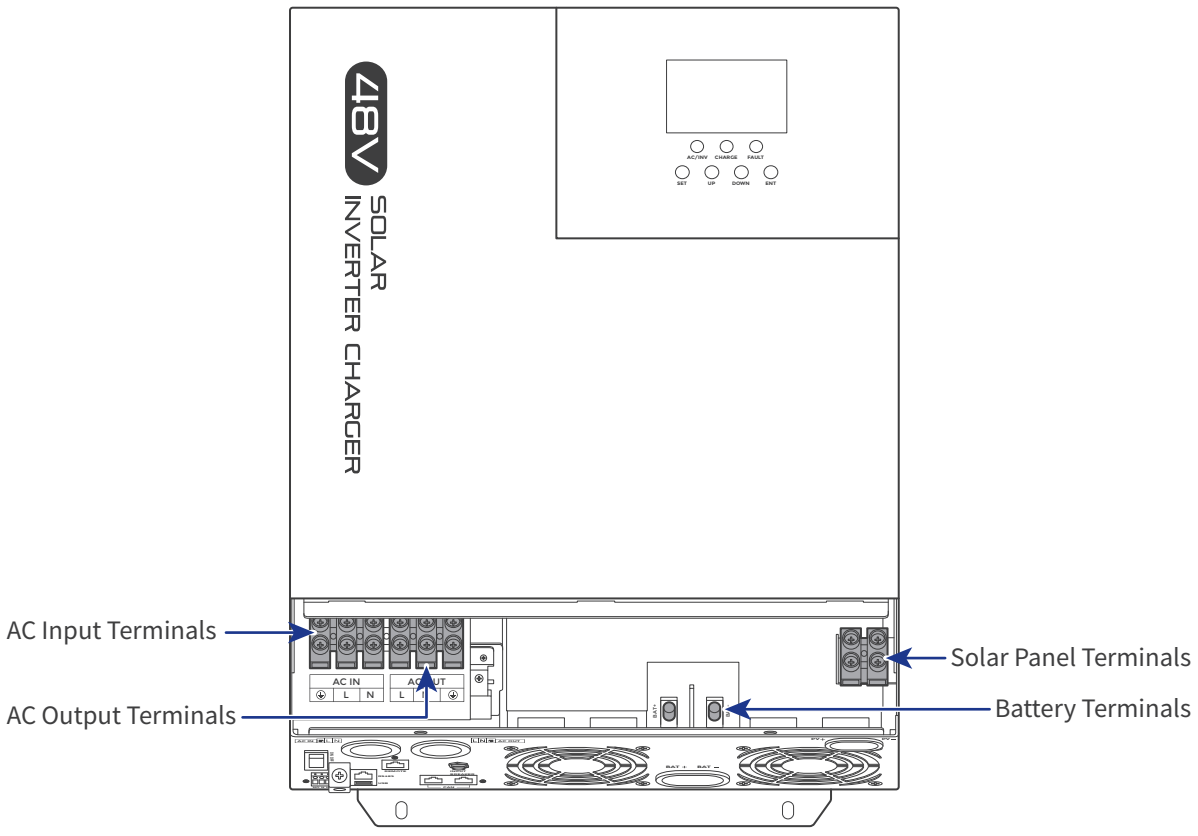
⚠ Choose proper mounting screws specific to your installation site. This guide takes self-tapping screws for wooden walls as an example.

Get to Know RENOGY Solar Inverter Charger

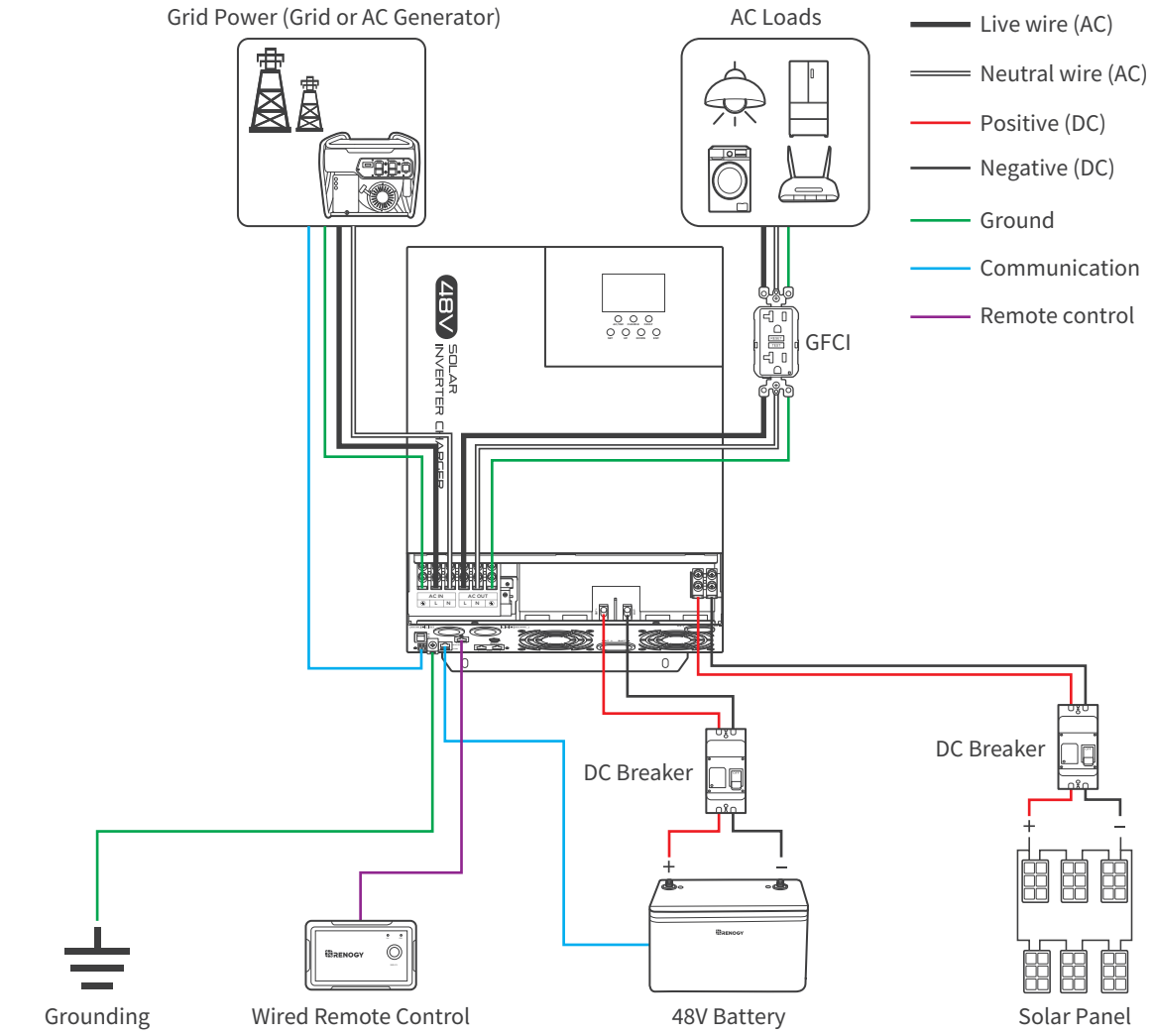
Exterior



Interior (with the Cover removed)



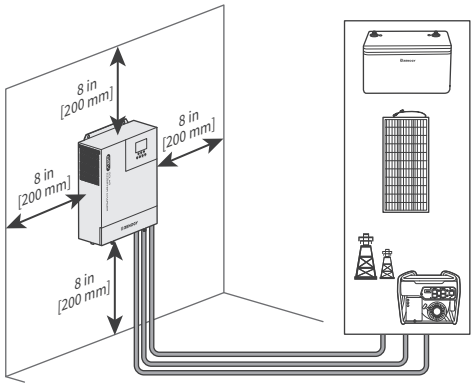
System Setup



⚠ The wiring diagram only shows the key components in a typical DC-coupled residential energy storage system for the illustrative purpose. The wiring might be different depending on the system configuration. Additional safety devices, including disconnect switches, emergency stops, and rapid shutdown devices, might be required. Wire the system in accordance with the regulations at the installation site.

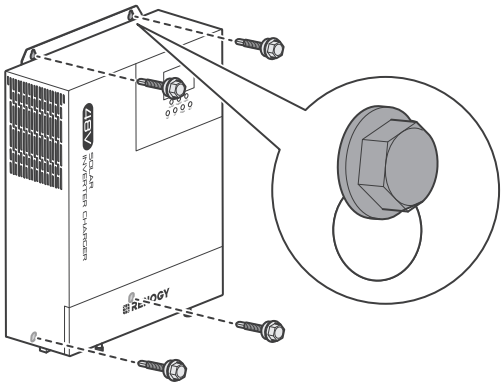
Step 1. Plan a Mounting Site

The inverter charger requires adequate clearance for installation, wiring and ventilation. The minimum clearance is provided below. Ventilation is highly recommended if it is mounted in an enclosure. Select a proper mounting site to ensure the inverter charger can be safely connected to the battery, solar panel(s), and grid/AC generator with the relevant cables.



⚠ The inverter charger should be installed on a vertical surface protected from direct sunlight.

