RENOGY
SUPERIOR **OFF-GRID** SOLUTIONS

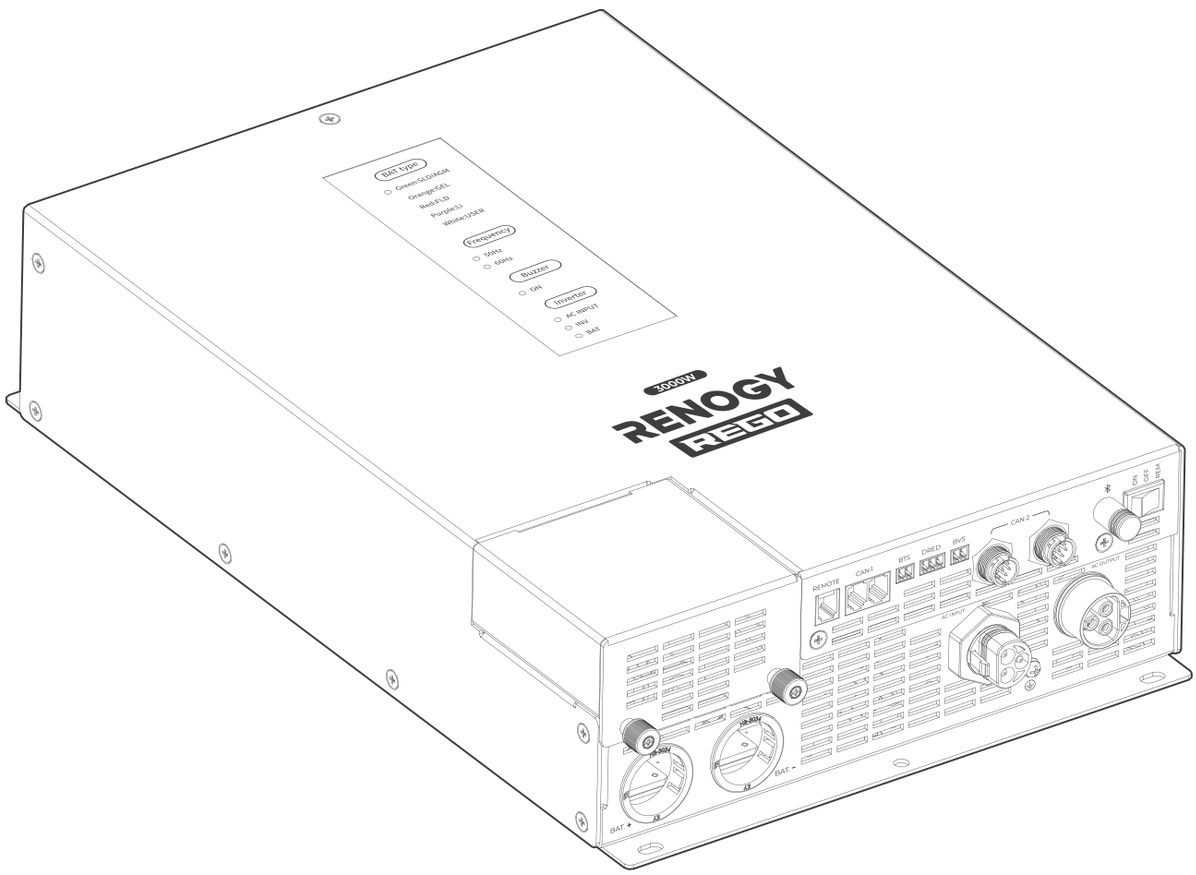
REGO

HF Inverter Charger

12V | 3000W

RIV1230RCH-23S

VERSION A0
July 19, 2024



USER MANUAL

Before Getting Started

The user manual provides important operation and maintenance instructions for REGO 12V 3000W HF Inverter Charger (hereinafter referred to as inverter charger).

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

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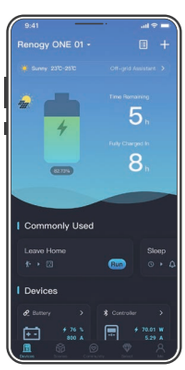
DC Home App



DC Home App

GTE IT ON Google Play

Download on the App Store

Table of Contents

1. General Information

1.1. Symbols Used

The following symbols are used throughout the user manual to highlight important information.

WARNING: Indicates a potentially hazardous condition that could result in personal injury or death.

CAUTION: Indicates a critical procedure for safe and proper installation and operation.

NOTE: Indicates an important step or tip for optimal performance.

1.2. Qualified Personnel

The installation and service of the inverter charger must be carried out by qualified personnel. Qualified personnel refer to trained and licensed electricians or installers with all the following skills and expertise:

- Knowledge of the functional principles and operation of on-grid and off-grid energy storage system.
- Knowledge of the risks and dangers associated with the installation and service of electrical devices and acceptable mitigation methods.
- Knowledge of the installation and service of electrical devices.
- Knowledge of and adherence to the user manual and all safety precautions and best practices.
- Knowledge of local installation regulations.
- Electrical license for the installation and service of energy storage system required by the county or state.

1.3. Introduction

REGO 12V 3000W HF Inverter Charger is your off-grid smart living center that revolutionizes comfort when you live in your off-grid home or RV. The inverter charger can invert DC to AC and directly supply power to the load, and charge the battery when it is connected to the utility power.

In addition, it supports different types of batteries such as lithium, GEL, flooded, SLD, and AGM batteries. The inverter charger can switch power supply from the grid power to batteries within 20 milliseconds, ensuring a smooth mode switch without powering off the load. The Clip-on 3-pin connectors make AC IN/OUT connections simply and easy. They simplify installation and shorten the installation time.

The inverter charger can be connected to Renogy devices and smart accessories via Bluetooth or RV-C. When the inverter charger works in association with the DC Home app or Renogy ONE Core, you will have the same system monitoring wherever you go on your smartphone. With advanced pure sine wave technology, the inverter charger can protect and extend the life of your electronic equipment and loads.

1.4. Key Features

- **Battery versatility and easy-to-configure settings**
  Compatible with four preset battery types and allows custom parameter settings. Provides simple switch setup for battery type, output frequency, and input priority setting.
- **Multi-stage battery charging and customizable charging**
  Offers up to three-stage charging for various battery types and supports adjustable charging current (up to 150A) to suit your daily power needs.
- **High-current output**
  Integrates a 30A AC Transfer Relay for continuous 30A current to AC output when connected to both the grid and a battery.
- **Built-in Bluetooth**
  Connects to DC Home app for energy data monitoring, control, and configuration and supports OTA firmware upgrades.
- **High conversion efficiency thanks to quality pure sine wave**
  Achieves peak conversion efficiency of over 90%, reducing energy loss thanks to the smooth AC power with minimal harmonic distortion, equivalent to grid power quality.

- **Automatic generator start**
  Equipped with dry contacts for automatic generator start and stop function, facilitating battery charging.
- **Multiple protections**
  Provides undervoltage, overvoltage, overcurrent, overload, overtemperature, and short circuit protections for enhanced safety.

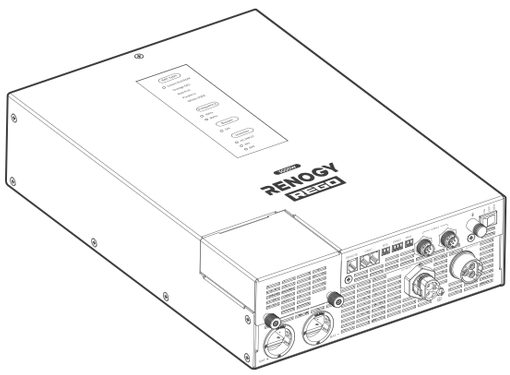
1.5. SKU

REGO 12V 3000W HF Inverter Charger	RIV1230RCH-23S

2. Get to Know REGO 12V 3000W HF Inverter Charger

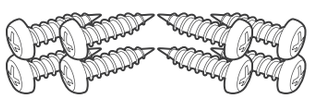
2.1. What's In the Box?

REGO 12V 3000W HF Inverter Charger × 1

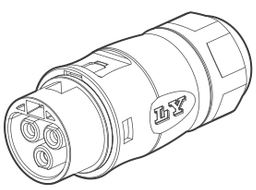


User Manual × 1

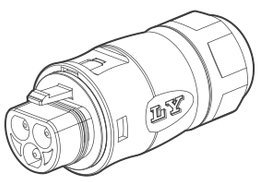
ST6.3*1.8*13 mm



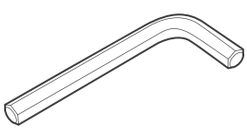
Self-tapping Screws x 8
(2 extra)



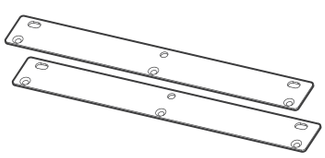
AC Input Connector x 1



AC Output Connector x 1

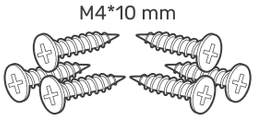


Inner Hexagon Spanner x 1

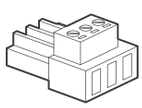


Mounting Plates × 2

M4*10 mm



Grub Screws × 6



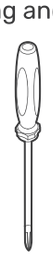
Dry Contact Relay Connector × 1

Ensure 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.

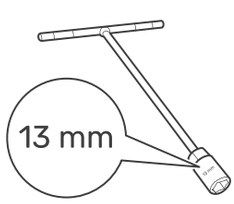
2.2. Recommended Tools

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

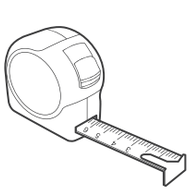


Phillips Screwdriver (#1)

Slotted Screwdriver (1 mm)

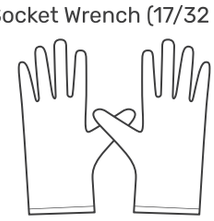


Socket Wrench (17/32 in)