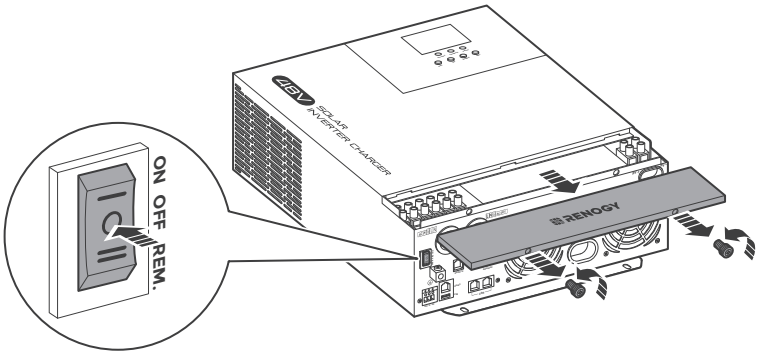
Step 2. Mount the Inverter Charger



Mount the inverter charger to a wall via the self tapping screws (not provided).

⚠ Make sure the inverter charger is secured to the wall to prevent it from falling.

Step 3. Remove the Cover



First, ensure the On/Off/Remote Power Switch is in the OFF position.

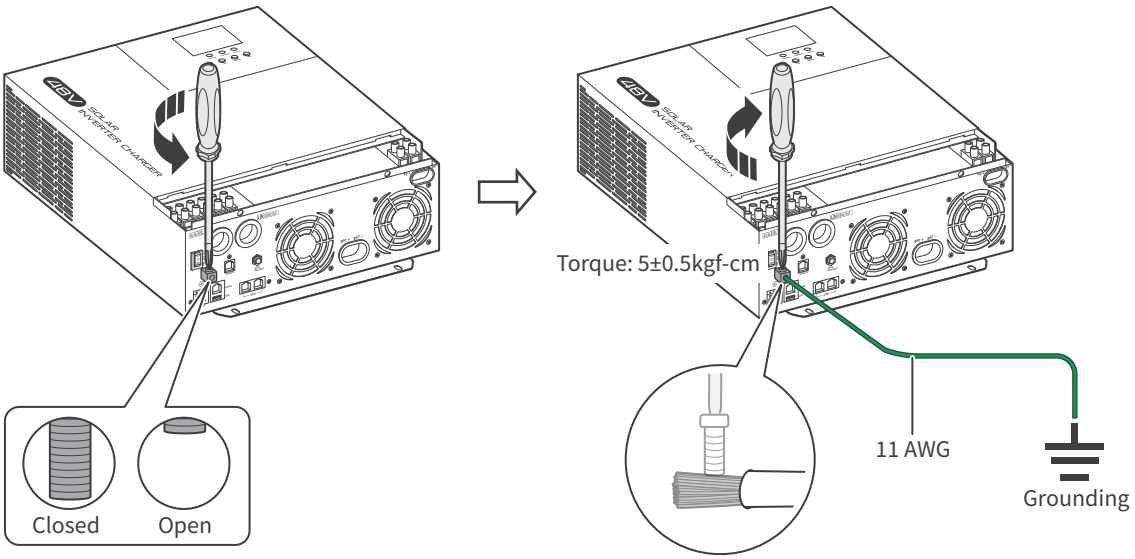
Second, turn the two Cover Screws counterclockwise either by hand or by using a Phillips screwdriver, and remove the Cover.

Step 4. Ground the Inverter Charger

Recommended Accessories

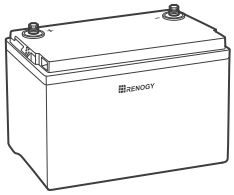
Bare Wire (11 AWG)

Strip part of the insulation according to the grounding lug depth of the inverter charger.

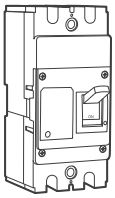


Step 5. Connect the Inverter Charger to a Battery

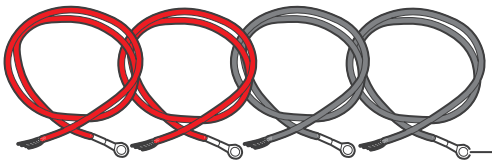
Recommended Components & Accessories



*48V Battery



*2P DC Molded Case Circuit Breaker (160A)



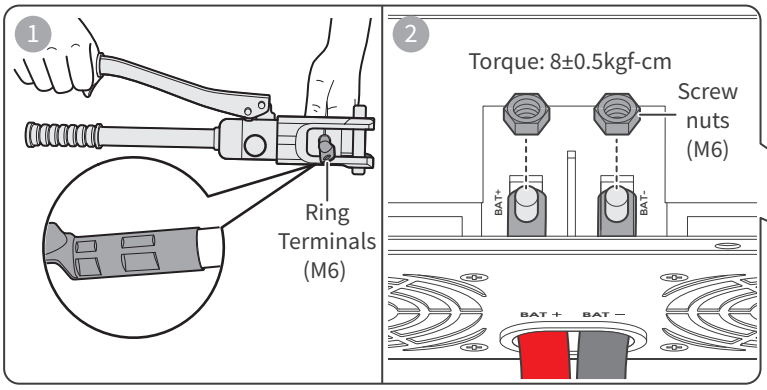
Battery Adapter Cables (2 AWG) × 4

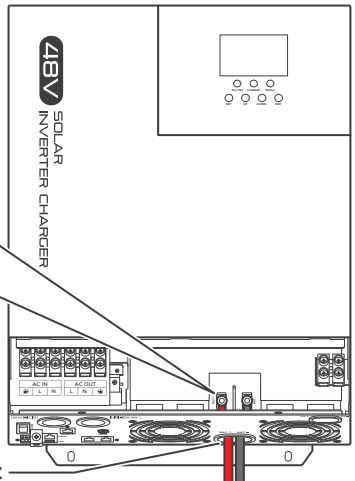
⚠ For installation details, see the user manual of the battery in use.

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

⚠ Accessories marked with "*" are available on renogy.com.

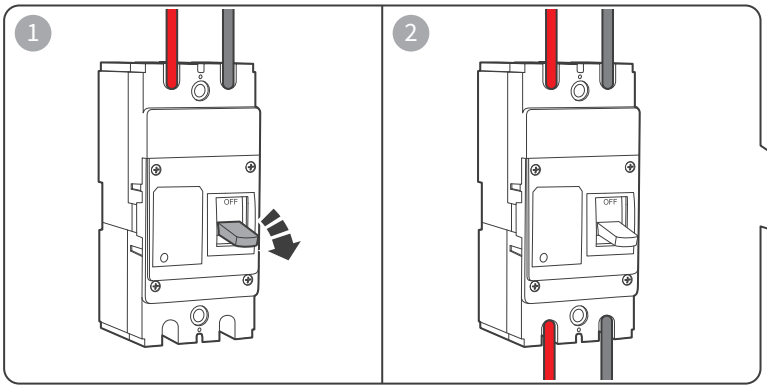
STEP-1 Install cables on the inverter charger





Through the grommet of the Battery Port

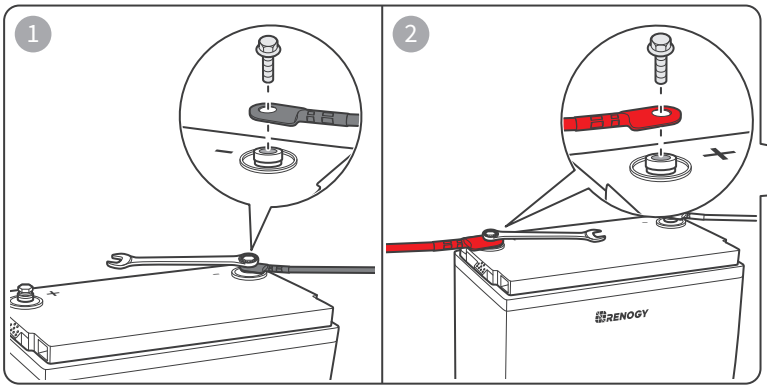
STEP-2 Install a DC breaker



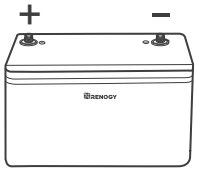
Battery Adapter Cables

2P DC Molded Case Circuit Breaker (160A)

STEP-3 Install cables on the battery



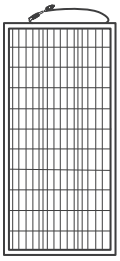
Battery Adapter Cables



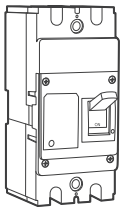
48V Battery

Step 6. Connect the Inverter Charger to a Solar Panel

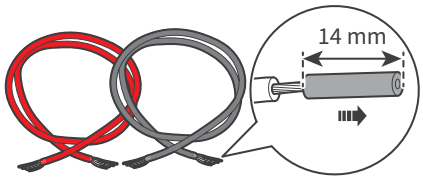
Recommended Components & Accessories



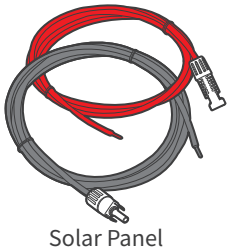
*Solar Panel



2P DC Molded Case Circuit Breaker



Bare Wires (6 AWG) × 2



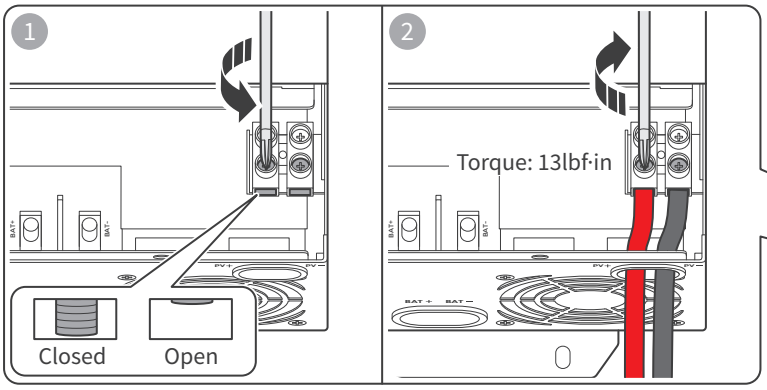
Solar Panel Extension Cables (6 AWG)