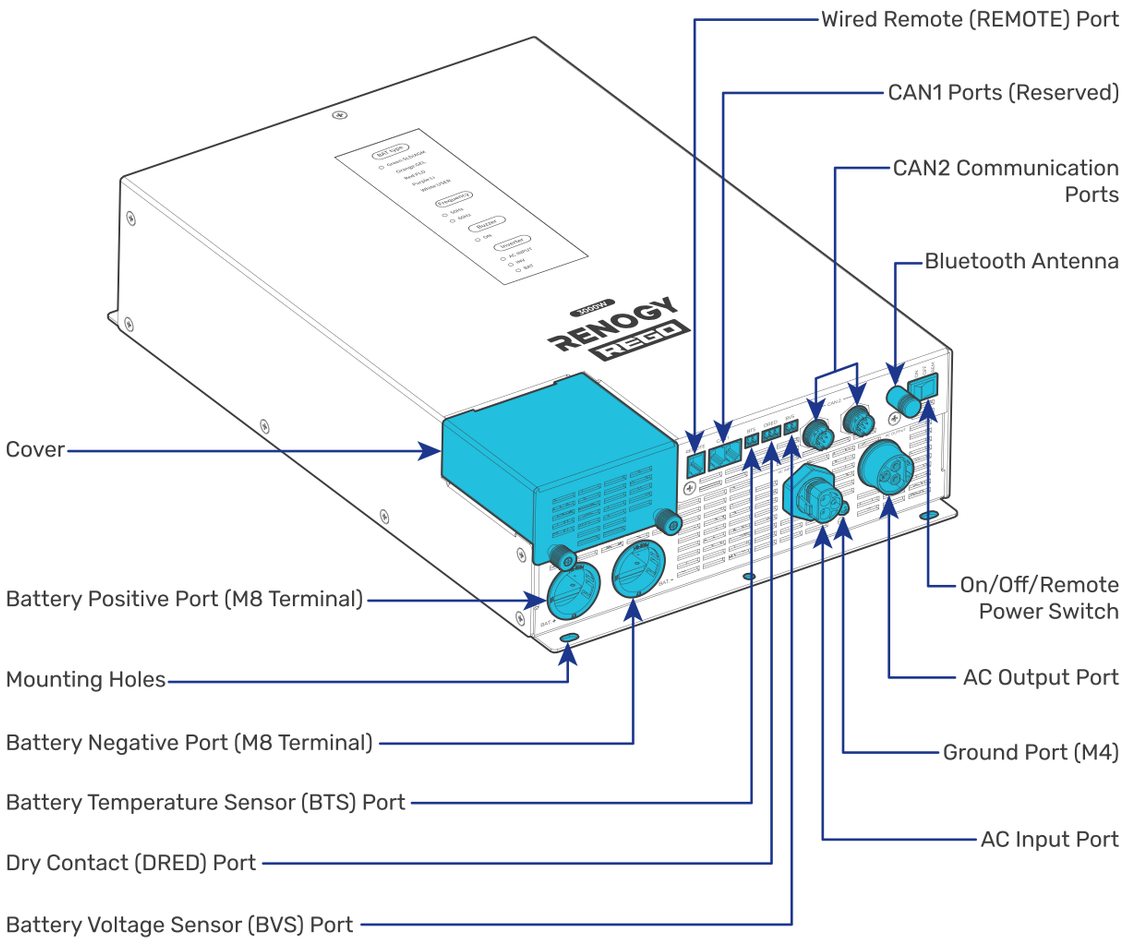
Measuring Tape

Wire stripper

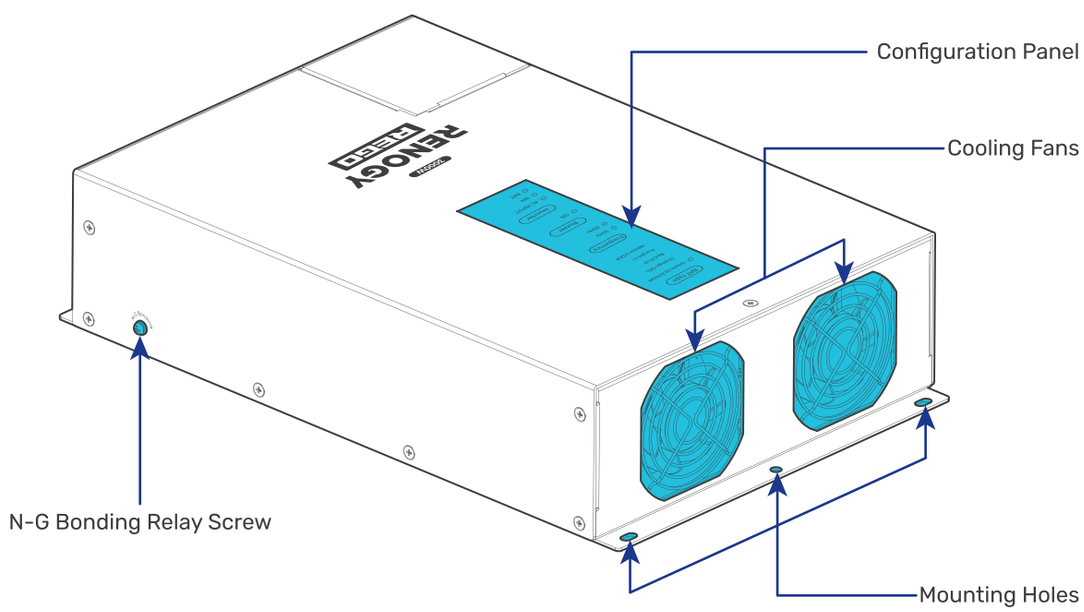


Insulating Gloves

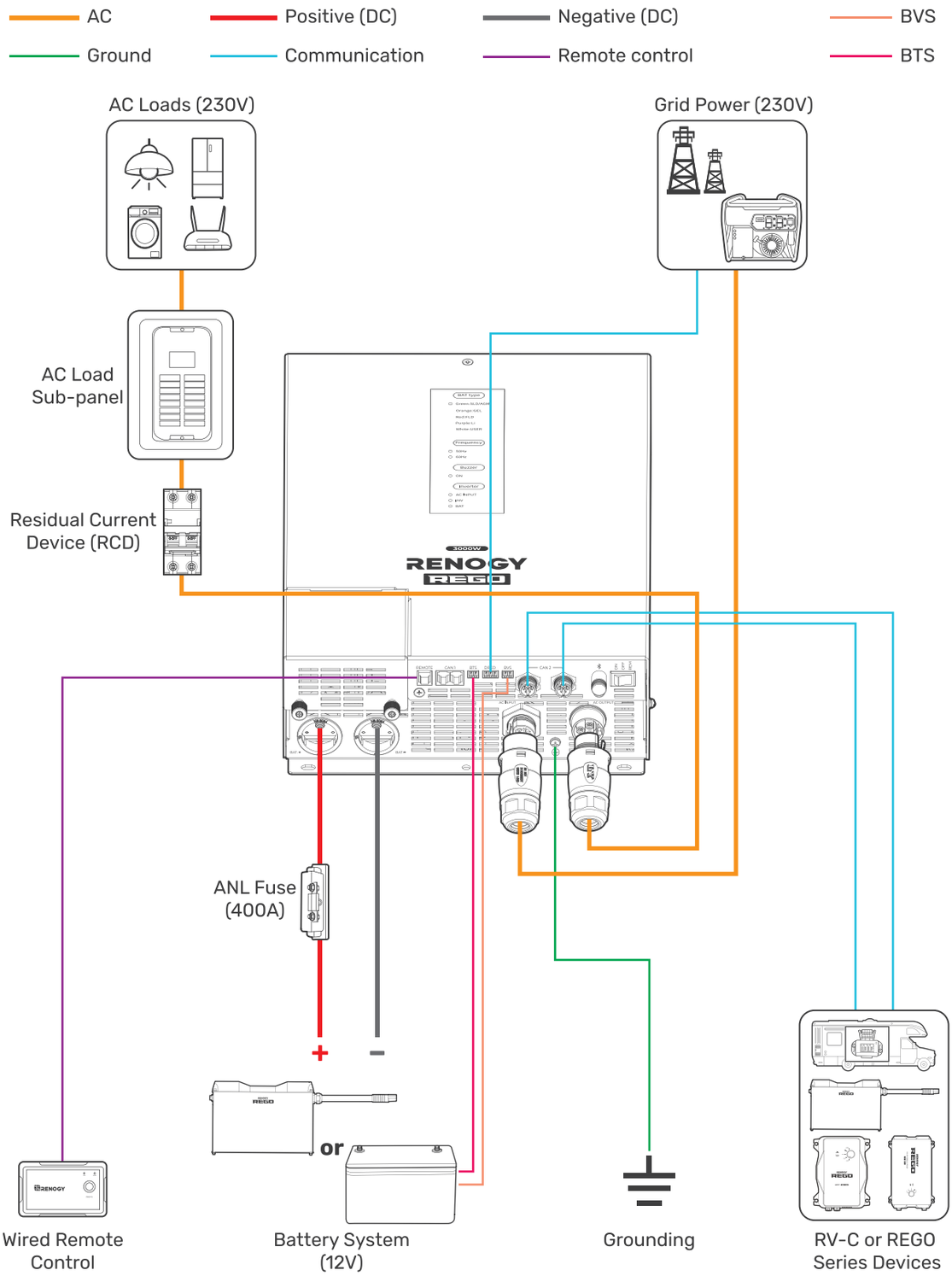
2.3. Product Overview



The BTS port can only be used with lead-acid batteries.



2.4. System Setup



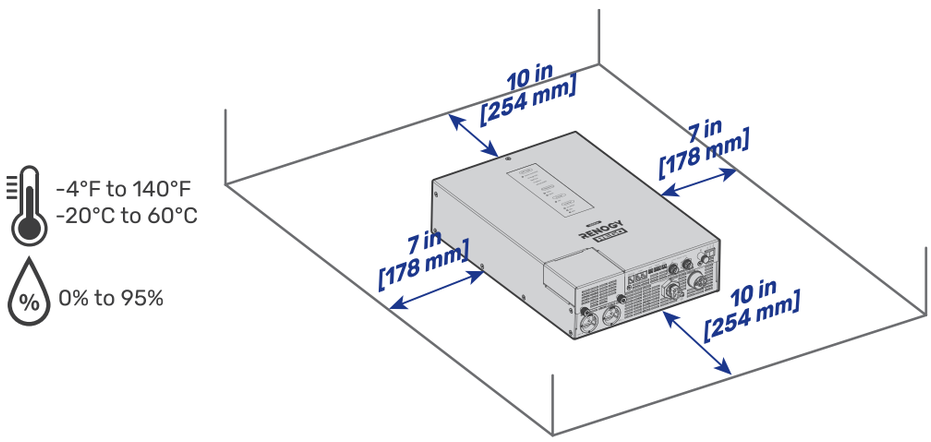
The wiring diagram only shows the key components in a typical DC-coupled off-grid energy storage system for the illustrative purpose. The wiring might be different depending on the system configuration. Additional safety devices, including disconnect switches, emergency stops, and rapid shutdown devices,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

The battery fuse must be installed in the circuit from the inverter charger to the battery.

3. Preparation

3.1. Plan a Mounting Site

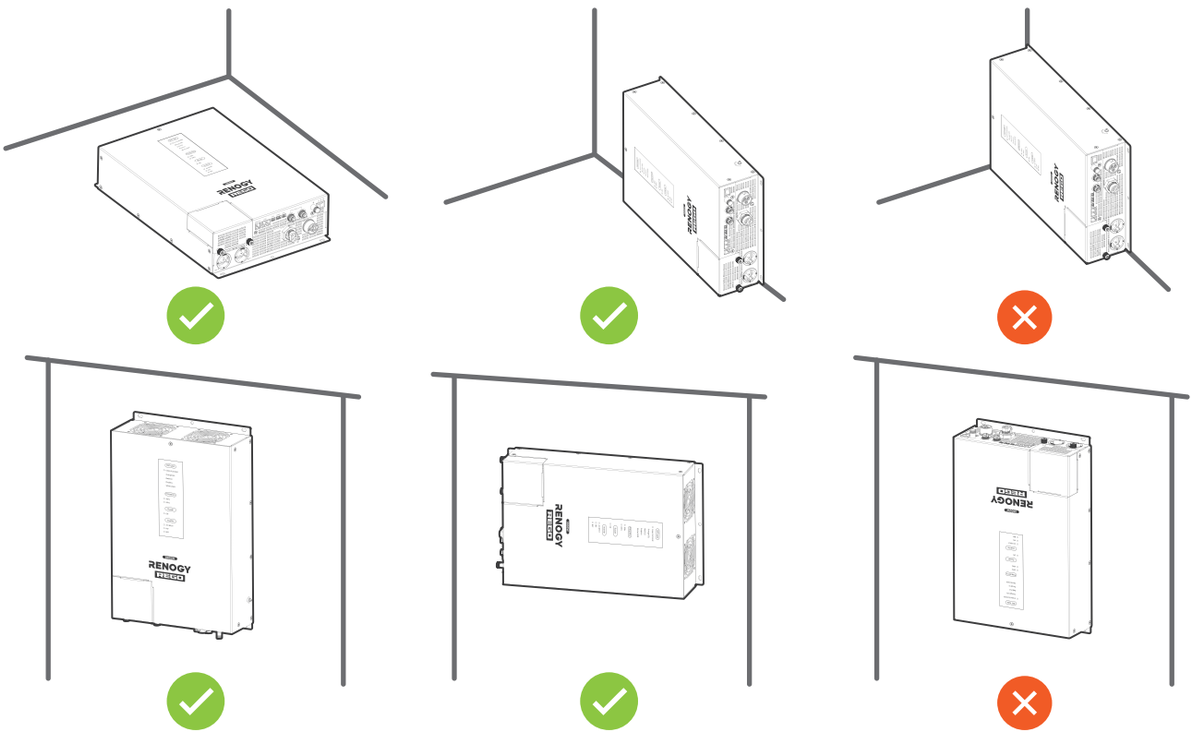
The inverter charger requires adequate clearance for installation, wiring and ventilation. The minimum clearance is provided below. Ventilation is highly recommended if it is mounted in an enclosure. Select a proper mounting site to ensure the inverter charger can be safely connected to the battery and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



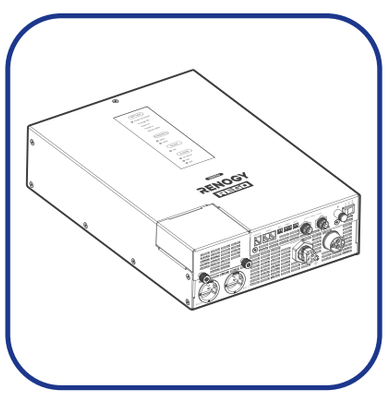
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance. Keep the inverter charger out of the reach of children and animals.
- 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.
- The inverter charger should be installed on a vertical surface protected from direct sunlight.
- Do not expose the inverter charger to flammable or harsh chemicals or vapors.
- Ensure that the inverter charger is installed in a place at ambient temperature from -4°F to 140°F (-20°C to 60°C).
- Ensure that inverter charger is installed in an environment with relative humidity between 0% and 95% and no condensation.
- 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.
- The inverter charger cannot operate at full load in ambient temperatures above 113°F (45°C).
- The inverter charger should be as close to the battery as possible to avoid voltage drop due to long cables.
- It is recommended that all cables (except communication cables) should not exceed 10 meters (32.8 feet) because excessively long cables result in a voltage drop. The communication cables should be shorter than 6 m (19.6 feet).
- The cable specifications listed in the user manual account for critical, less than 3% voltage drop and may not account for all configurations.

Ensure the inverter charger is firmly grounded to a building, vehicle, or earth grounded. Keep the inverter charger away from EMI receptors such as TVs, radios, and other audio/visual electronics to prevent damage / interference to the equipment.

To ensure good ventilation and optimal system performance, It is prohibited to invert (terminals up) the inverter charger and block the cooling fans.



3.2. Check the Inverter Charger



1. Inspect the inverter charger for any visible damage including cracks, dents, deformation, and other visible abnormalities. All connector contacts shall be clean, free of dirt and corrosion, and dry.

Do not use the inverter charger if there is any visible damage.

Do not puncture, drop, crush, penetrate, shake, strike, or step on the inverter charger.

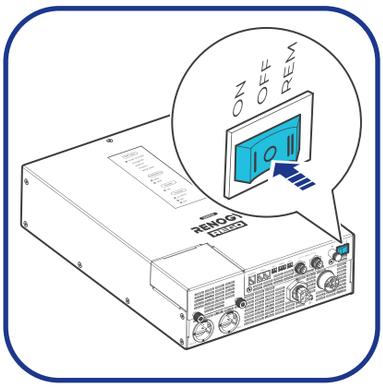
There are no serviceable parts in the inverter charger. Do not open, dismantle, repair, tamper with, or modify the inverter charger.

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.

Do not touch the connector contacts while the inverter charger is in operation.

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.

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.

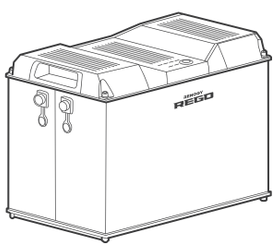


2. Ensure the On/Off/Remote Power Switch is in the OFF position.

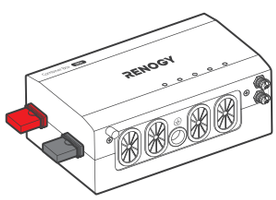
3.3. Check the Battery

Recommended Components & Accessories

Battery Scenario A: REGO Battery Kit

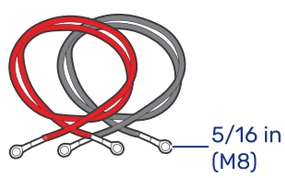


*REGO 12V 400Ah Lithium Iron Phosphate Battery



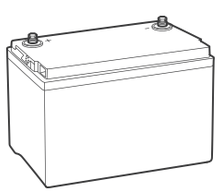
*Renogy 500A Combiner Box

*MRBF Terminal Fuse (400A)

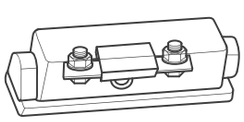


*Battery Adapter Cables (4/0 AWG / 107 mm²) × 2

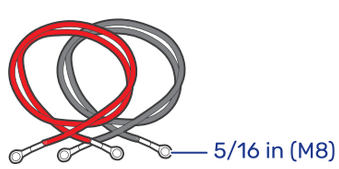
Battery Scenario B: Normal Battery Kit



*12V Battery



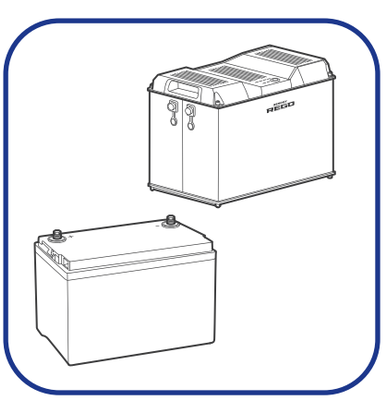
*ANL Fuse (400A)



*Battery Adapter Cables (4/0 AWG / 107 mm²) × 2

*Fuse Cable (4/0 AWG / 107 mm²)

Components and accessories marked with "*" are available on renogy.com.



1. Inspect the battery for any visible damage including cracks, dents, deformation, and other visible abnormalities. All terminals shall be clean, free of dirt and corrosion, and dry.

   The inverter charger can only be connected to 12V 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).

   The inverter charger provides overcurrent protection by detecting the DC input current from the battery in real time. When the battery input reaches 400A, the inverter charger automatically shuts down the battery input to prevent damage caused by excessively high current.

- During the charging process, the battery must be placed in a well-ventilated place.
- Do not use the battery if there is any visible damage. Do not touch the exposed electrolyte or powder if the battery housing is damaged.
- When being charged, the battery may give off explosive gas. Ensure there is good ventilation.
- Take care to use a high-capacity lead-acid battery. Be sure to wear protective goggles. If carelessly getting electrolyte in your eyes, flush your eyes with clean water immediately.
- Combine batteries in parallel or in series as needed. Prior to installing the inverter charger, ensure all battery groups are installed properly.
- Read the user manual of the battery in use carefully.

Battery or Battery Bank System Voltage	
Battery or Battery Bank System Voltage = System Voltage U	
Batteries in Series	**Batteries in Parallel**
System Voltage U: $U_1+U_2+U_3$	System Voltage U: $U_1=U_2=U_3$

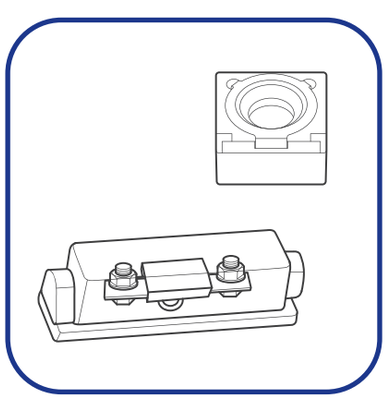
2. Check battery system voltage. This inverter charger supports a maximum system voltage of 17V. Read the user manual of the specific battery for battery voltage parameters, and calculate the voltage of the battery or battery pack system according to the formula to ensure that it does not exceed 17V.

In the formula, U represents the battery voltage, and 1, 2, or 3 represents the battery number respectively. For batteries connected in series-parallel, refer to Series, Parallel, and Series-Parallel Connections of Batteries for the system voltage.

The inverter charger operates normally at a range between 11V and 15.8V and allows a battery input from 9V to 17V with operating status specified below:

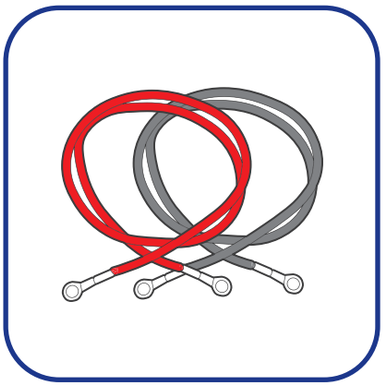
Battery Input Voltage	Inverter Charger Status	Solution
9V < Voltage < 11V	May fail to detect the battery	Charge the battery immediately
11V ≤ Voltage ≤ 15.8V	Operates normally	N/A
15.8V < Voltage < 17V	Trigger overvoltage alarm	Discharge the battery

- Do not connect batteries rating higher than 17V to the inverter. Doing so will damage the inverter charger.



3. Inspect the MRBF Terminal Fuse or ANL Fuse for any visible damage including cracks, dents, deformation, and other visible abnormalities. All terminals shall be clean, free of dirt and corrosion, and dry.

- Do not use the MRBF Terminal Fuse or ANL Fuse if there is any visible damage.

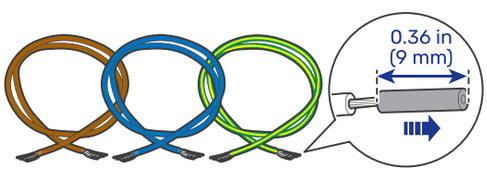


4. Inspect the Battery Adapter Cables for any visible damage including cracks, dents, deformation, and other visible abnormalities. All ring terminals are fastened to the cables.

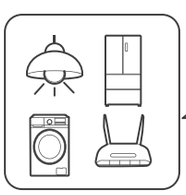
⚠ Do not use the battery adapter cables if there is any visible damage.

3.4. Check the AC Loads (Appliances)

Recommended Components & Accessories



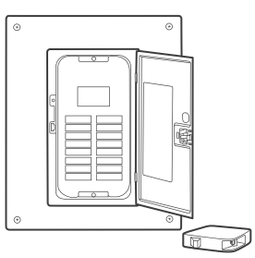
Bare Wires (10 AWG / 5.3 mm²) × 3



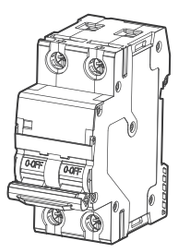
Total Load Power

Grid Power	Ratings
Unavailable	≤3000W
Available	≤6000W

AC Loads (230V)



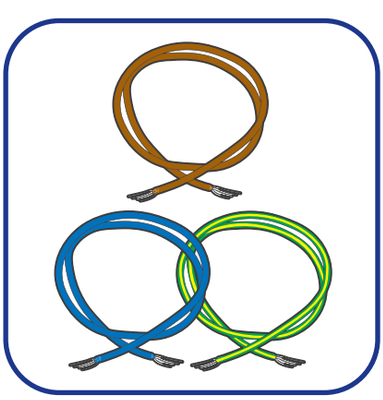
AC Load Sub-panel



Residual Current Device (RCD) (30A)

ℹ The residual current device (RCD) effectively protects the inverter charger and connected devices, enhancing system safety. In the event of a leakage fault, the RCD immediately cuts off power, preventing circuit damage, fires, and electric shock accidents.

ℹ You can connect the AC output of the inverter charger to a AC load sub-panel or supplementary AC outlets. In this section, we use a brown wire for live, a blue wire for neutral, and a chartreuse wire for ground.

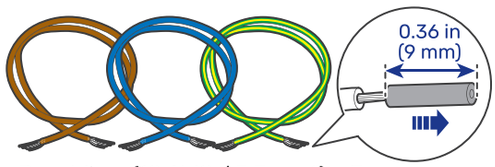


Inspect the Bare Wires for any visible damage including cracks, dents, deformation, and other visible abnormalities. All connector contacts shall be clean, dry, and free of dirt and corrosion.

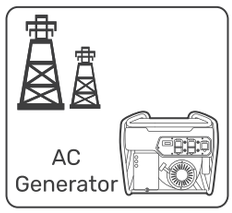
⚠ Do not use the bare wires if there is any visible damage.

3.5. Check the AC Generator or the Grid (Optional)

Recommended Components & Accessories



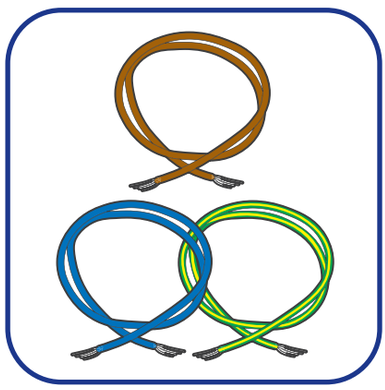
Bare Wires (10 AWG / 5.3 mm²) × 3



Grid Power (230V)

Risk of electric shock! Ensure the grid or the AC generator is turned off before connecting them to the inverter charger.

Read the user manual of the AC generator before the installation. In this section, we use a brown wire for live, a blue wire for neutral, and a chartreuse wire for ground.

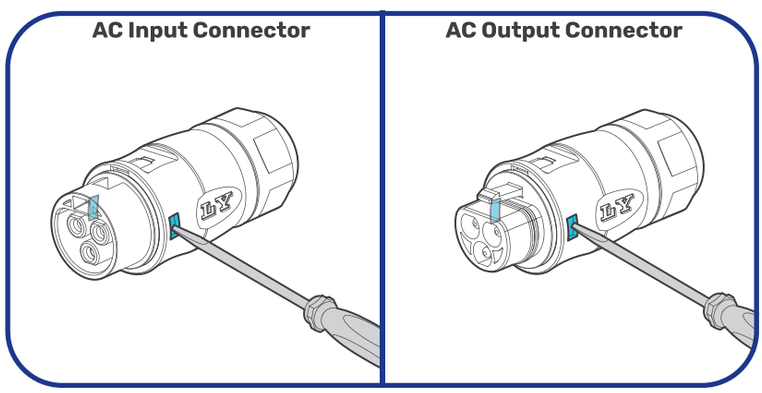


Inspect the Bare Wires for any visible damage including cracks, dents, deformation, and other visible abnormalities. All connector contacts shall be clean, dry, and free of dirt and corrosion.

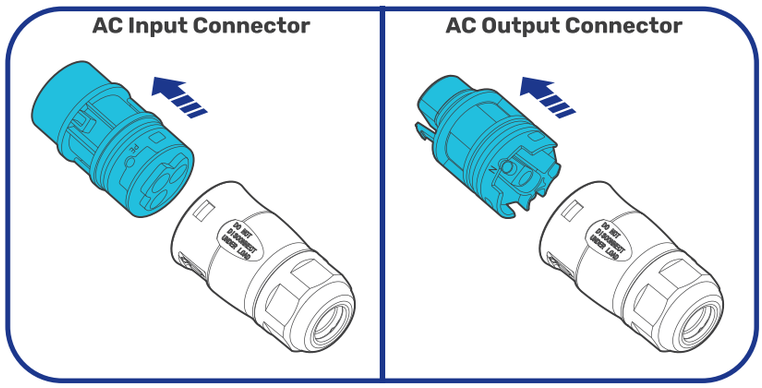
Do not use the bare wires if there is any visible damage.

3.6. How to Install AC Input/Output Connectors?

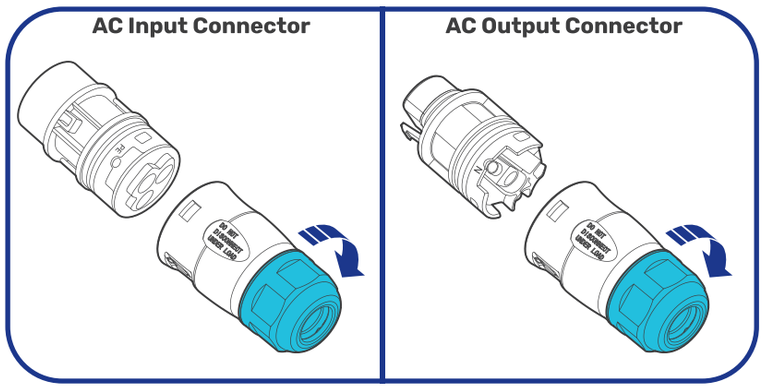
In this section, we use a brown wire for live, a blue wire for neutral, and a chartreuse wire for ground.



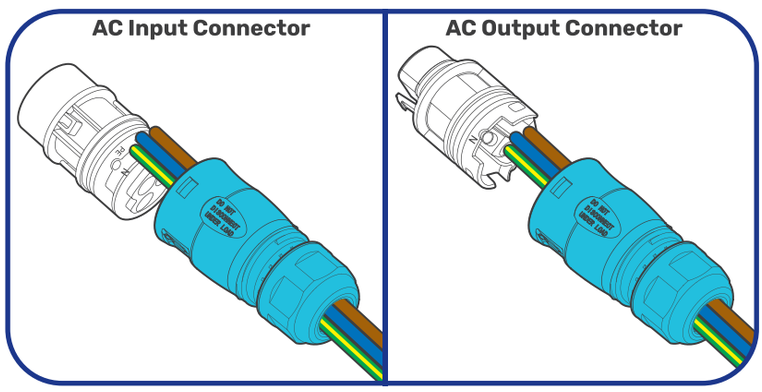
1. Use a 1 mm slotted screwdriver to press down on the latch on the AC Input Connector. Press and hold the latch, and pull the terminal plug outward. Repeat the same steps for the AC Output Connector.



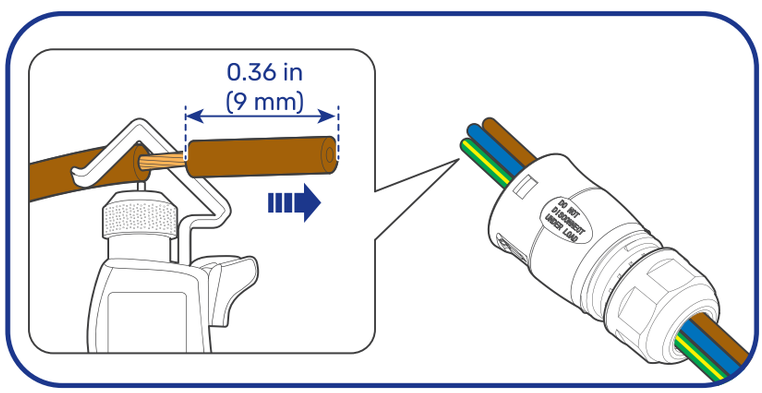
2. Remove the terminal plugs from the housings for both the connectors.



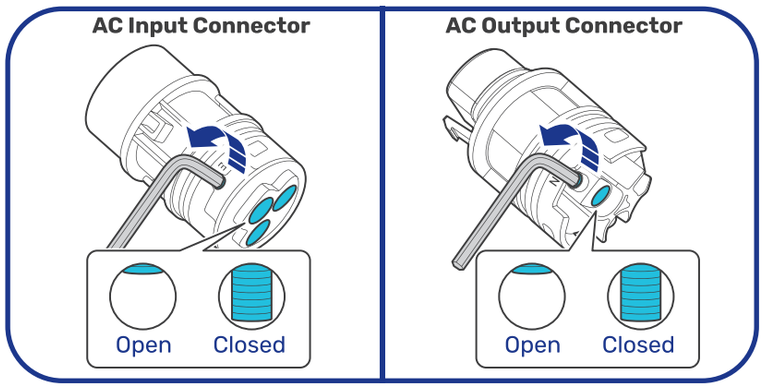
3. Loosen the locking nuts from the terminal plugs by twisting them clockwise.



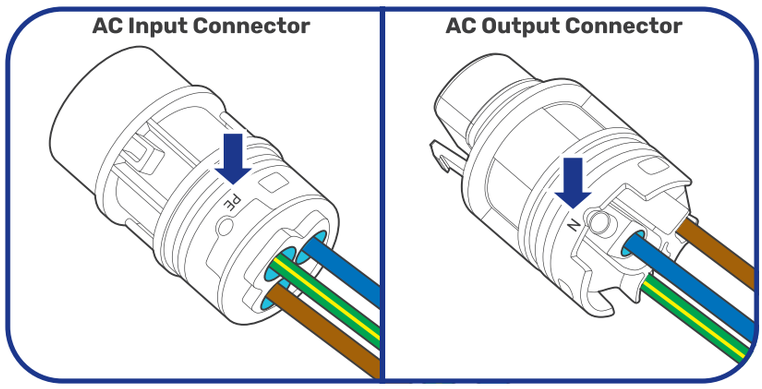
4. Run the three wires (live, neutral, and ground) through the terminal plugs as shown in the left illustration.



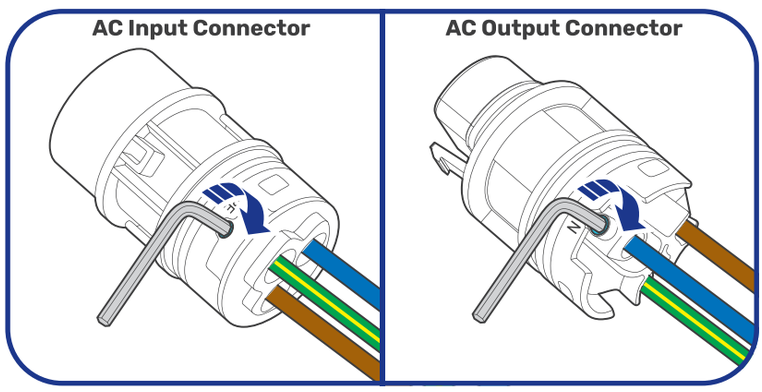
5. Strip approximately 0.36 inches (9 mm) of insulation from one end of each of the three bare wires using a wire stripper.



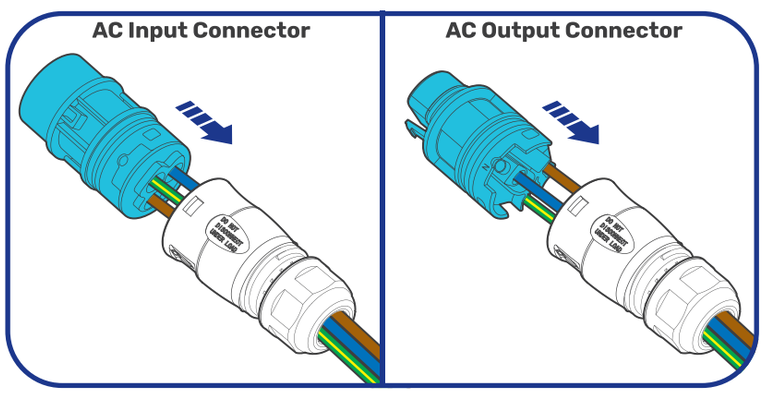
6. Use the included inner hexagon spanner to rotate the cable retainers of the L, N, and PE terminals on the AC connectors counterclockwise. Ensure the cable retainer is completely open.



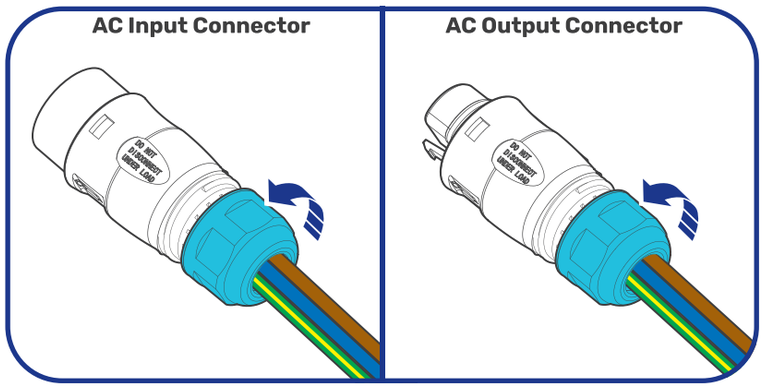
7. Insert the live wire into the L terminal, the neutral wire into the N terminal, and the ground wire into the PE terminal.



8. Close the cable retainers by rotating the cable retainers of the L, N, and PE terminals clockwise via the included inner hexagon spanner.



9. Align the latches on both sides and insert the terminal plugs into the housings. A clicking sound indicates a successful installation.