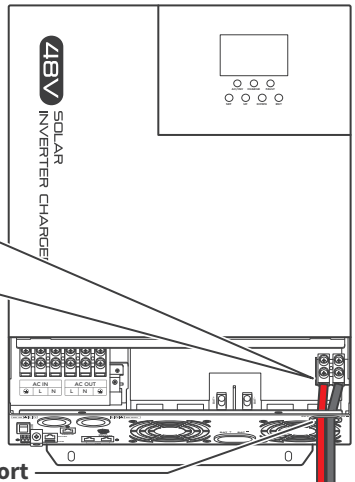
⚠ Connecting the inverter charger to a solar panel exceeding 4400W (60V to 150V, ≤ 50A) results in damage to the inverter charger.

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

⚠ Accessories marked with "*" are available on renogy.com.

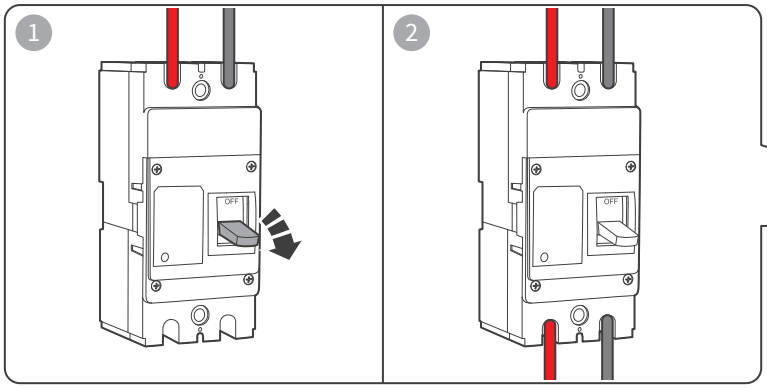
STEP-1 Install bare wires on the inverter charger





Through the grommet of the Solar Panel Port

STEP-2 Install a DC breaker

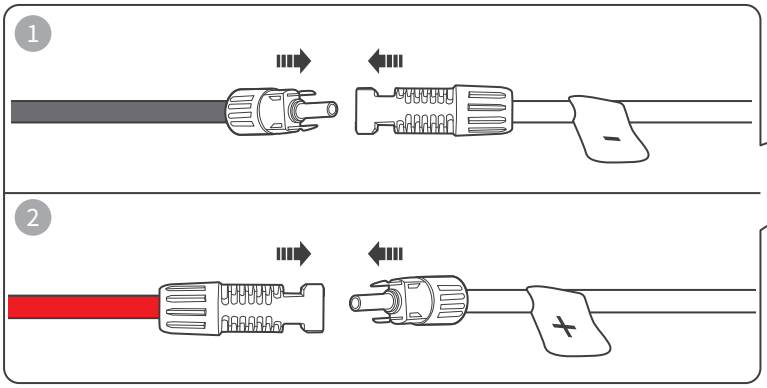


Bare Wires

2P DC Molded Case Circuit Breaker

Solar Panel Extension Cables

STEP-3 Install cables on the solar panel

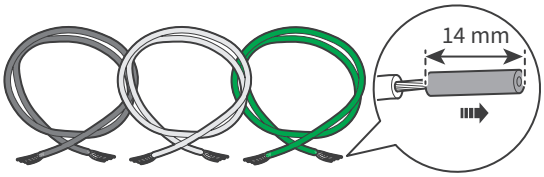


Solar Panel

Step 7. Connect the Inverter Charger to AC Loads (Appliances)

Recommended Components & Accessories

Ground Fault Circuit Interrupter (≥40A)

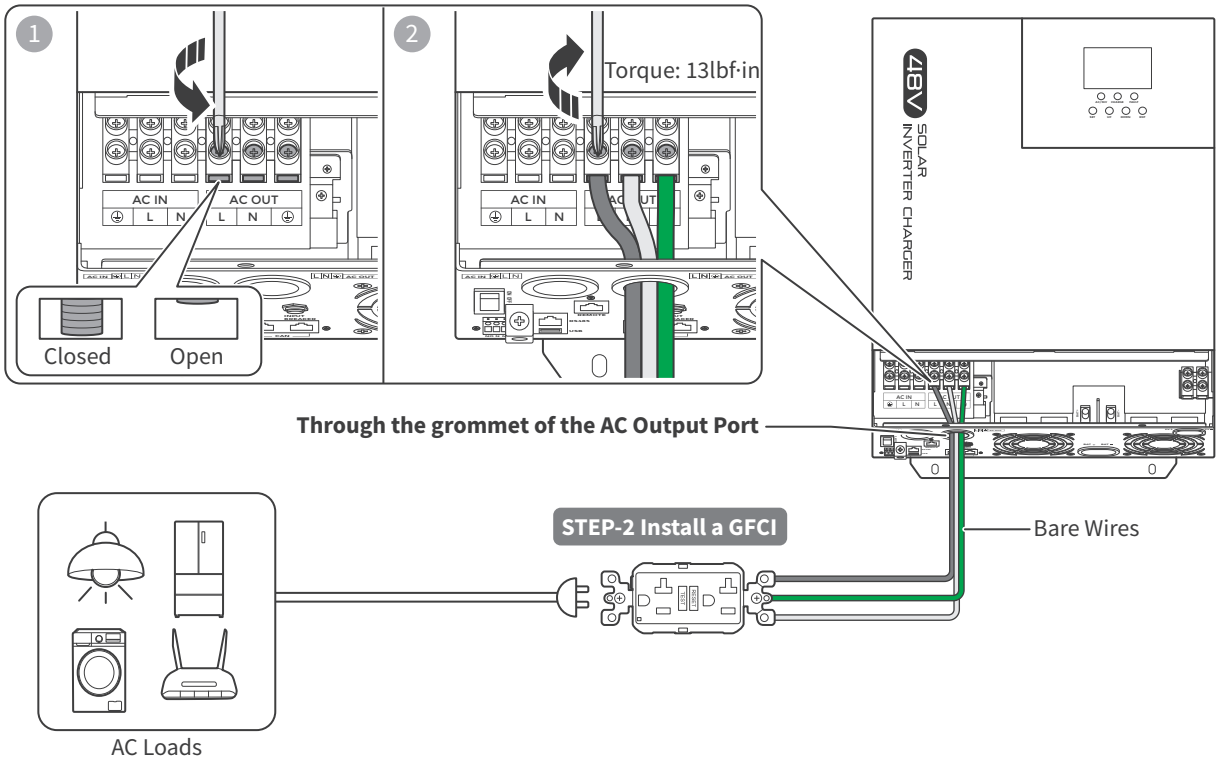


Bare Wires (8 AWG) × 3

AC Loads
(120V Single Phase, 3500W Max.)

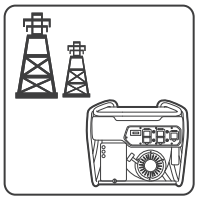
⚠ For details on the wiring method, refer to the user manual for your specific GFCI.

STEP-1 Install bare wires on the inverter charger

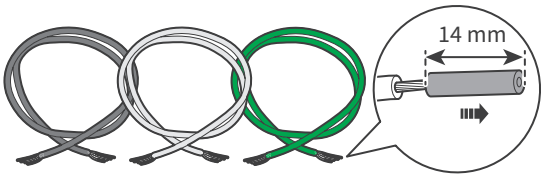


Step 8. Connect the Inverter Charger to the Grid (Optional)

Recommended Components & Accessories



Grid Power
(Grid or AC Generator)
(120V Single Phase, 40A Max.)