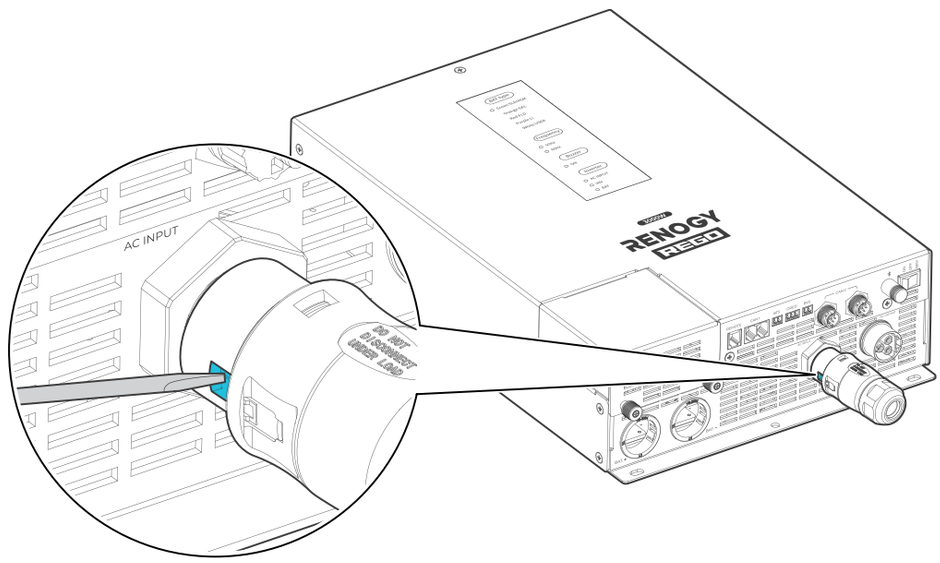


10. Rotate the locking nuts counterclockwise to tighten them until they cannot be turned further.

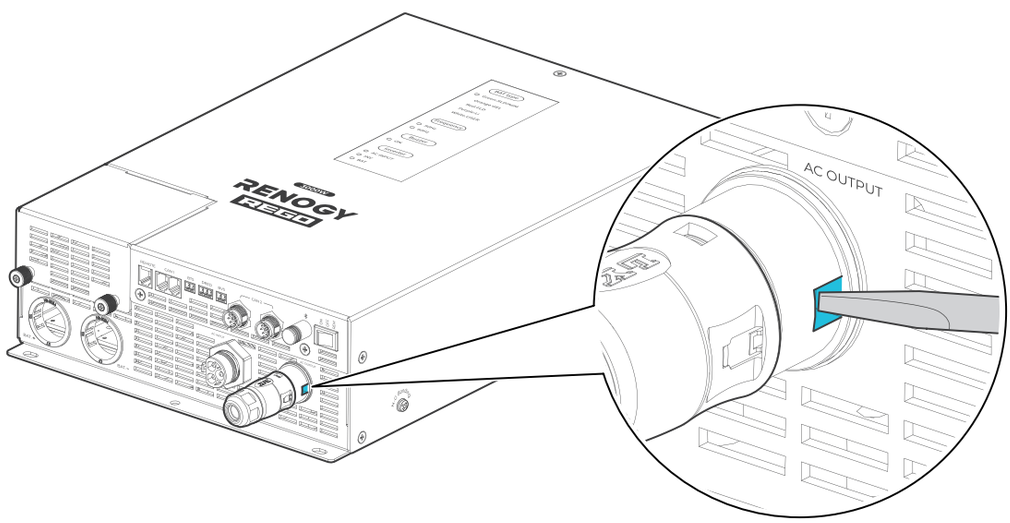
3.7. How to Properly Unplug AC Input/Output Connectors?

As shown in the illustration, use a 1 mm slotted screwdriver to press down on the latch on an AC connector. While keeping the latch depressed, pull the AC connector vertically outward.

AC Input Connector



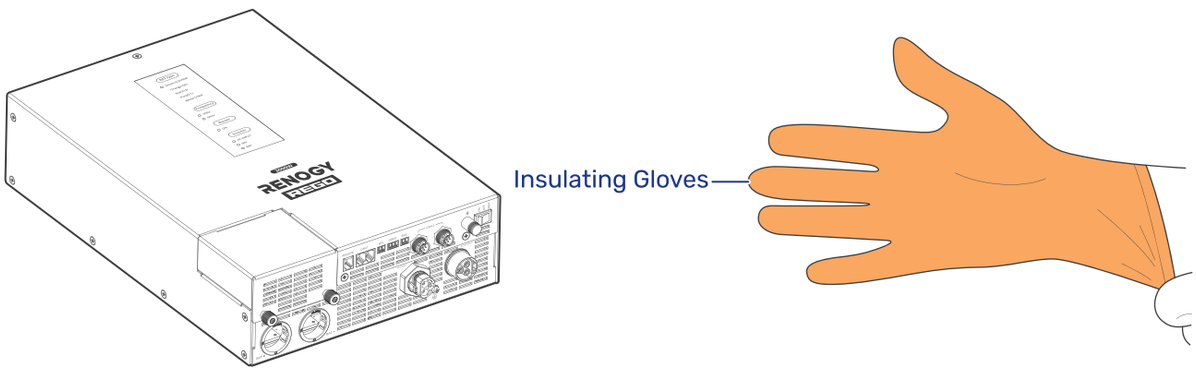
AC Output Connector



4. Installation

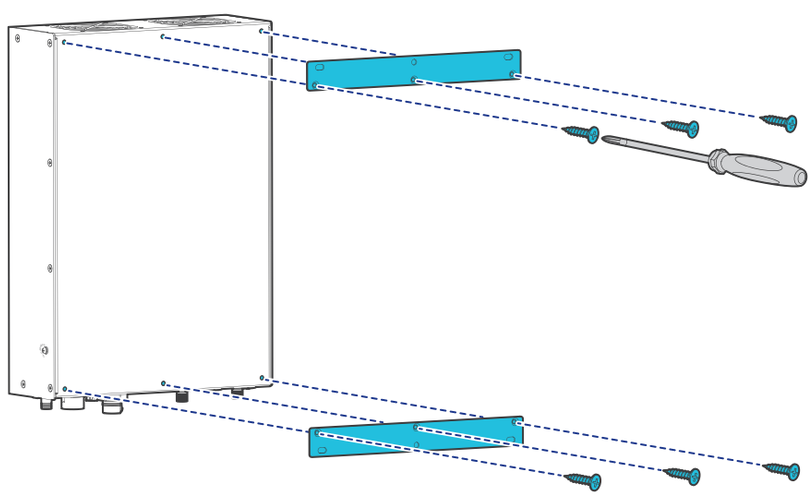
To ensure safe and efficient operation of the inverter charger and to avoid potential damage or hazards, always follow the installation instructions in the sequence described in this manual.

4.1. Wear Insulating Gloves



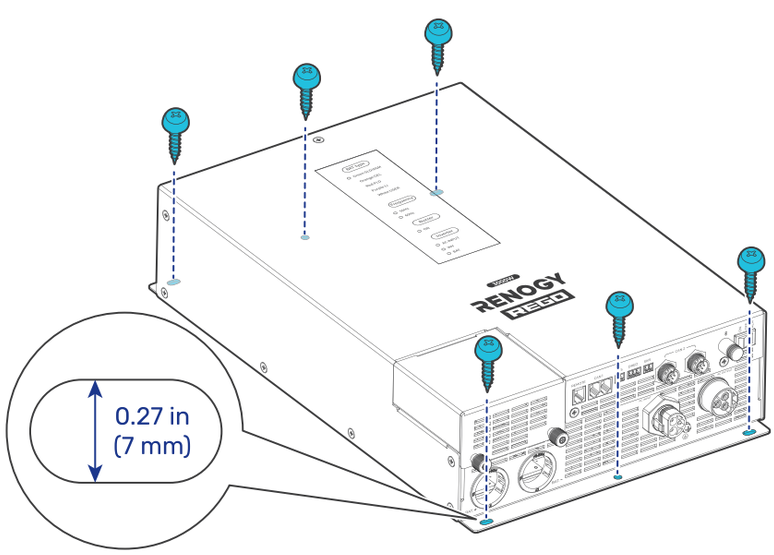
4.2. Installing Mounting Plates

Install the mounting plates to the rear of the inverter charger using the included grub screws and a #1 Phillips screwdriver.



4.3. Mount the Inverter Charger

Secure the inverter charger to the installation site by fixing the included self-tapping screws through the mounting holes.



Ensure that the inverter charger is installed firmly to prevent it from falling off.

4.4. Ground the Inverter Charger

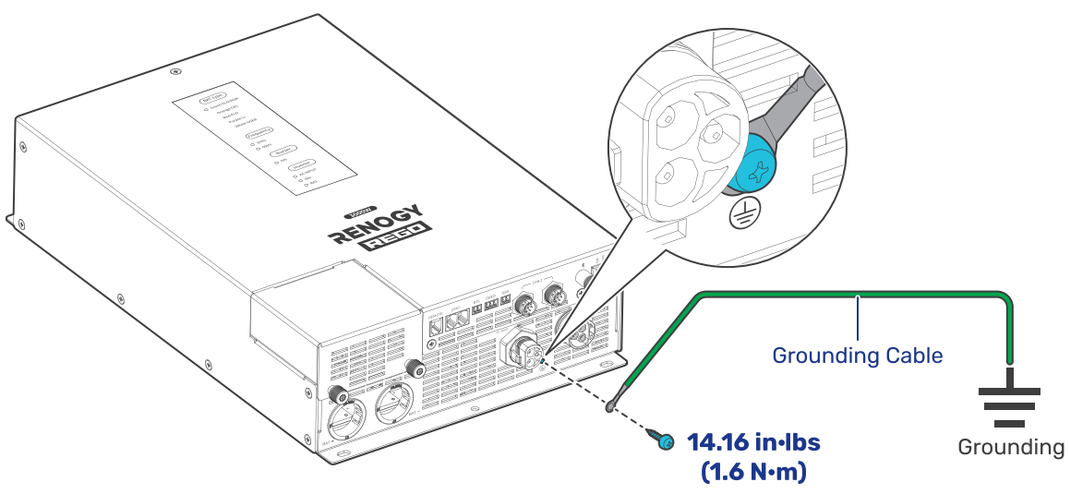
Recommended Components

Grounding Cable (10 AWG / 5.3 mm²) × 3

Step 1: Remove the screw on the Ground Port with a Phillips screwdriver (#1).

Step 2: Connect the Grounding Cable Ring Terminal to the grounding port of the inverter charger with the removed screw by using the Phillips screwdriver (#1).

Step 3: Connect the bare wire end of the grounding cable to a grounding rod (not included), if applicable.



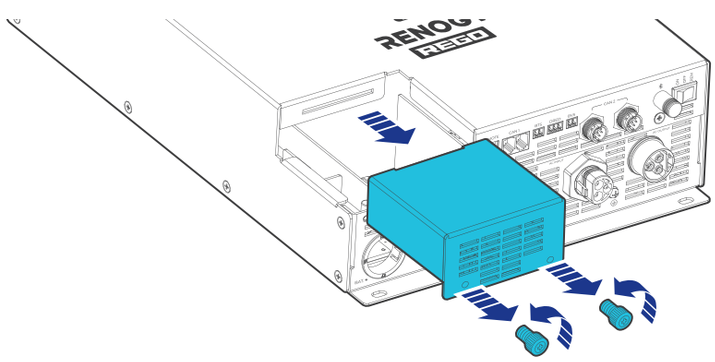
The screw torque of a cable clamp is 14.16 in•lbs (1.6 N•m). Do not overtighten the screws to prevent damage.

The DC Grounding system is sometimes referred to as the earth ground or another designated ground. In an RV Setting, the metal frame of the RV could be the designated ground. A common ground should be used to bond the inverter charger, negative bus bar, and negative battery terminal together, if applicable.

4.5. Remove the Cover

Step 1: Turn the two Cover Screws counterclockwise either by hands or by using a Phillips screwdriver.

Step 2: Remove the Cover.



4.6. Connect the Inverter Charger to a Battery

Battery Scenario A: REGO Battery Kit

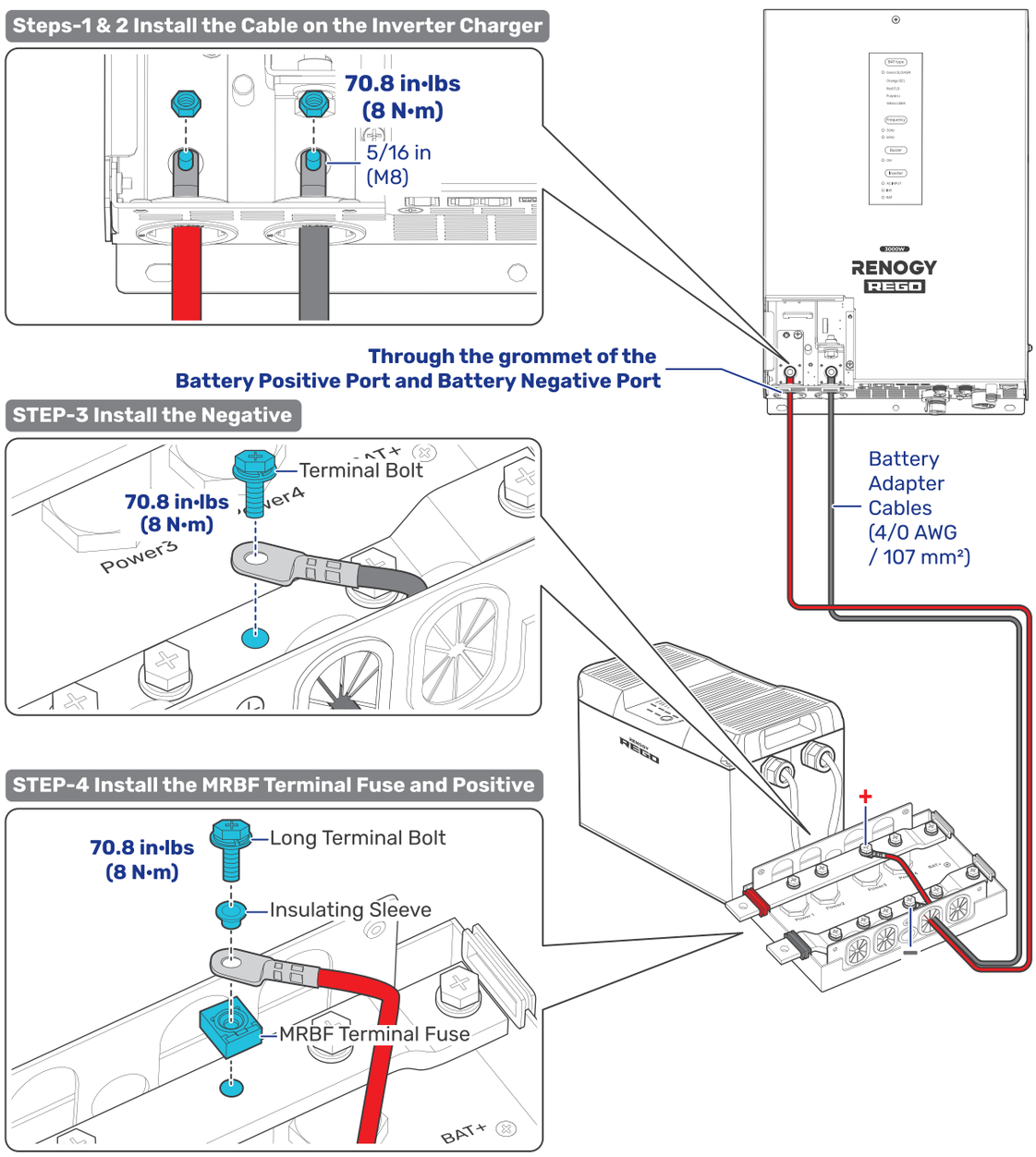
Step 1: Remove the retaining nut from the Battery Negative Terminal on the inverter charger by using a Socket Wrench. Run the Negative Battery Adapter Cable through the grommet of the Battery Negative Port of the inverter charger, and connect the ring terminal of the Negative Battery Adapter Cable to the Battery Negative Terminal with the retaining nut.

Step 2: Repeat the actions in Step 1 on the Battery Positive Terminal on the inverter charger to finish connection on the positive end.

Step 3: Connect the Negative Ring Terminal of the Battery Adapter Cable (in black) to the Negative Busbar on the Renogy 500A Combiner Box.

Step 4: Connect the Positive Ring Terminal of the Battery Adapter Cable (in red) and MRBF Terminal Fuse to the Positive Busbar on the Renogy 500A Combiner Box.