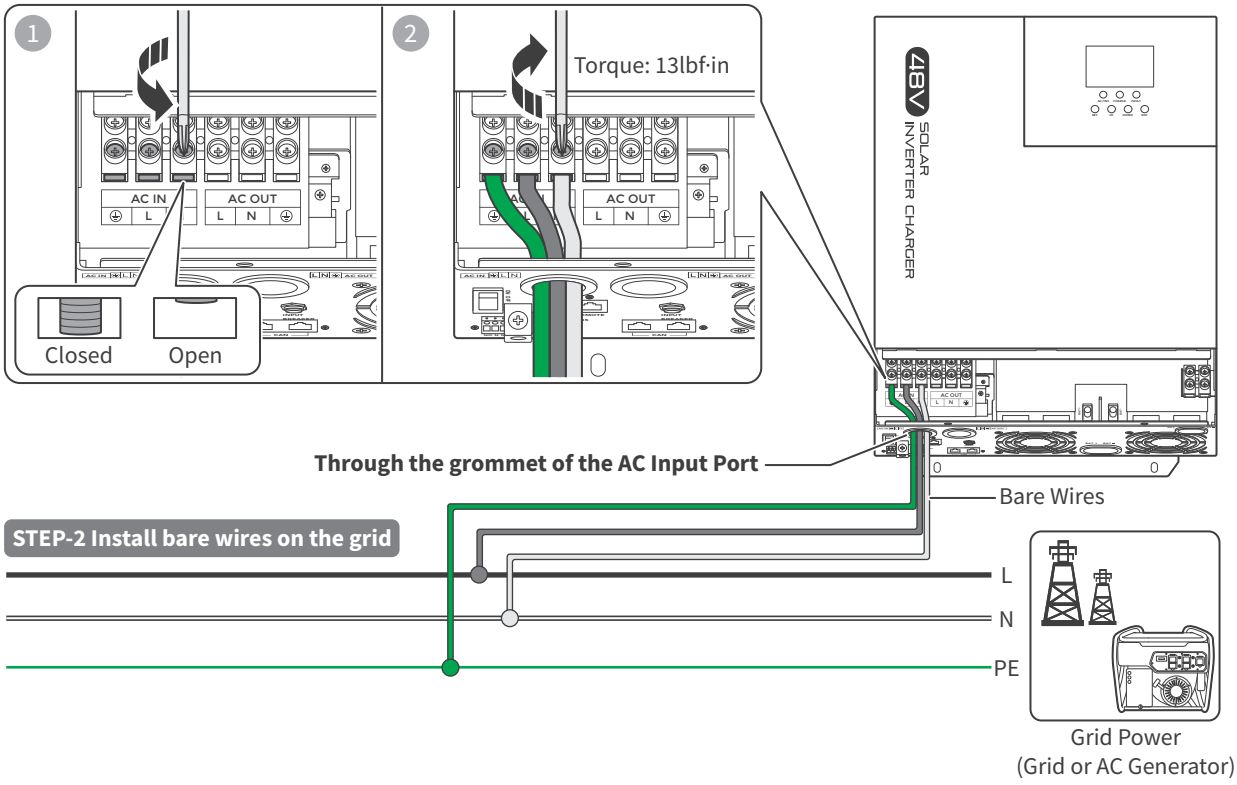


Bare Wires (8 AWG) × 3

⚠ Risk of electrical shock! Ensure the grid or the AC generator is powered off prior to connecting the inverter charger to the grid or the generator.

⚠ For wiring details, see the user manual of the generator in use.

STEP-1 Install bare wires on the inverter charger



STEP-2 Install bare wires on the grid

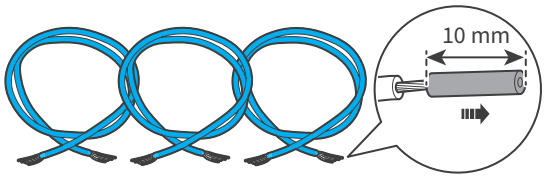
Step 9. Connect the Inverter Charger to an AC Generator (Optional)

The inverter charger can automatically enable or disable the connected AC generator if the generator supports auto power on/off.

- When the battery voltage is lower than the value set in Parameter 04, the generator is automatically powered on to supply the battery and loads.
- When the battery voltage is higher than the value set in Parameter 05, the generator is automatically powered off, and the loads are powered by the battery only.

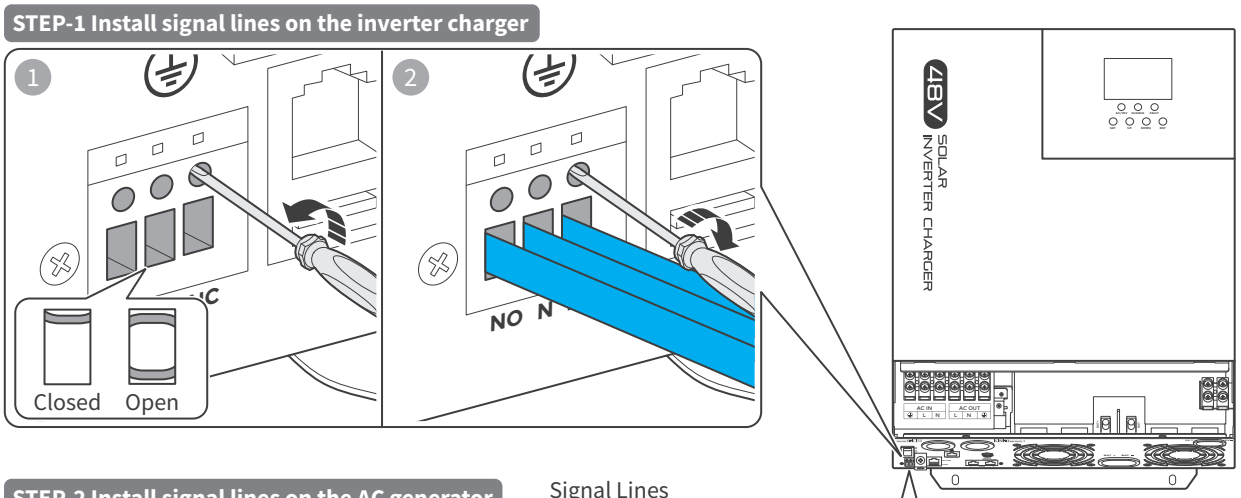
Recommended Tools & Accessories

Slotted Screwdriver (1 mm)

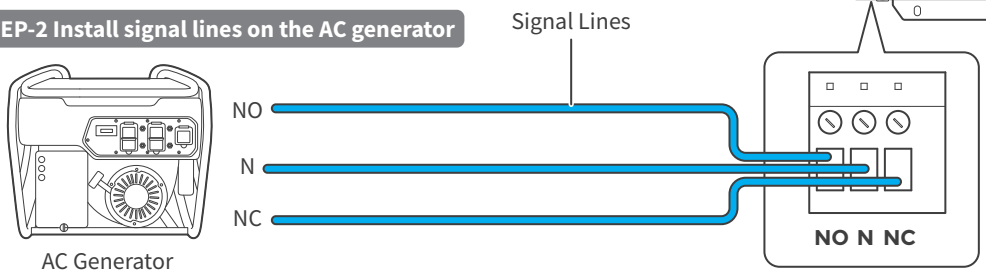


Signal Lines × 3

STEP-1 Install signal lines on the inverter charger



STEP-2 Install signal lines on the AC generator

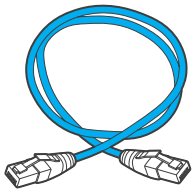


⚠ Some generators only have NC and N (common static contact) or NO and N. You can connect them on demand.

⚠ For wiring details, see the user manual of the generator in use.

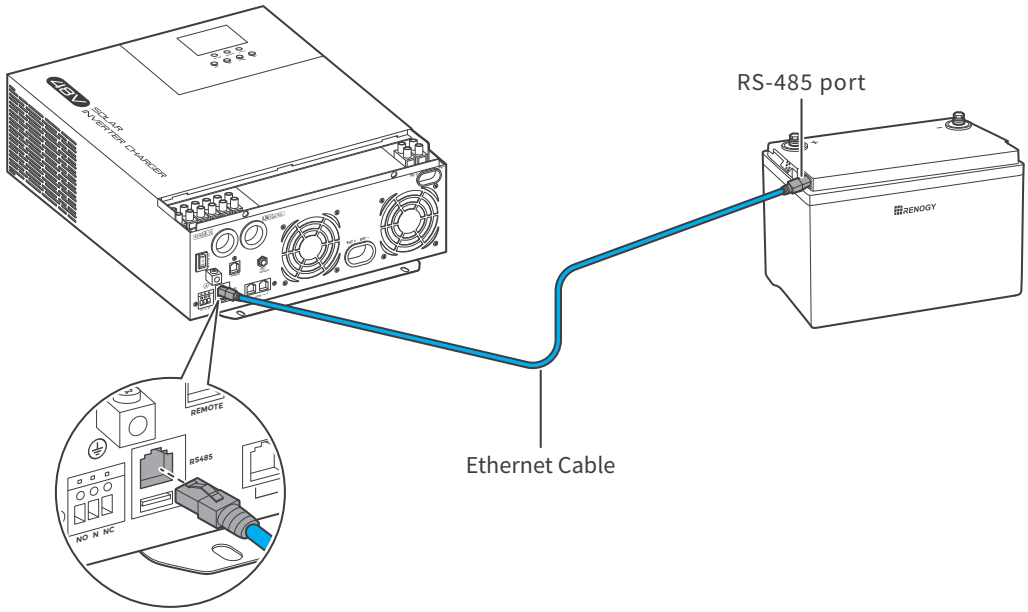
Step 10. Install the RS-485 Communication Cable (Optional)

Recommended Accessories



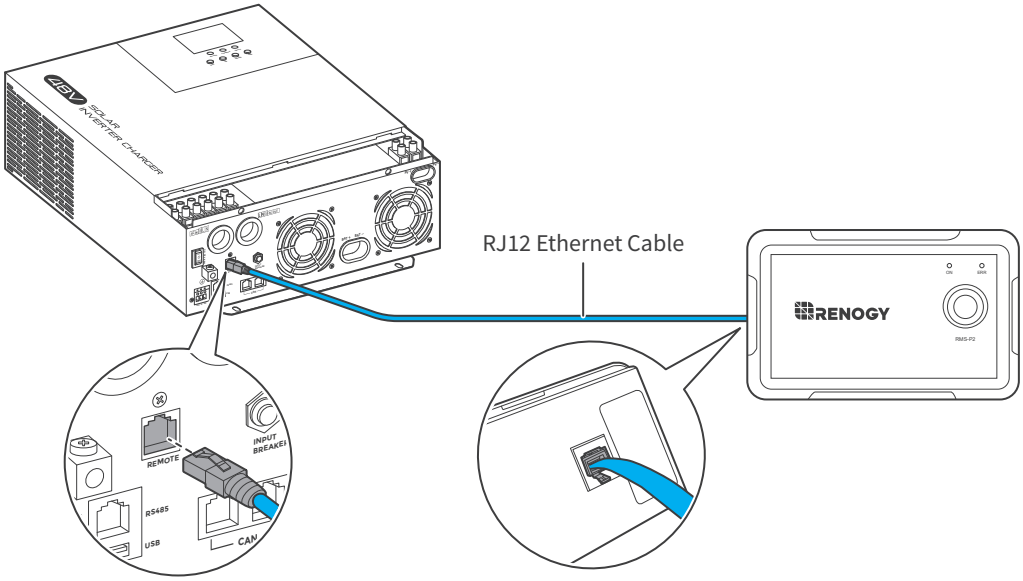
Ethernet Cable (CAT5 or above)

For the connected battery that is integrated with a battery management system (BMS) and that supports RS-485 communication, connect the inverter charger to the battery via an Ethernet cable. This enables the inverter charger to collect charge and discharge data from the battery based on which the inverter charger adjusts the charge and discharge current, prolonging the battery lifecycle.

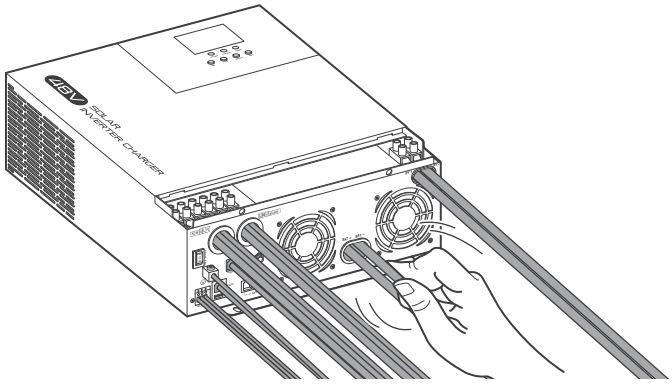


Step 11. Install a Wired Remote Control

You can use a Wired Remote Control to power on or off the inverter charger remotely.

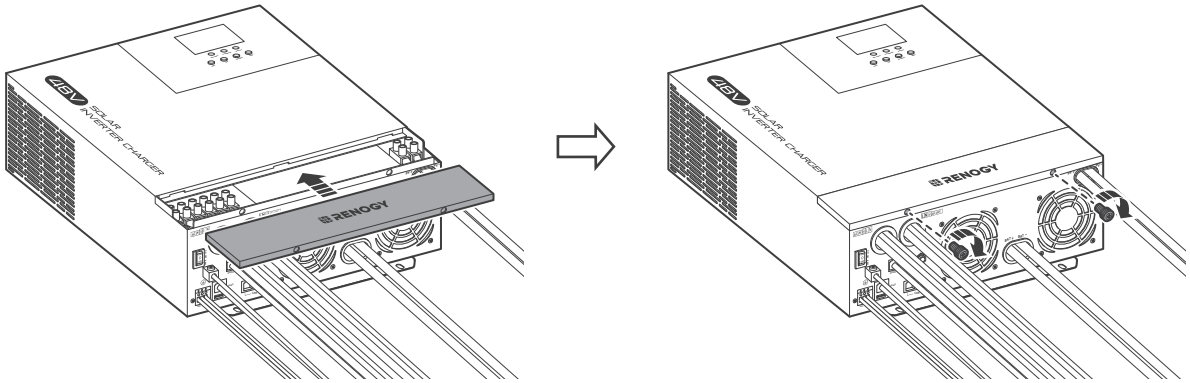


Step 12. Wire Inspection



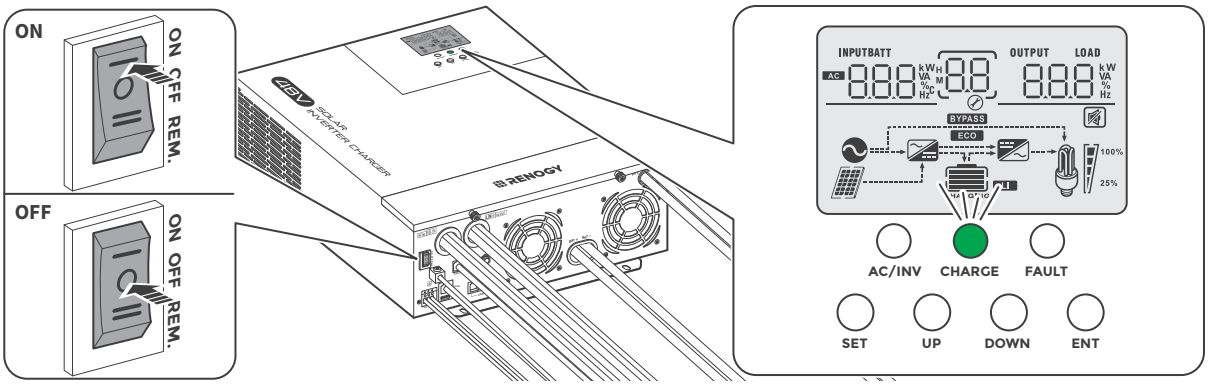
⚠ Check and make sure all cable connections are tight and secure.

Step 13. Install the Cover



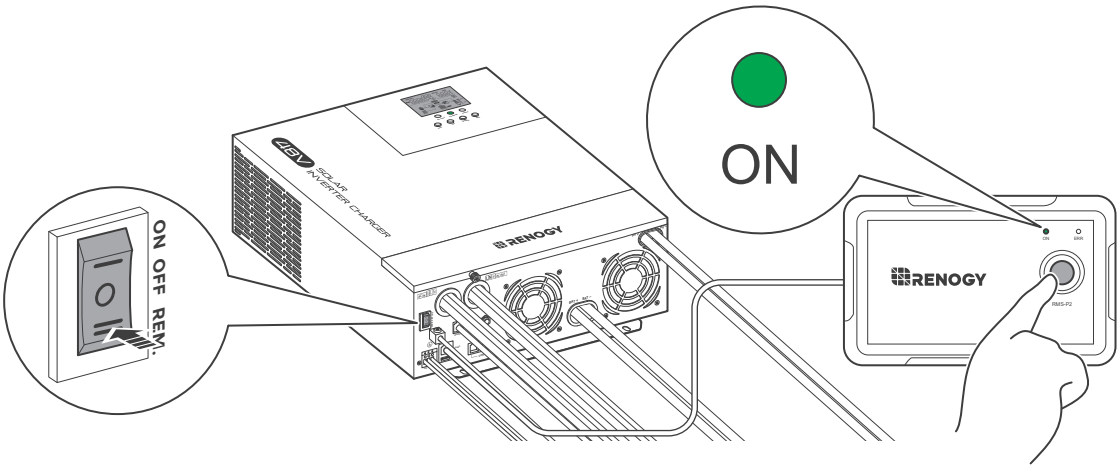
Power On/Off

Through On/Off/Remote Power Switch



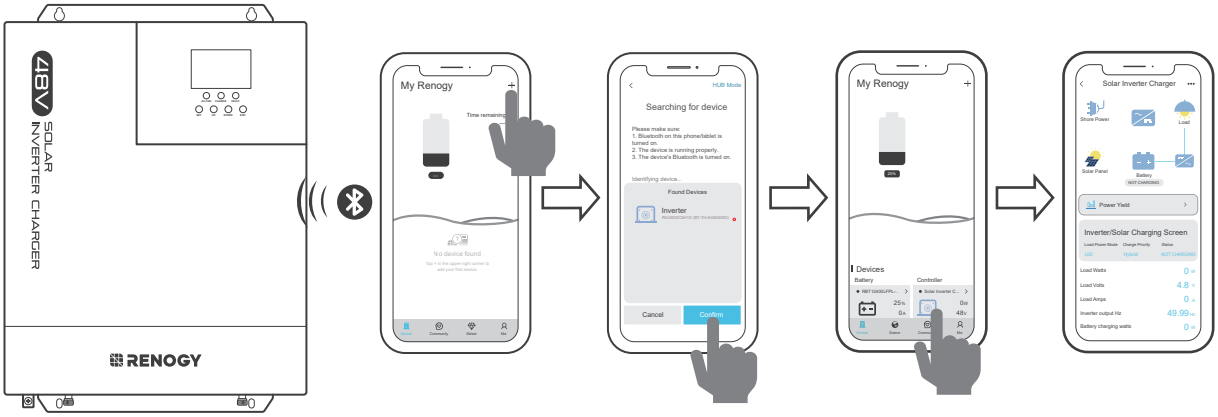
Through Wired Remote Control

Push the On/Off/Remote Power Switch to REM. Press the RMS-P2 button to power on or off the inverter charger.