The retaining nut torque of the Battery Positive/Negative Terminal is 70.8 in•lbs (8 N•m). Do not overtighten it to prevent damage.



Battery Scenario B: Normal Battery Kit

Step 1: Remove the retaining nut from the Battery Negative Terminal on the inverter charger by using a Socket Wrench. Run the Negative Battery Adapter Cable through the grommet of the Battery Negative Port of the inverter charger, and connect the ring terminal of the Negative Battery Adapter Cable to the Battery Negative Terminal with the retaining nut.

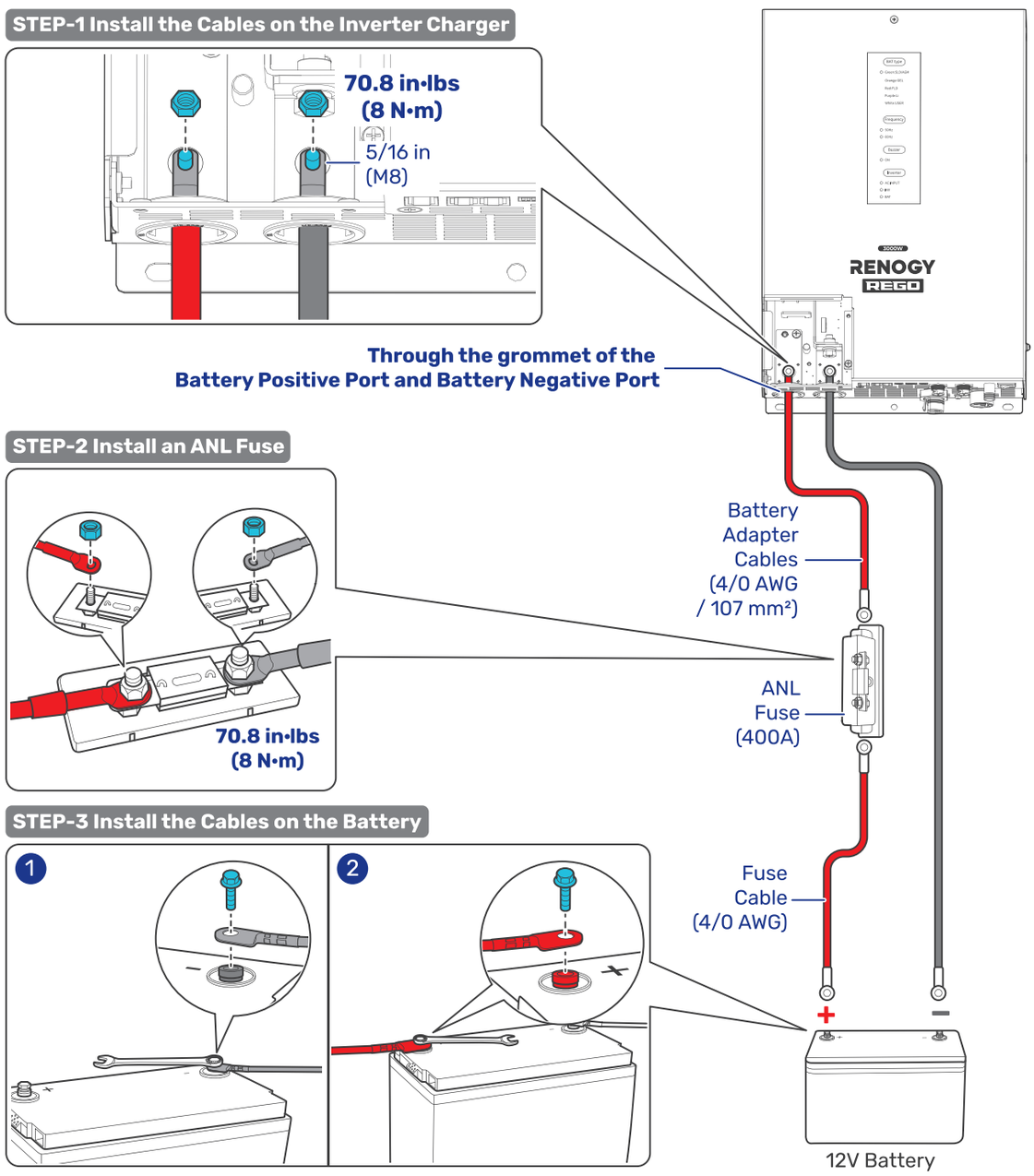
Step 2: Connect the other ring terminal of Negative Battery Adapter Cable to the negative terminal of the battery.

Step 3: Repeat the actions in Step 1 on the Battery Positive Terminal on the inverter charger to finish connection on the positive end.

Step 4: Remove the retaining nuts from the ANL Fuse, connect the Positive Battery Adapter Cable to one end of the ANL Fuse, and fix them with one retaining nut.

Step 5: Connect the ANL Fuse to the positive terminal of the battery via the Fuse Cable, and fix the fuse cable on the ANL Fuse with the other retaining nut.

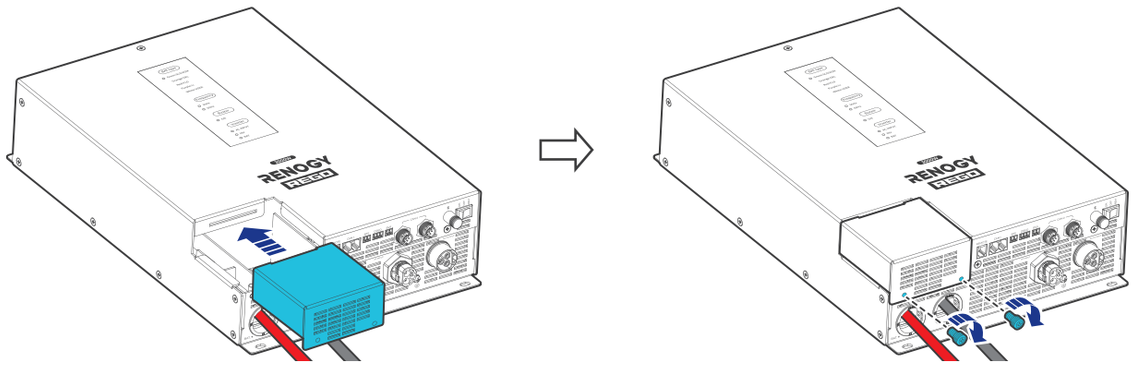
The retaining nut torque of the Battery Positive/Negative Terminal is 70.8 in•lbs (8 N•m). Do not overtighten it to prevent damage.



4.7. Install the Cover

Step 1: Install the cover to the inverter charger.

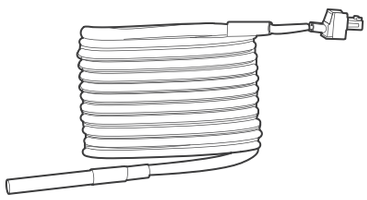
Step 2: Install the two cover screws clockwise either by hands or by using a Phillips screwdriver.



4.8. Install a Battery Temperature Sensor (Optional)

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

Recommended Components



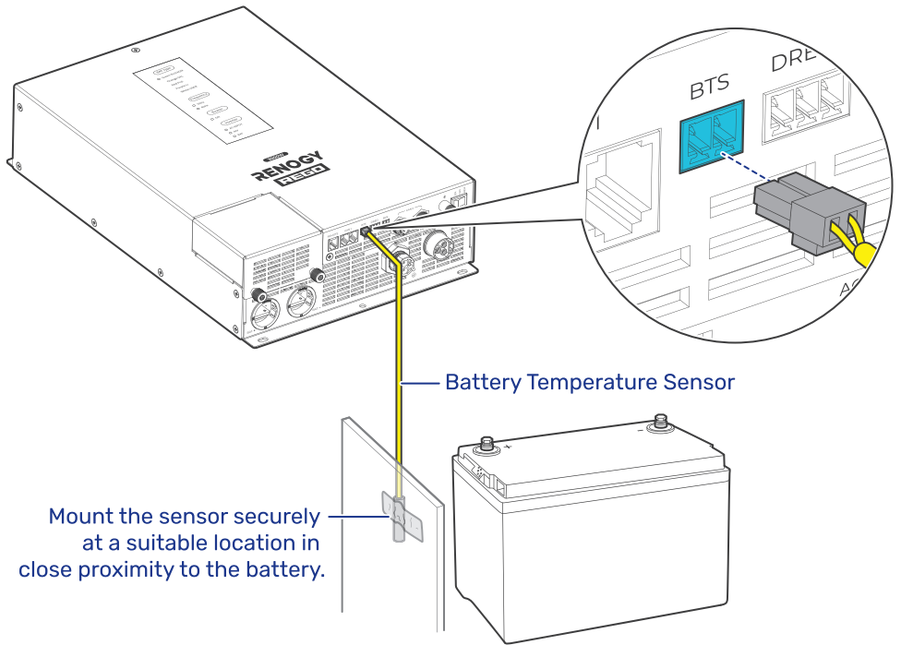
*Battery Temperature Sensor

Components marked with "*" are available on renogy.com.

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

Step 1: Connect the terminal block to the Battery Temperature Sensor (BTS) Port on the inverter charger.

Step 2: Mount the sensor securely at a suitable location in close proximity to the battery.

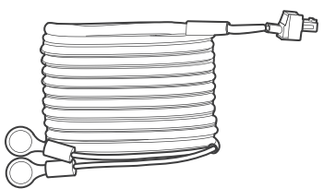


Never mount the temperature sensor on the battery to prevent false overtemperature alarms.

4.9. Install a Battery Voltage Sensor (Optional)

The Battery Voltage Sensor measures the battery voltage during discharging and compensates for any voltage drop across the cables at the battery terminal. This helps minimize the impact on the battery's operational voltage.

Recommended Components



*Battery Voltage Sensor

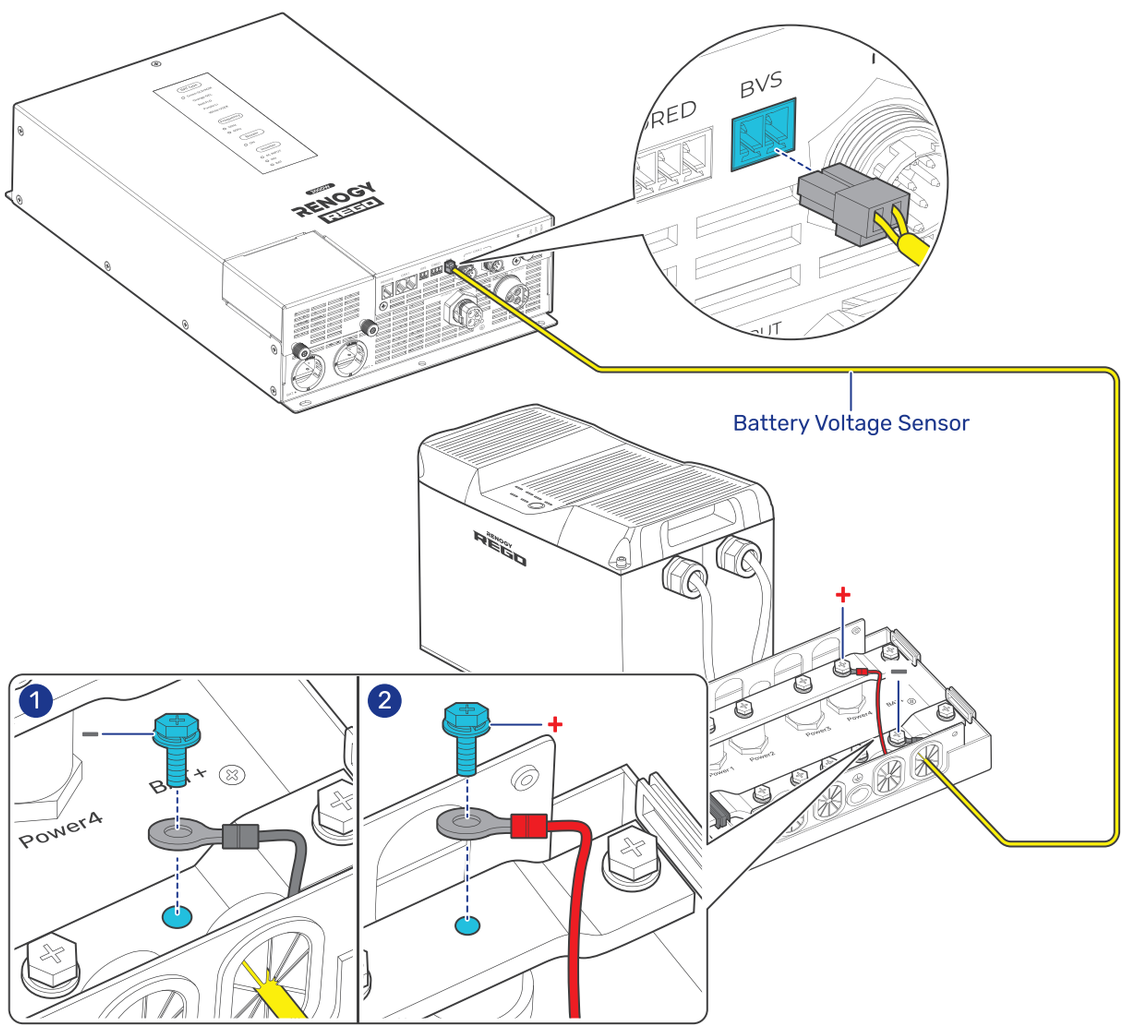
Components marked with "*" are available on renogy.com.

Battery Scenario A: REGO Battery Kit

Step 1: Connect the terminal block to the Battery Voltage Sensor (BVS) Port on the inverter charger.

Step 2: Connect the Negative Ring Terminal of the Battery Voltage Sensor to the Negative Busbar on the Renogy 500A Combiner Box.

Step 3: Connect the Positive Ring Terminal of the Battery Voltage Sensor to the Positive Busbar on the Renogy 500A Combiner Box.

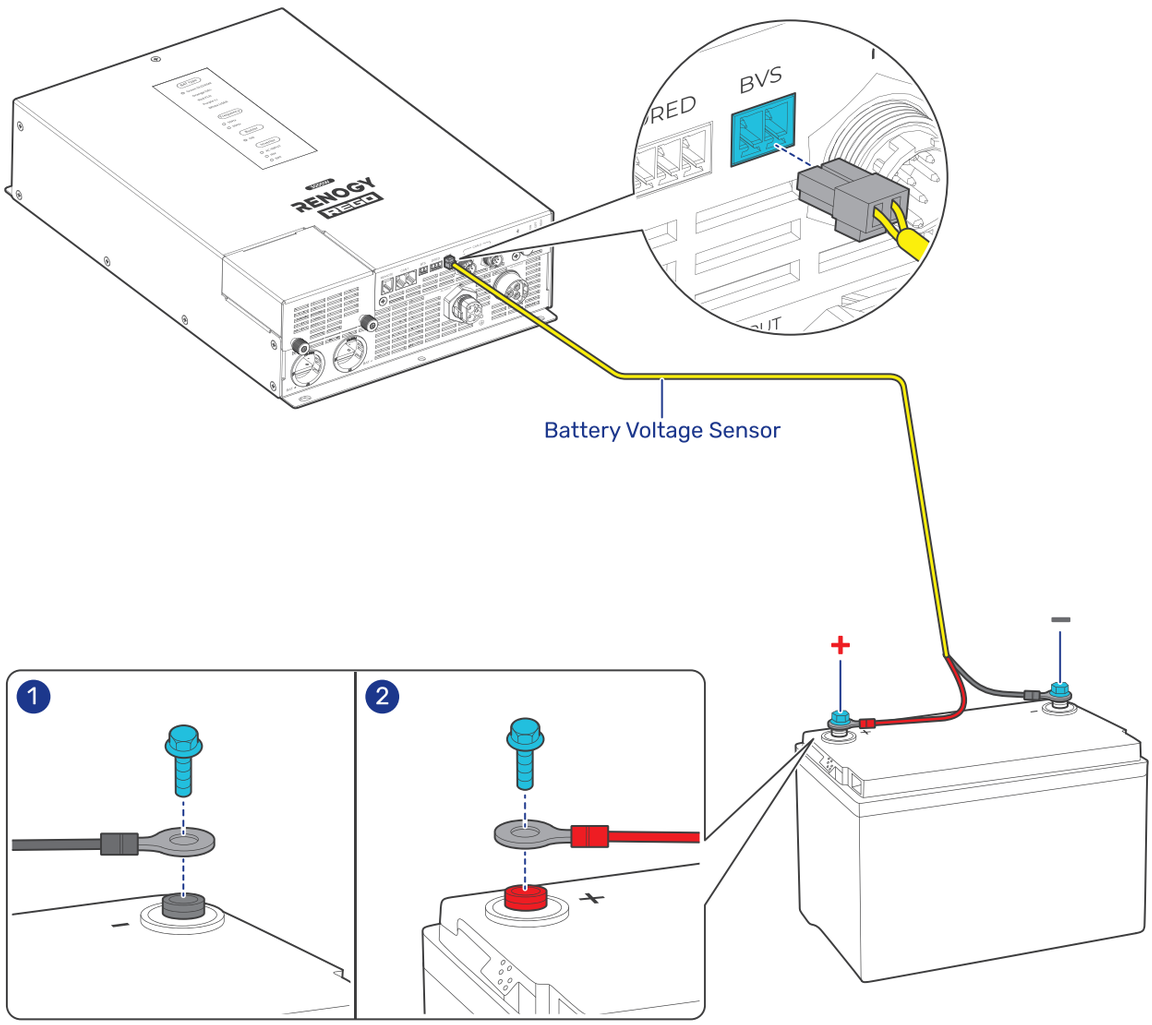


Battery Scenario B: Normal Battery Kit

Step 1: Connect the terminal block to the Battery Voltage Sensor (BVS) Port on the inverter charger.