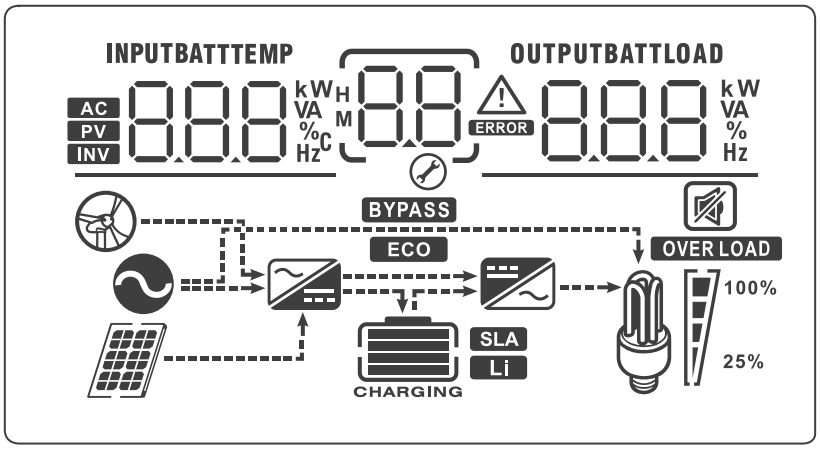


Remote Control over DC Home

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



LCD

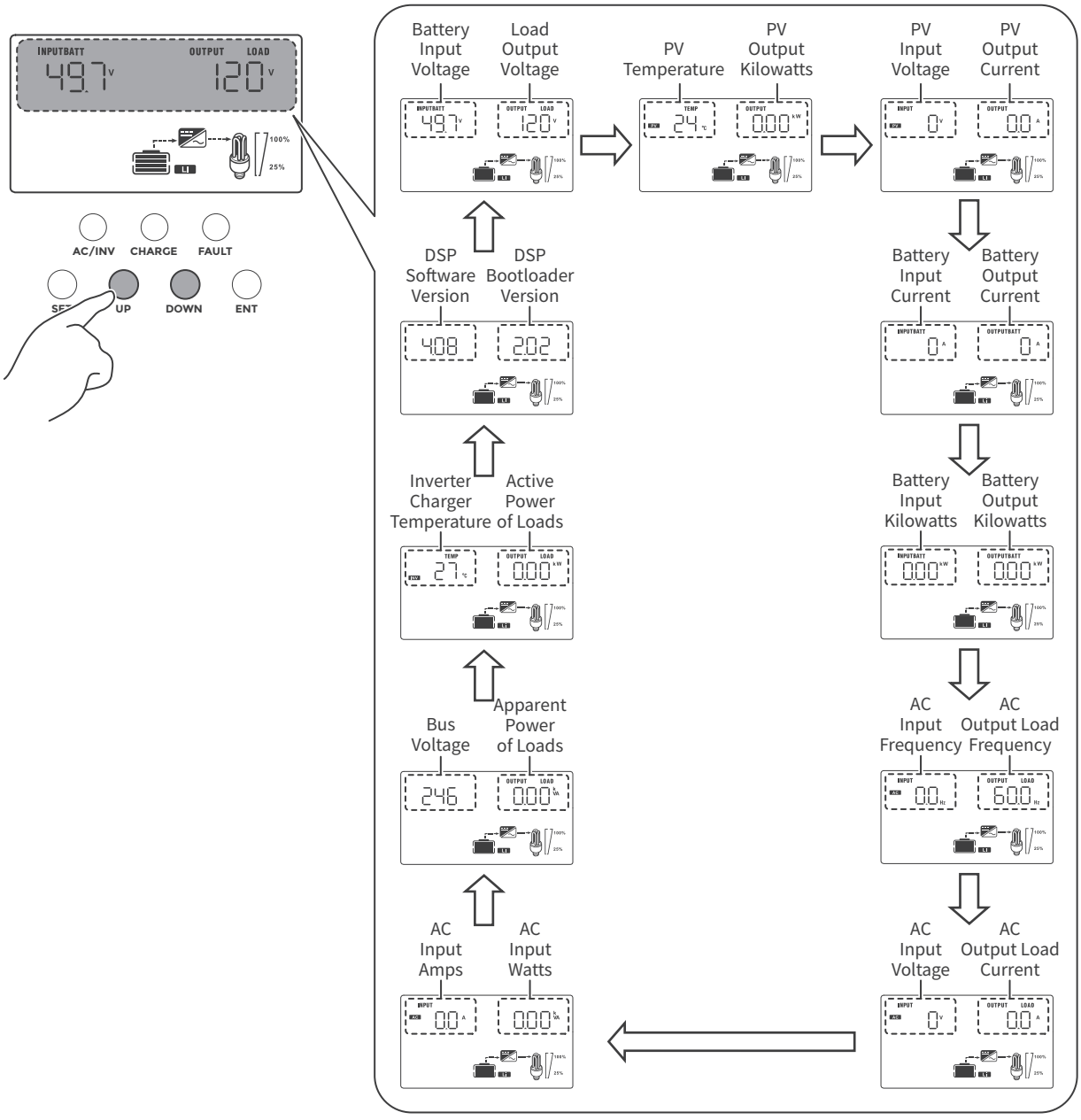


Icon	Function	Icon	Function
	Indicates the inverter charger is connected to an AC source.		Indicates that the inverter charger is in inverter mode.
	Indicates that the inverter charger is in the wide voltage AC input mode (APL mode).	BYPASS	Indicates that the inverter charger is in the power bypass mode.
	Indicates that the inverter charger is connected to a solar panel.	OVER LOAD	Indicates that the inverter charger is overloaded.
	Indicates the battery level: 0 %~24% 25%~49% 50%~74% 75%~100		Indicates load occupation level (how much power is consumed by loads): 0 %~24% 25%~49% 50%~74% 75%~100
Li	Indicates that the inverter charger is connected to a lithium battery.		Indicates that the buzzer is not enabled.
SLA	Indicates that the inverter charger is connected to a sealed lead acid battery.	ERROR	Indicates the inverter charger is in fault mode.
CHARGING	Indicates that the battery is being charged.	ECO	Indicates the inverter charger is operating under ECO power saving mode.
	Indicates the inverter charger is in AC/PV charging mode.		Indicates that the inverter charger is in setting mode.
	Indicates the inverter charger is powering AC loads.		Displays error code when the inverter charger is not in setting mode. Displays parameter code when the inverter charger is in setting mode.
AC	Indicates AC input.	PV	Indicates solar input.
INV	Indicates the operating status of the inverter.		

Icon	Function	Icon	Function
INPUTBATTTEMP 	Shows battery voltage, total battery charge current, charge power, AC input voltage, AC input frequency, PV Input voltage, internal heatsink temperature, and software version.	OUTPUTBATTLOAD 	Indicates output voltage, output current, output power, output visual power, battery discharge current, and software version. In the setting mode, the settings under the currently set parameter item code are displayed.

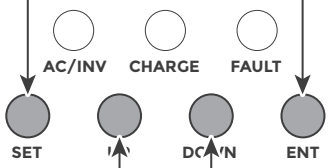
Checking Parameters

On the LCD, press the "**UP**"and"**DOWN**" buttons to turn the page to view the real-time performance data of the inverter charger.



LCD Buttons

SET
Switch between the main interface and the settings interface.



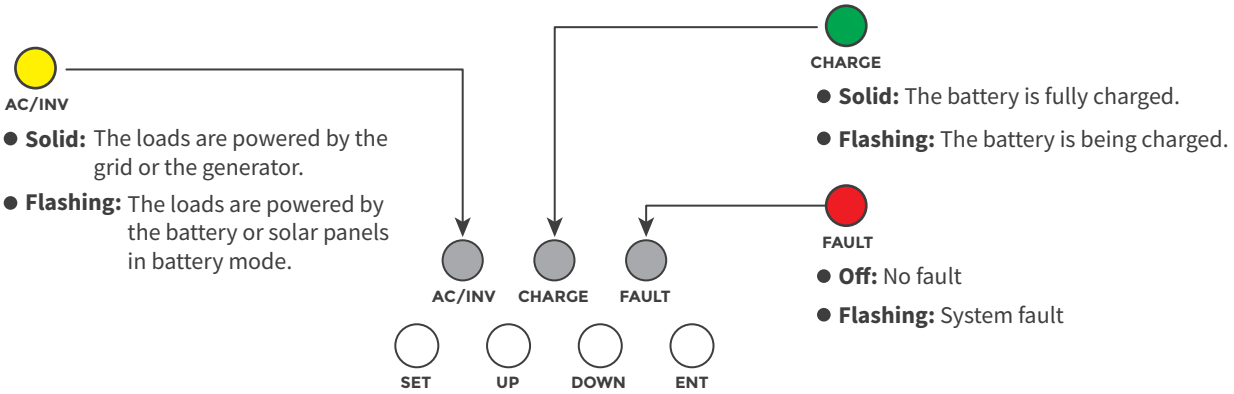
ENT

- **Setting mode:**
  Press ENT to enter the parameter interface.
- **Parameter interface:**
  Upon completion of parameter editing, press ENT to return to the setting mode interface.