Step 2: Connect the Negative Ring Terminal of the Battery Voltage Sensor to the Negative Terminal on the 12V battery.

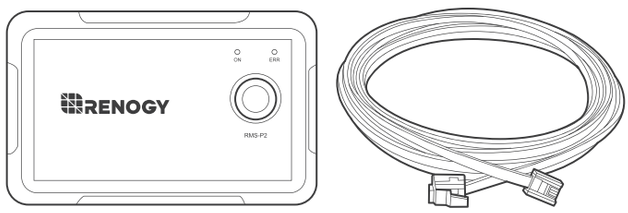
Step 3: Connect the Positive Ring Terminal of the Battery Voltage Sensor to the Positive Terminal on the 12V battery.



4.10. Install a Wired Remote Control (Optional)

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

Recommended Components

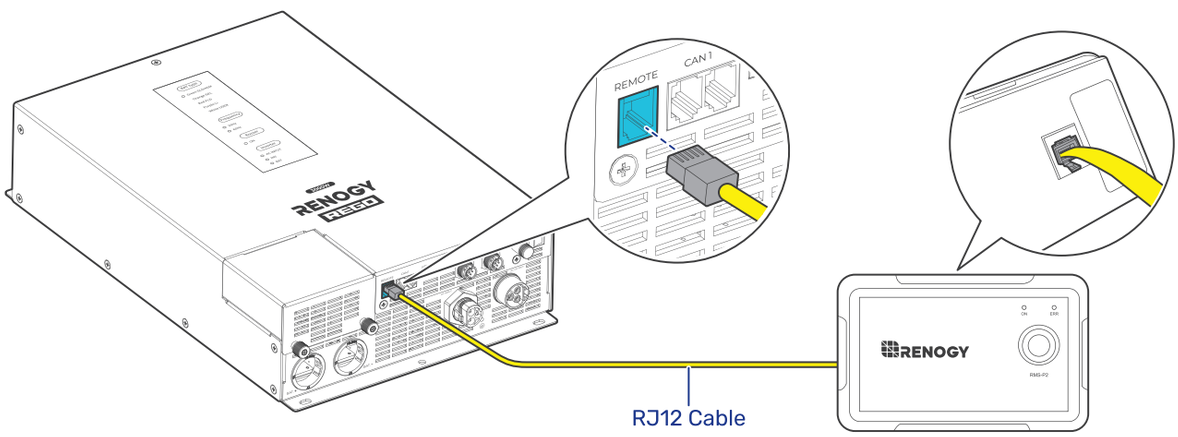


*Wired Remote Control

Components marked with "*" are available on renogy.com.

Step 1: Connect the RJ12 connector to the Wired Remote (REMOTE) Port on the inverter charger.

Step 2: Connect the other end of the cable to the Wired Remote Control.



4.11. Connect the Inverter Charger to AC Loads (Appliances)

AC loads can be connected to the inverter charger via AC outlets, load sub-panel, and other outlets. This manual takes a load sub-panel and a 30A Residual Current Device (RCD) as an example.

Step 1: Align the latch of the wired AC Output Connector with the slot on the AC Output Port of the inverter charger, and insert the connector vertically to the base.

Step 2: Connect the live wire and neutral wire ends of the AC Output Connector to a 30A RCD.

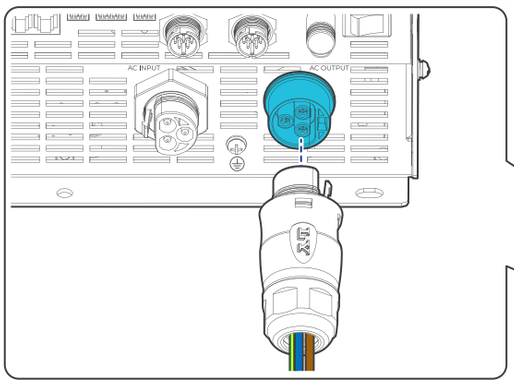
Step 3: Connect the RCD to an AC load sub-panel. The live wire should be connected to the L terminal of the socket outlet. The same rules apply to the neutral (N) and ground (PE) terminals.

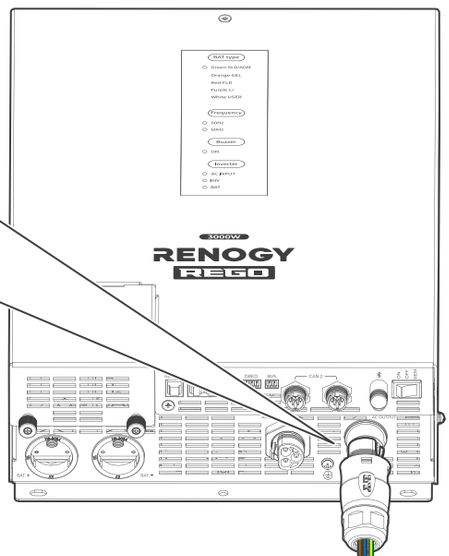
Step 4: Select an appropriate circuit breaker according to the operating load current, and connect the load to the AC load sub-panel. Connect the live wire to the (L) terminal, the neutral wire to the (N) terminal, and the ground wire to the (PE) terminal. Install the front cover of the AC load sub-panel and turn on all the circuit breakers in the AC load sub-panel.

For detailed instructions on how to wire a AC load sub-panel, please refer to the user manual of the specific AC load sub-panel.

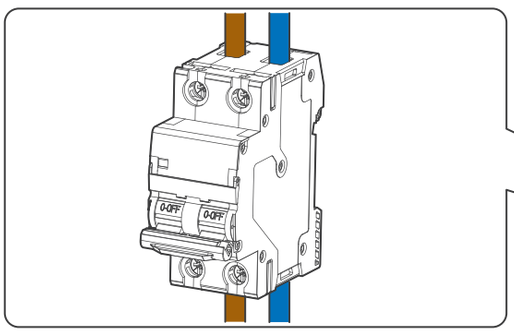
For your safety, it is recommended that qualified electricians familiar with safety codes of electrical systems perform the installation.

STEP-1 Connect the AC Output Connector to the Inverter Charger





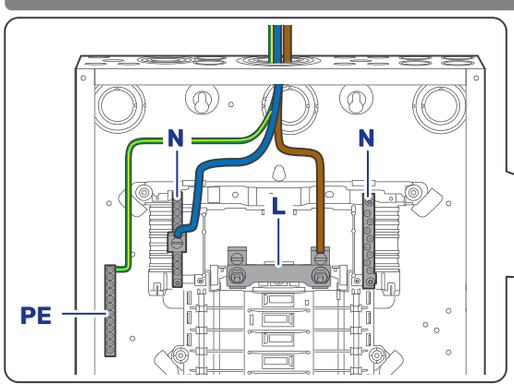
STEP-2 Install a Residual Current Device (RCD)

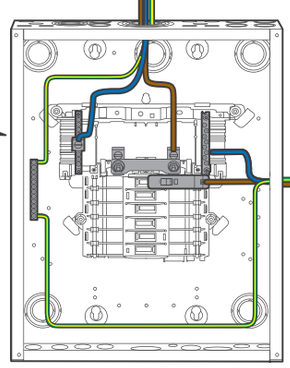


Bare Wires

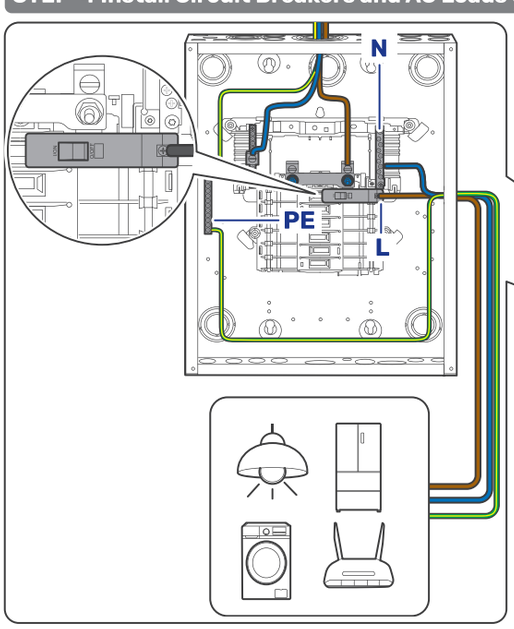
Residual Current Device (RCD)

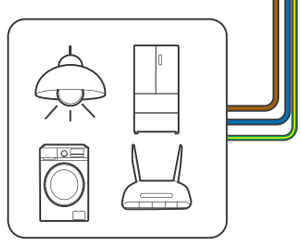
STEP-3 Connect the Bare Ends to an AC Load Sub-panel





STEP-4 Install Circuit Breakers and AC Loads on Demand



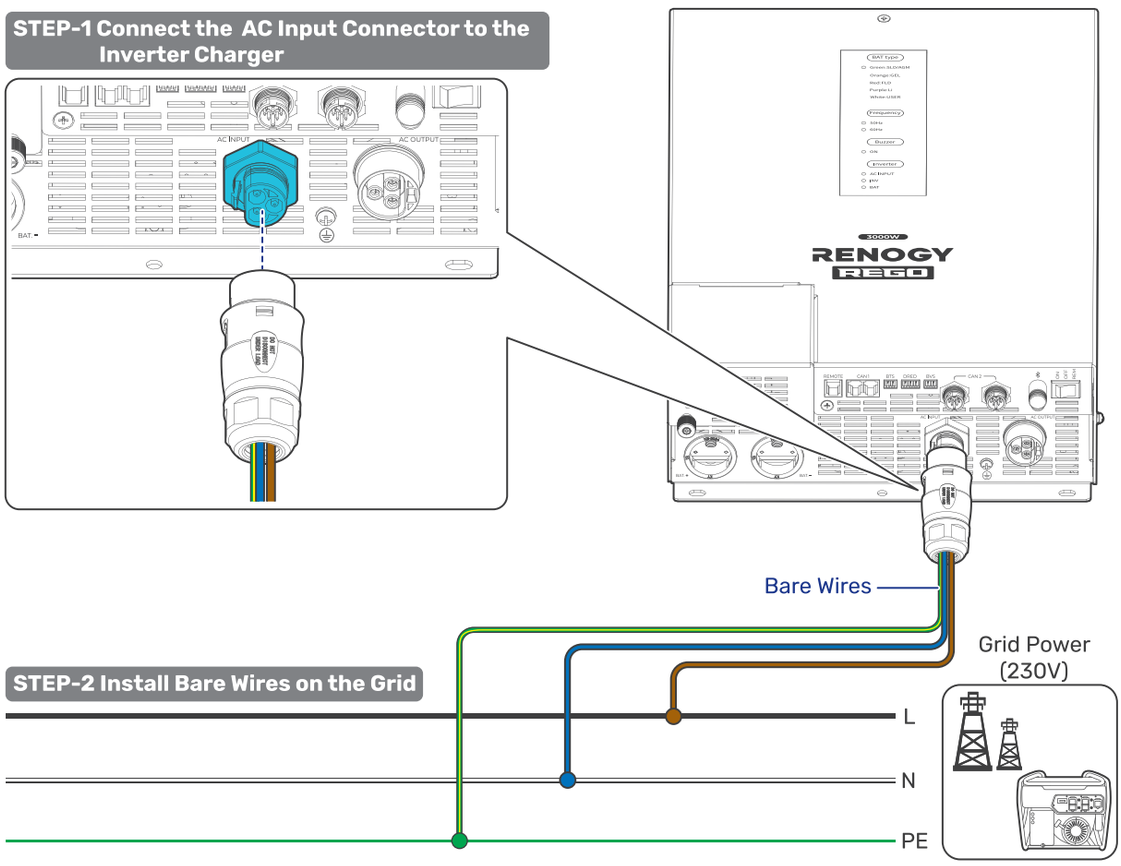


AC Loads (230V)

4.12. Connect the Inverter Charger to the Grid (Optional)

Step 1: Align the latch of the wired AC Input Connector with the slot on the AC Input Port of the inverter charger, and insert the connector vertically to the base.

Step 2: Locate the live, neutral, and ground terminals on the grid, and connect the bare wires of the AC Input Connector to the respective terminals on the grid. The live wire should be connected to the L terminal of the socket outlet. The same rules apply to the neutral (N) and ground (PE) terminals.



Do not parallel the inverter charger with other AC input sources to avoid damage.

The inverter charger provides overcurrent protection by detecting the AC input current from the grid or a generator in real time. When the AC input reaches 30A, the inverter charger automatically shuts down the AC input to prevent damage caused by excessively high current. You can customize the overcurrent protection threshold on the DC Home app. Maximum allowed threshold: 30A.

Automatic Generator Start

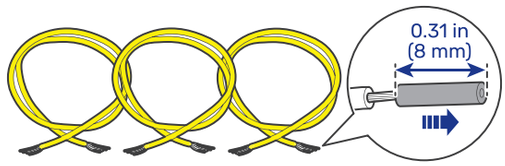
For AC Generators supporting the automatic on/off function, connect the generator to the inverter charger. If the battery voltage reaches or falls below the Low Voltage Reconnect value (when a Battery Voltage Sensor are involved), the inverter charger will send a 5-minute start signal to the generator. Upon receiving the signal, the generator will automatically start and provide power to the battery and loads.

Read the user manual of the AC Input source carefully before connection.

Ensure the generator can automatically start or stop. Identify NC (normally closed contact), NO (normally open contact), and C (common static contact) of the generator and ensure signal lines are connected properly. Some generators only have NC and C (common static contact) or NO and C. You can connect them on demand.

Do not install the inverter charger near any generator supporting automatic generator on/off because these generators exhaust dangerous fumes in operation.

Recommended Accessories



Bare Wires × 3

There is no polarity requirement for the bare wires.

Step 1: Strip some insulation (0.31 in/8 mm) off each of the three bare wires with a wire stripper.

Step 2: Turn the cable retainer screws of NC, C and NO of Dry Contact Relay Connector counterclockwise with a slotted screwdriver to ensure that the cable retainers are open.

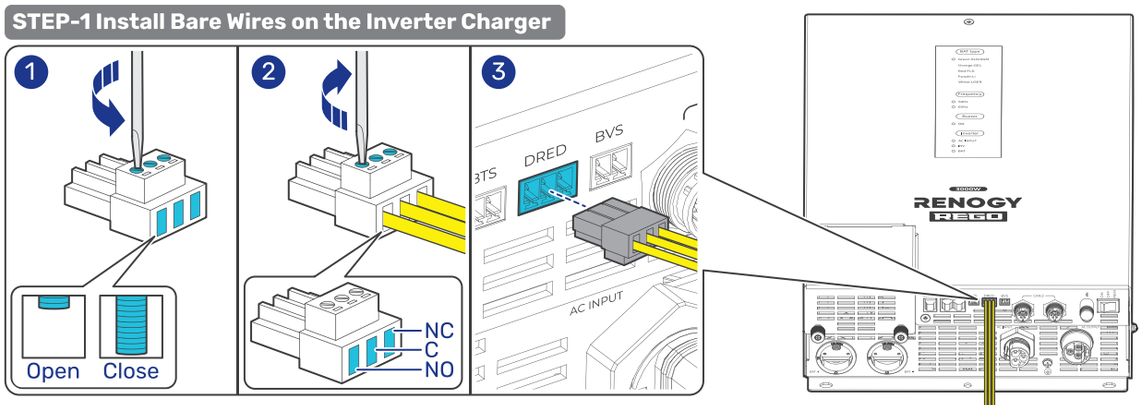
Step 3: Connect the three bare wires to the corresponding NC, C, and NO wiring holes. Turn the cable retainer screws of NC, C and NO clockwise with a slotted screwdriver to fasten the cable.

Step 4: Connect the Dry Contact Relay Connector to the Dry Contact (DRED) Port on the inverter charger.

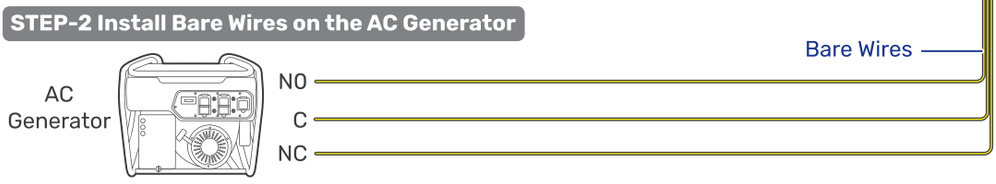
Step 5: Connect the bare ends of the three wires to the AC generator.

For details on how to connect the AC Generator to the inverter charger, read the user manual of the specific generator.

STEP-1 Install Bare Wires on the Inverter Charger



STEP-2 Install Bare Wires on the AC Generator



4.13. CAN Communication Wiring (Optional)

The REGO 12V 3000W HF Inverter Charger can communicate with other Renogy devices supporting CAN communication and monitoring devices through CAN (common area network) bus, also known as RV-C, enabling safe operation, smart control, remote monitoring, and programmable settings.

You can connect the inverter charger to other Renogy devices supporting CAN communication for real-time inter-device data communication through either of the CAN Communication Ports. 7-Pin CAN Communication Terminal Plugs and 7-Pin CAN Communication Terminal Plug adapter cables are required for the wiring.

The wiring details vary depending on the wiring schemes. This user manual elaborates on inter-device wiring in two schemes: backbone and daisy chain networks.

For technical support from Renogy, please contact us through renogy.com/contact-us/.

To properly connect or disconnect the 7-Pin CAN Communication Terminal Plug to or from the inverter charger, you should

1. Ensure that the plug is oriented vertically toward the CAN Communication Port.

2. Rotate the terminal fixing nut to loosen or secure the plug.

Shaking the terminal plug while plugging or unplugging it is not allowed.

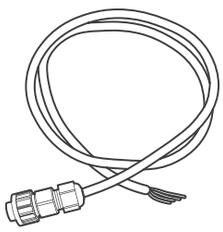
Backbone Network

Ensure 120Ω terminating resistors are installed at both ends of the RV-C bus for successful communication with Renogy devices supporting CAN communication. If the RV user manual does not determine if the RV-C bus has a built-in 120Ω termination resistor, call the RV manufacturer to confirm.

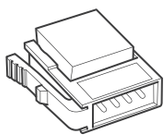
If the RV-C bus does not have a built-in 120Ω termination resistor, the inverter charger will not communicate properly with other Renogy devices supporting CAN communication. Please use the Daisy Chain Network for communication connections.

Connect devices to the inverter charger according to the wiring diagram provided by the RV manufacturer. Choose proper communication cables according to your specific demands.

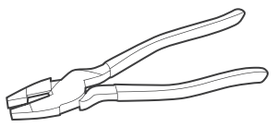
Recommended Tools & Accessories



*7-Pin CAN Communication Terminal Plug to Bare Drop Cable(s)



Drop Plugs



Split Joint Pliers

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

The 7-Pin CAN Communication Terminal Plug to Bare Drop Cable is only for use with the inverter charger. Please refer to the user manual of other devices for the communication cable types they require.

The drop cable shall not exceed 19.6 feet (6 m), and the RV-C bus shall not exceed 98.4 feet (30 m).

Choose the appropriate drop plugs that are compatible with the drop sockets used on the RV-C bus. Different RV manufacturers may use different types of drop sockets for inter-device communication connections. If you are unsure about the correct drop plug selection, consult with the RV manufacturer. In this manual, the Mini-Clamp II plug (4-pin) is used as an example.

Different Drop Plugs follow different pinouts. Crimp the Drop Plugs on the Drop Cables following the correct pinout. If you are not sure about the Drop Plug pinout, check with the RV manufacturer.

Step 1: Install the Drop Plugs on the bare end of the 7-Pin CAN Communication Terminal Plug to Bare Drop Cable. The white CAN_H wire goes to pin 2, the blue CAN_L wire goes to pin 3. Leave pin 1 and pin 4 empty.

Step 2: Squeeze the crimp areas of the Drop Plugs with the Split Joint Pliers.

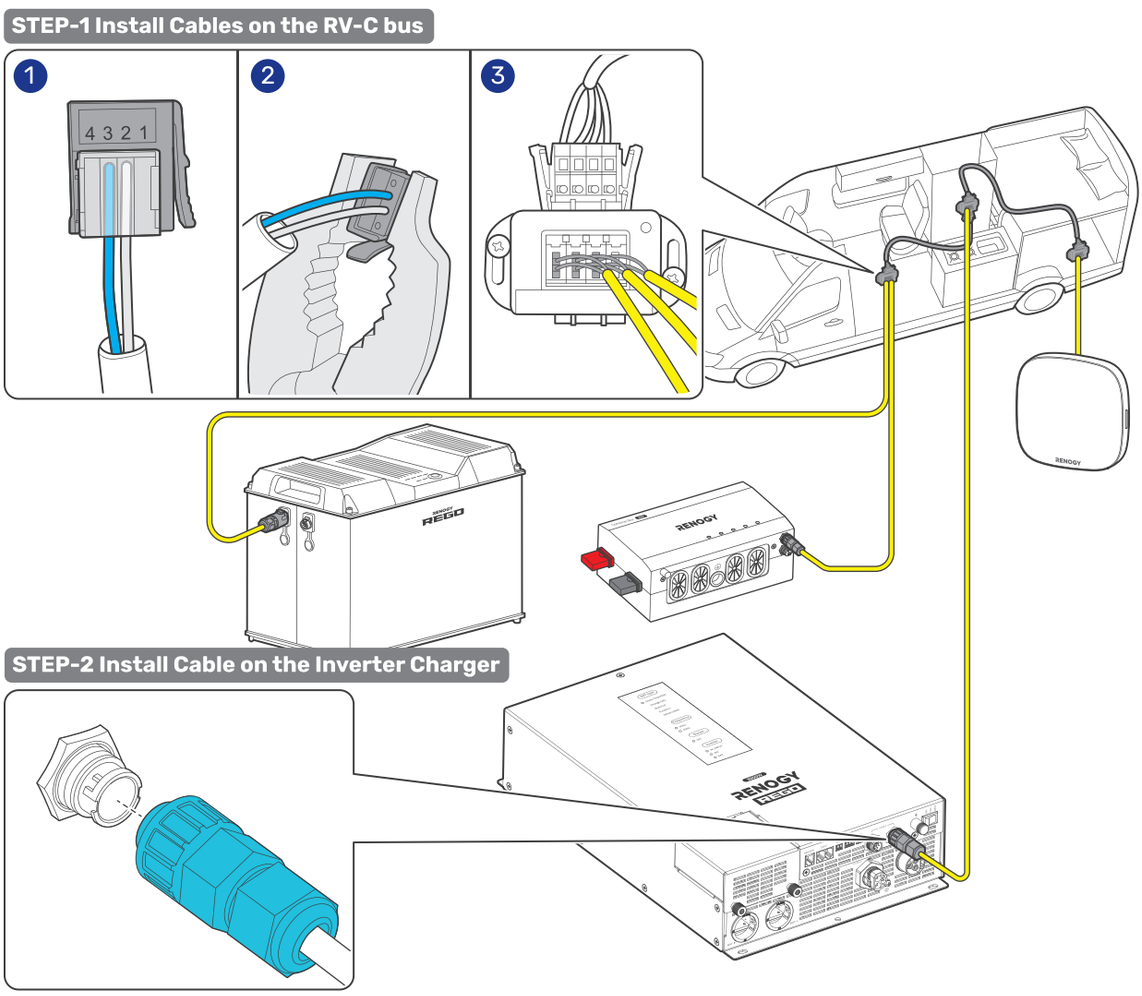
Step 3: Locate the drop tap (not included) on the RV-C bus that is the closest to the installation site of the inverter charger. The drop taps are usually located above the entry door, in the bathroom, or under the bed in the RV.

Step 4: Connect the Drop Plugs on the drop cables and other Renogy devices supporting CAN communication to the drop sockets on the drop tap.

Step 5: Insert the 7-Pin CAN Communication Terminal Plug into any of the CAN Communication Ports of the inverter charger.

If you fail to locate the drop taps, please contact the RV manufacturer for help.

Different drop taps are used on the RV-C bus by different RV manufacturers. This user manual takes the 4-socket drop tap as an example.



Daisy Chain Network

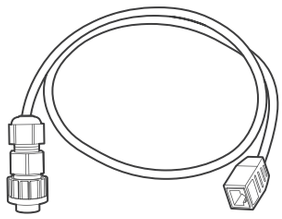
The daisy chain network applies to RVs that are not integrated with RV-C buses.

Please select the appropriate adapter cable based on the type of the CAN Communication Port specific to the device. For example:

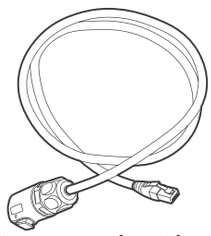
- Inverter Charger to Renogy Combiner Box: 7-Pin CAN Communication Cable
- Inverter Charger to Renogy ONE Core: 7-Pin CAN Communication Terminal Plug to RJ45 Port Adapter Cable and RJ45 Ethernet Cable (CAT5 or above)
- Inverter Charger to REGO Battery: 7-Pin CAN Communication Terminal Plug to RJ45 Port Adapter Cable and LP16 Plug (7-Pin) to RJ45 Communication Cable

This section is based on an 7-Pin CAN Communication Terminal Plug to RJ45 Port Adapter Cable and LP16 Plug (7-Pin) to RJ45 Communication Cable.

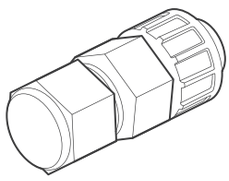
Recommended Accessories



*7-Pin CAN Communication Terminal Plug to RJ45 Port Adapter Cable(s)



*LP16 Plug (7-Pin) to RJ45 Communication Cable(s)



*7-Pin CAN Communication Terminal Plug

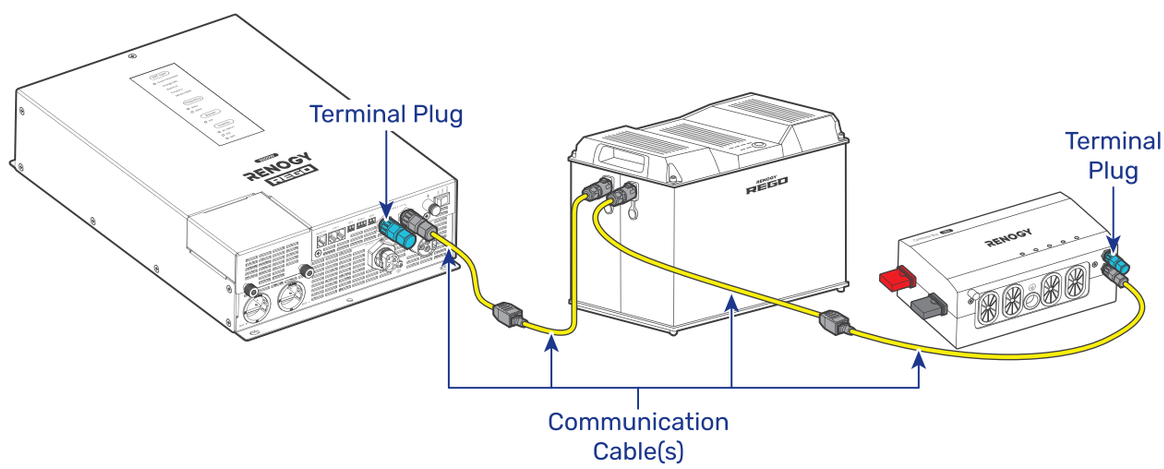
- Accessories marked with "*" are available on renogy.com.
- The communication cable should be less than 19.6 feet (6 m).
- Choose proper terminal plugs based on the specific CAN ports.

The quantity of adapter cables and plugs varies based on the position of the inverter charger in the daisy chain network. When the inverter charger is positioned at either the first or the last device in the daisy chain network, one 7-Pin CAN Communication Terminal Plug and one adapter cable are required. In scenarios where the inverter charger is located in the middle of the daisy chain network, two adapter cables are needed.

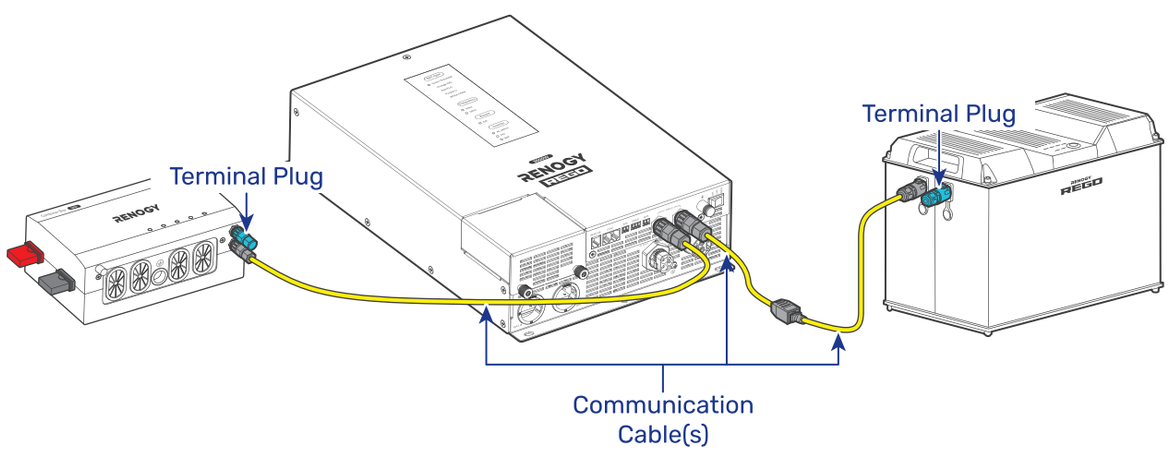
Step 1: Connect devices in series with the inverter charger through either of the CAN Communication Ports with the Communication Cable(s) (sold separately).

Step 2: Plug the Terminator Plugs (sold separately) into the vacant CAN Communication Ports on the first and last devices.