Up & DOWN

- **Main interface:**
  Press **UP/DOWN** to view the real-time performance data of the inverter charger.
- **Setting mode interface:**
  Press **UP/DOWN** to select the parameter on demand.
- **Parameter interface:**
  Press **UP/DOWN** to modify the parameter value.

LED Indicators



AC/INV

- **Solid:** The loads are powered by the grid or the generator.
- **Flashing:** The loads are powered by the battery or solar panels in battery mode.

CHARGE

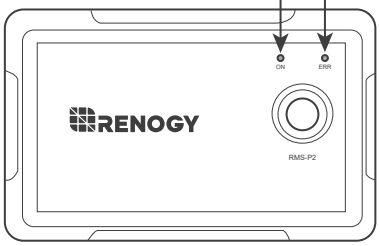
- **Solid:** The battery is fully charged.
- **Flashing:** The battery is being charged.

FAULT

- **Off:** No fault
- **Flashing:** System fault

⚠ If the FAULT indicator is flashing, refer to "Troubleshooting" for details.

You can also check the operating status of the inverter charger via LEDs on the connected Wired Remote Control.



ON

- **On:** The inverter charger is on.
- **Off:** The inverter charger is off.

ERR

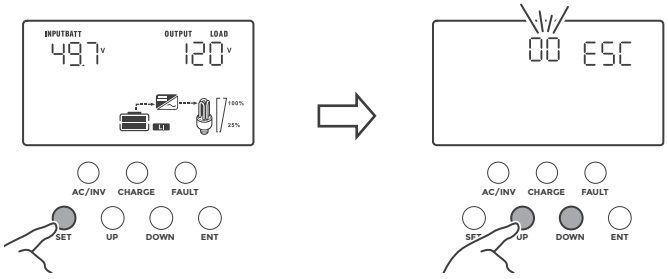
- **Off:** No fault
- **Flashing:** System fault

⚠ If the ERR indicator is flashing, refer to "Troubleshooting" for details.

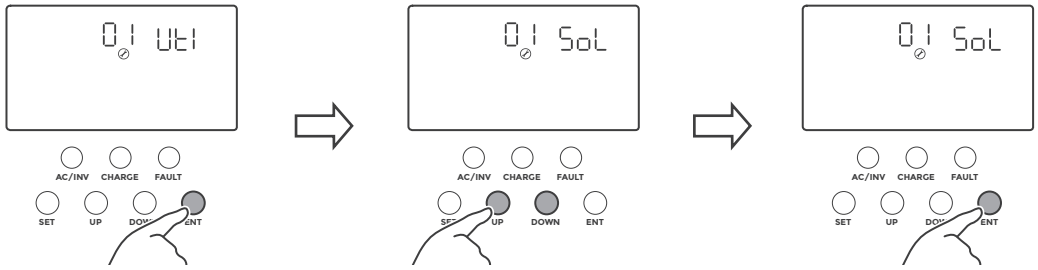
Configure the Inverter Charger

Enter Parameter Setting Mode

Press the **SET** button to enter the parameter-setting mode during which the parameter code “00” flashes. You can press the **UP** and **DOWN** buttons to select the parameter that you want to configure.

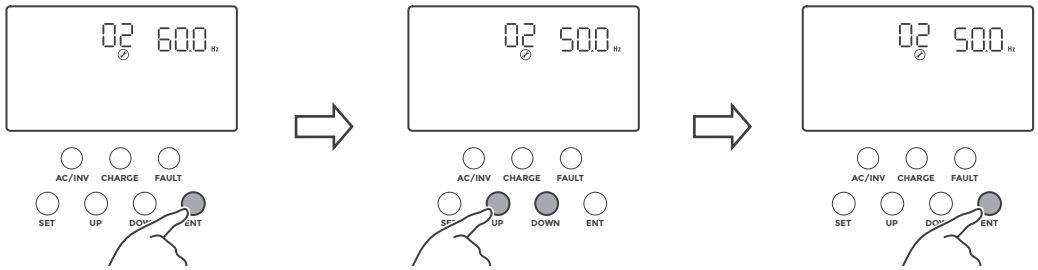


Load Working Mode (Parameter 01)



Icon	Function
UtI	Default. The loads are first powered by the grid, and then by solar panels and the connected battery when the grid power is not available.
SbU	The loads are first powered by the connected solar panels, and then by both solar panels and the battery if the solar energy is not enough to power all connected loads. The grid supplies the loads only when battery voltage drops to the set point in Parameter 04.
SoL	The loads are first powered by the connected solar panels, and then by both solar panels and the battery if the solar energy is not enough to power all connected loads. The grid supplies the loads only when one of the following occurs: 1. Solar energy is not available; 2. Battery voltage drops to the set point in Parameter 04.

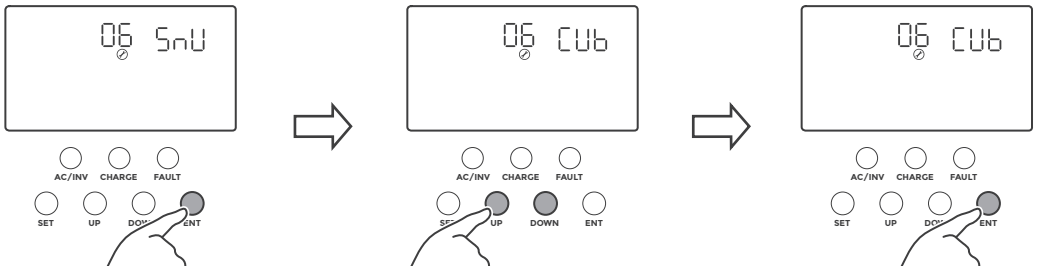
Output Frequency (Parameter 02)



Icon	Function
60.0 Hz	Default. The AC output frequency of the inverter charger is 60 Hz.
50.0 Hz	The AC output frequency of the inverter charger is 50 Hz.

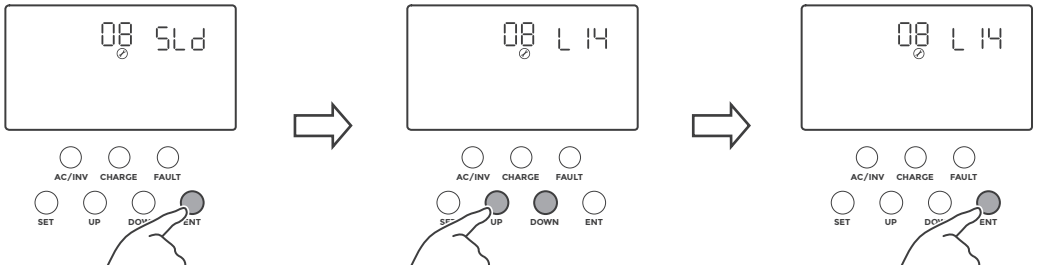
⚠ Set Parameter 02 to a proper value based on the connected load specifications. An improper AC output frequency results in damage to the loads.

Battery Charge Mode (Parameter 06)



Icon	Function
SnU	Default. Solar panels and the grid charge the battery at the same time with the MPPT solar energy as the first charge source. The grid becomes the first charge source when the solar energy is insufficient and stops charging the battery when the solar energy is sufficient.
oSo	Solar energy is the only charge source even if the grid is available.
CSo	The battery is first charged by the solar panels. The grid charges the battery only when solar energy is unavailable.
CUb	The battery is first charged by the grid. The solar panels charge the battery only when the grid is unavailable.

Battery Type (Parameter 08)



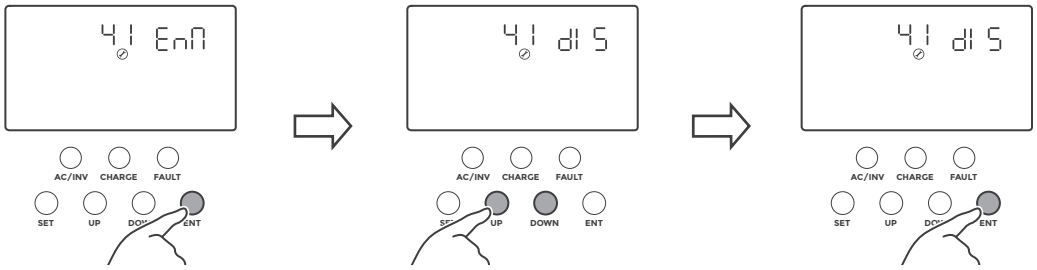
Icon	Function
SLd	Sealed lead-acid/AGM battery. Constant charging voltage: 58.4V; float charging voltage: 55.2V.
FLd	Flooded lead-acid battery. Constant charging voltage: 58.4V; float charging voltage: 55.2V.
GEL	Gel lead-acid battery. Constant charging voltage: 56.8V, float charging voltage: 55.2V.
L 14	Lithium iron phosphate battery. Corresponding to 14 strings, 15 strings, and 16 strings. Default constant charging voltage: ● 14 strings: 50.4V; ● 15 strings: 54V; ● Default. 16 strings: 54V.
L 15	
L 16	
n 13	Lithium-ion battery. Corresponding to 13 strings and 14 strings. Default constant charging voltage: ● 13 strings: 53.2V; ● 14 strings: 57.2V.
n 14	
USE	User-defined battery type. All battery parameters can be set. For details, see the Renogy 48V 3500W Pure Sine Wave Solar Inverter Charger user manual from https://www.renogy.com/support/downloads.

⚠ Damage caused by wrong battery type setting to the inverter charger is not covered by warranty.

N-G Bonding (Parameter 41)

The inverter charger is equipped with a Neutral to Ground bonding relay that ensures that either the neutral in or out contact of the RV is always grounded.

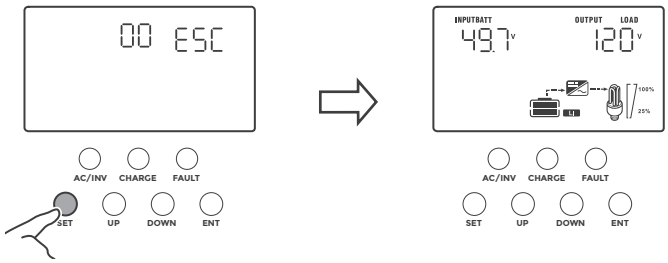
This helps prevent electrical shock caused by contact between the neutral contacts of the RV and external AC power sources.



Icon	Function
EnA	N-G Bonding enabled (default)
dIS	N-G Bonding disabled

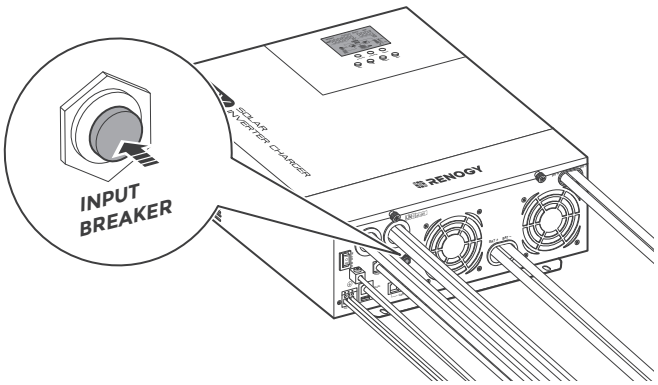
Exit Parameter Setting Mode

Press the **SET** button to exit the parameter setting mode. Alternatively, select Parameter 00 and press the **ENT** button to exit the parameter setting mode.



For more information about the parameter code, visit renogy.com/support/downloads to check the user manual.

Overcurrent Protection

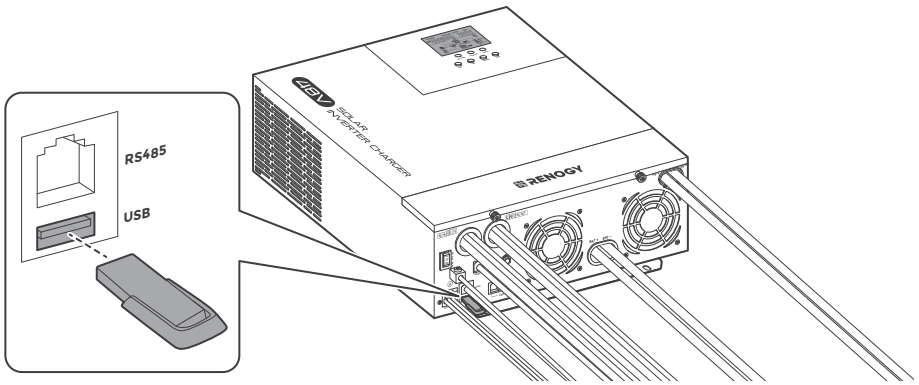


The inverter charger provides an input breaker that automatically pops up when the AC input current is higher than 40A. This helps cut off the AC input and prevent the inverter charger from being damaged.

Ensure the AC input current is no higher than 40A, and press the input breaker to enable AC input.

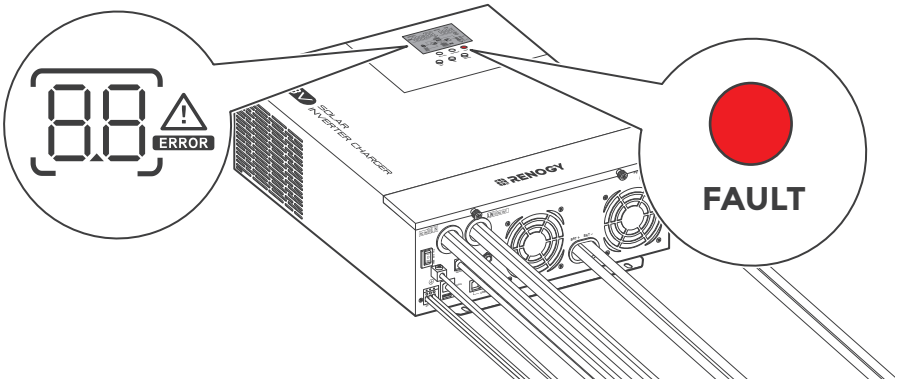
System Upgrade

You can use the USB Debugging Port to upgrade the inverter charger firmware. Store the firmware upgrade file to a USB drive, and plug the drive to the USB Debugging Port of the inverter charger. Enter Parameter 40 to complete the upgrade. For details, visit renogy.com/contact-us.



Troubleshooting

When the inverter charger is faulty, the FAULT indicator flashes with relative error code displayed on the LCD.



Icon	Description	Icon	Description
01 ERROR	Battery undervoltage alarm	02 ERROR	Battery discharge current software protection
03 ERROR	Battery not detected	04 ERROR	Battery undervoltage protection
05 ERROR	Battery overcurrent hardware protection	06 ERROR	Charge overvoltage protection
07 ERROR	Bus overvoltage hardware protection	08 ERROR	Bus overvoltage software protection
09 ERROR	Solar panel overvoltage protection	10 ERROR	Buck overcurrent software protection
11 ERROR	Buck overcurrent hardware protection	12 ERROR	The internal communication board is not communicating with the solar inverter charger.
13 ERROR	Side-by-side load protection	14 ERROR	Inverter overload protection
15 ERROR	Inverted overcurrent hardware protection	17 ERROR	Inverter short-circuit protection

Icon	Description	Icon	Description
	Overcurrent on AC input		Controller overtemperature protection
	Inverter overtemperature protection		Fan failure
	Memory failure		Model settings are wrong
	Bus short circuit fault		Error between AC output and bypass
	Internal battery boost circuit failure		Abnormal DC component in inverter voltage

For technical support, contact our custom service through renogy.com/contact-us.

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 inverter charger.
- Keep the inverter charger out of the reach of children.
- Do not dispose of the inverter 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 CO_2 fire extinguisher.
- If the inverter charger is installed improperly on a boat, it may cause damage to components of the boat. Have the inverter charger by a qualified electrician.
- Do not expose the inverter charger to flammable or harsh chemicals or vapors.
- Clean the inverter charger regularly to ensure the cooling fans are not blocked.
- 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.

Inverter Charger Safety

- There are no serviceable parts in the inverter charger. Do not open, dismantle, repair, tamper with, or modify the inverter charger.
- Confirm the polarities of the devices before connection. A reverse polarity contact can result in damage to the inverter charger and other connected devices, thus voiding the warranty.
- Ensure the inverter charger is firmly grounded to a building, vehicle, or earth grounded. Keep the inverter away from EMI receptors such as TVs, radios, and other audio/visual electronics to prevent damage / interference to the equipment.
- The inverter charger generates heat when working. To prevent burns, touch the LCD only when the inverter charger is working.
- After the Inverter charger is powered off, the internal high voltage in the inverter charger will last for about 5 minute.
- Do not parallel the inverter charger with other AC input sources to avoid damage.

Battery Safety

- Risk of electrical shock! Ensure the connected battery is turned off before connecting it to the inverter charger.
- Do not touch the exposed electrolyte or powder if the battery is damaged.
- Risk of explosion! Never install the inverter charger in a sealed enclosure with flooded batteries! Do not install the inverter charger in a confined area where battery gases can accumulate.
- Prior to installing the inverter charger, ensure all battery groups are installed properly.
- The inverter charger should be as close to the battery as possible to avoid voltage drop due to long cables.
- Ensure the battery voltage is within the normal range of 40V to 60V. If the battery voltage is lower than 40V, the inverter charger fails to detect the battery. If the battery voltage is higher than 60V, the inverter charger is damaged.
- If the battery voltage is lower than 44V, the inverter charger cannot be powered on.

Solar Panel Safety

- Do not use the solar panel(s) if there is any damage.
- Prior to connecting the inverter charger to the solar panel(s), shade the solar panel(s).

Grid or AC Generator Safety

- Risk of electrical shock! Ensure the grid or the AC generator is turned off before connecting them to the inverter charger.
- The inverter charger can only be connected to 120V single-phase power systems through the AC Input Port. Otherwise, the inverter charger will be damaged.

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

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	China	www.renogy.cn
United Kingdom	uk.renogy.com	Australia	au.renogy.com
South Korea	kr.renogy.com	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 20 cm between the radiator & your body.

Renogy Empowered

Renogy aims to empower people around the world through education and distribution of DIY-friendly renewable energy solutions.

We intend to be a driving force for sustainable living and energy independence.

In support of this effort, our range of solar products makes it possible for you to minimize your carbon footprint by reducing the need for grid power.

Live Sustainably with Renogy

Did you know? In a given month, a 1kW solar energy system will...

- Save 170 pounds of coal from being burned
- Save 300 pounds of CO_2 from being released into the atmosphere
- Save 105 gallons of water from being consumed

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.

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