Inverter Charger is Positioned at the First or Last in the Daisy Chain Network

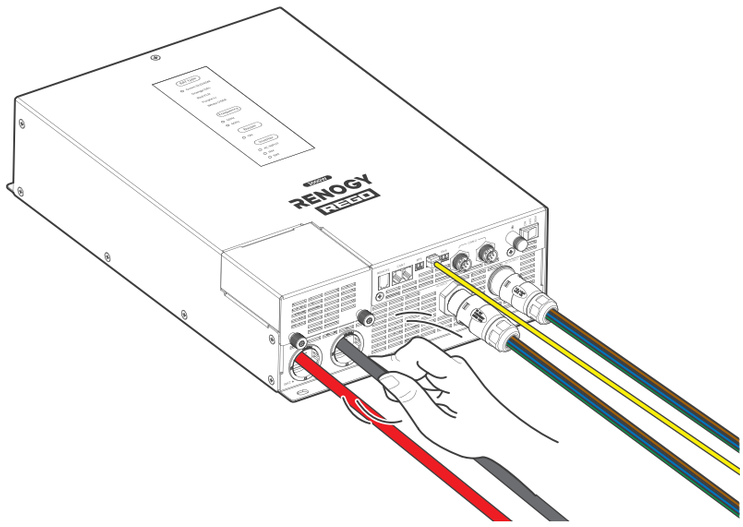


Inverter Charger is in the Middle of the Daisy Chain Network



4.14. Inspection

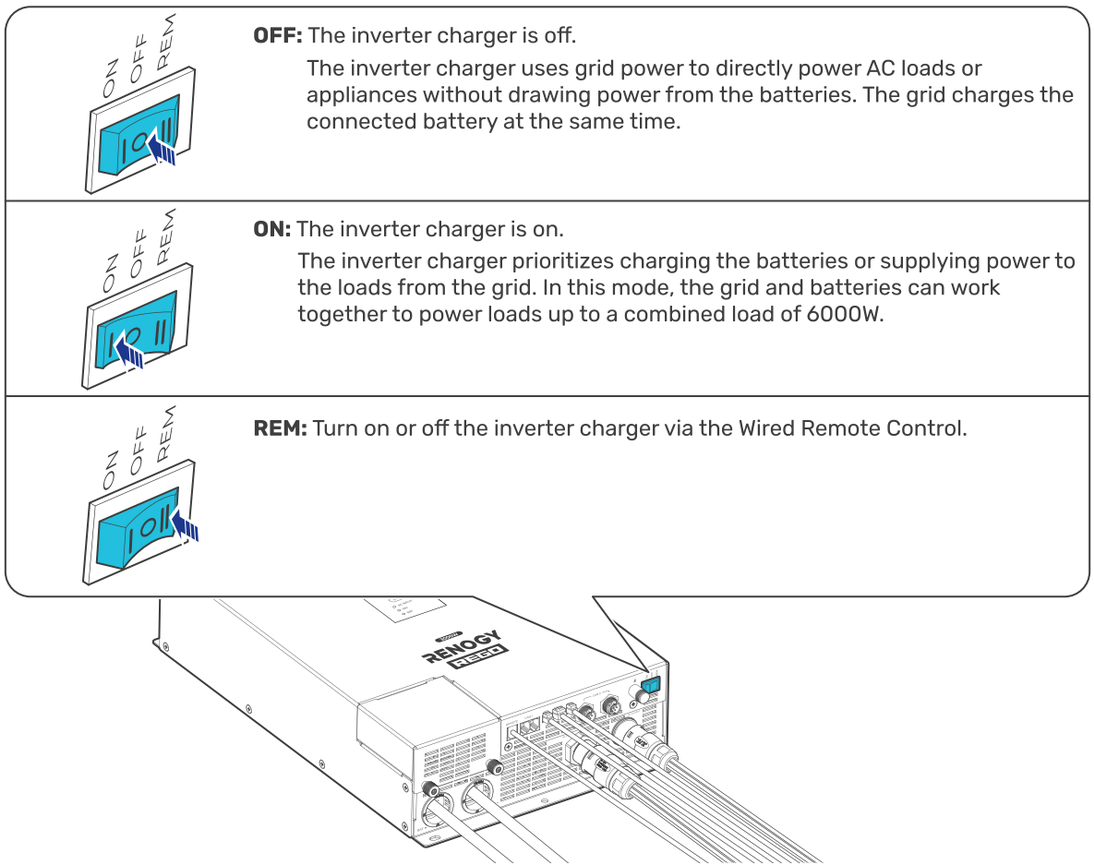
Check and confirm all wires are firmly fastened to the inverter charger.



5. Power On/Off and LED Indicators

5.1. Power On/Off

Method 1: Through On/Off/Remote Power Switch



OFF: The inverter charger is off.

The inverter charger uses grid power to directly power AC loads or appliances without drawing power from the batteries. The grid charges the connected battery at the same time.

ON: The inverter charger is on.

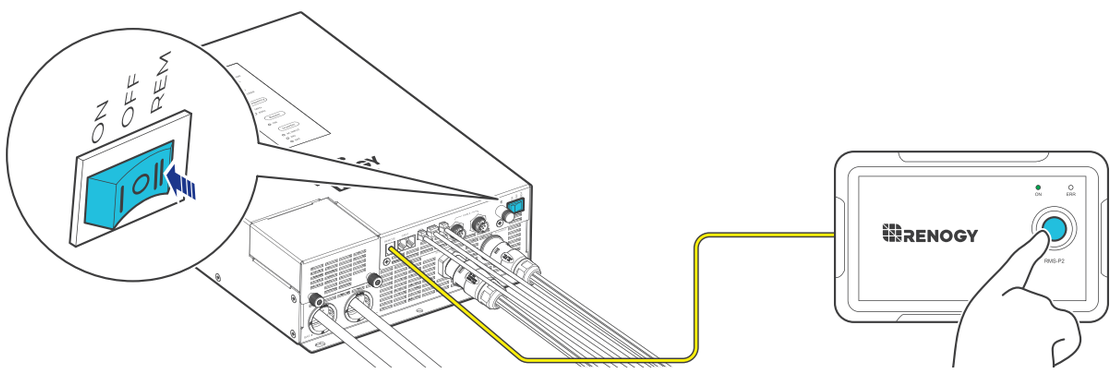
The inverter charger prioritizes charging the batteries or supplying power to the loads from the grid. In this mode, the grid and batteries can work together to power loads up to a combined load of 6000W.

REM: Turn on or off the inverter charger via the Wired Remote Control.

Method 2: Through Wired Remote Control (Optional)

You can press the RMS-P button on the Wired Remote Control to power the inverter charger on or off remotely when all of the following are met:

1. The On/Off/Remote Power Switch on the inverter charger is toggled to the REM position.
2. The inverter charger is powered on.
3. The ON LED on the Wired Remote Control flashes in green.

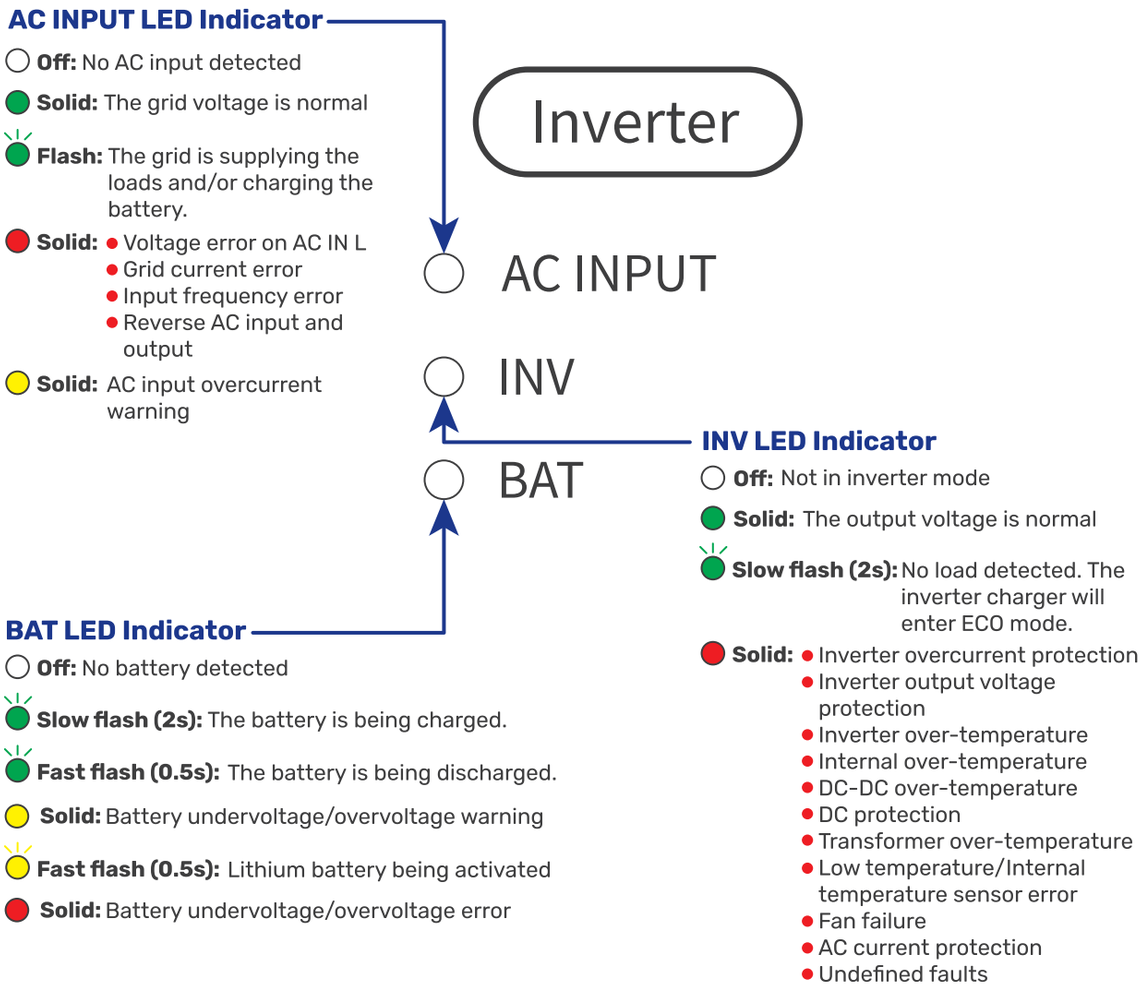


The ON LED flashes in green once the inverter charger is powered on and the On/Off/Remote Switch is in the REM position.

5.2. LED Indicators

A solid yellow or red LED indicates that the inverter charger is faulty. Please login to the DC Home app for troubleshooting details.

Indicator of the Inverter Charger



AC INPUT LED Indicator

- **Off:** No AC input detected
- **Solid:** The grid voltage is normal
- **Flash:** The grid is supplying the loads and/or charging the battery.
- **Solid:**
  - Voltage error on AC IN L
  - Grid current error
  - Input frequency error
  - Reverse AC input and output
- **Solid:** AC input overcurrent warning

INV LED Indicator

- **Off:** Not in inverter mode
- **Solid:** The output voltage is normal
- **Slow flash (2s):** No load detected. The inverter charger will enter ECO mode.
- **Solid:**
  - Inverter overcurrent protection
  - Inverter output voltage protection
  - Inverter over-temperature
  - Internal over-temperature
  - DC-DC over-temperature
  - DC protection
  - Transformer over-temperature
  - Low temperature/Internal temperature sensor error
  - Fan failure
  - AC current protection
  - Undefined faults

BAT LED Indicator

- **Off:** No battery detected
- **Slow flash (2s):** The battery is being charged.
- **Fast flash (0.5s):** The battery is being discharged.
- **Solid:** Battery undervoltage/overvoltage warning
- **Fast flash (0.5s):** Lithium battery being activated
- **Solid:** Battery undervoltage/overvoltage error

Indicator of the Wired Remote Control

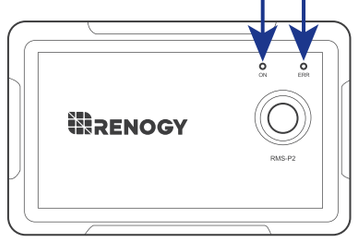
You can also check the operating status of the inverter charger on the Wired Remote Control.

ON LED Indicator

- **Off:** Wired Remote Control powered off
- **Flash:** Wired Remote Control powered on

ERR LED Indicator

- **Off:** No fault
- **Solid:** System fault



6. Configuration

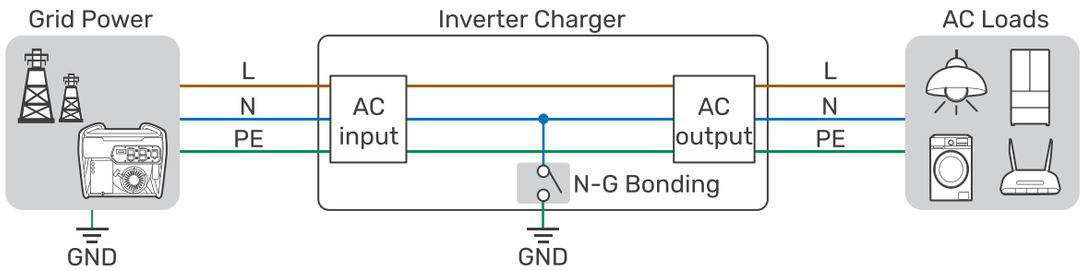
6.1. N-G Bonding Relay

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

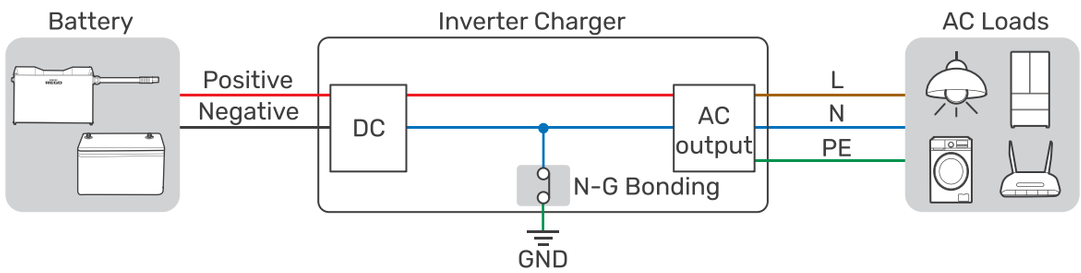
This helps prevent electrical shock caused by contact between the neutral contacts of the RV and external AC power sources.

By default, the Neutral to Ground bonding relay is enabled when the inverter is shipped from the factory.

When there is AC input current, the N-G bonding relay automatically opens the neutral-to-ground connection as shown in the figure below, and the system connects to the grid ground contact.

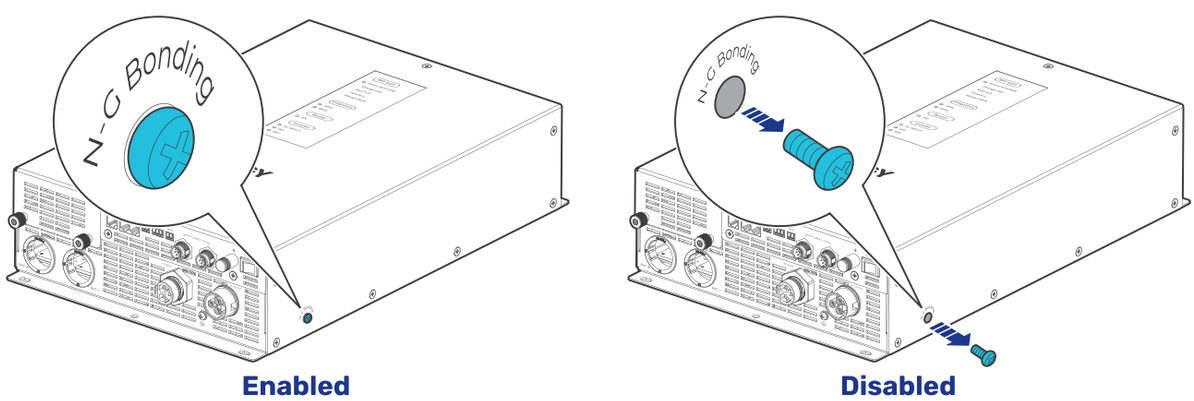


When there is no AC input current, the N-G bonding relay automatically closes and connects to the ground contact of the inverter charger. In this case, the inverter charger supplies loads with the connected battery.



In scenarios where the N-G bonding relay is disabled, the N-G bonding relay connects to the ground contact of the inverter charger only.

To disable the relay function, remove the N-G bonding relay screw.

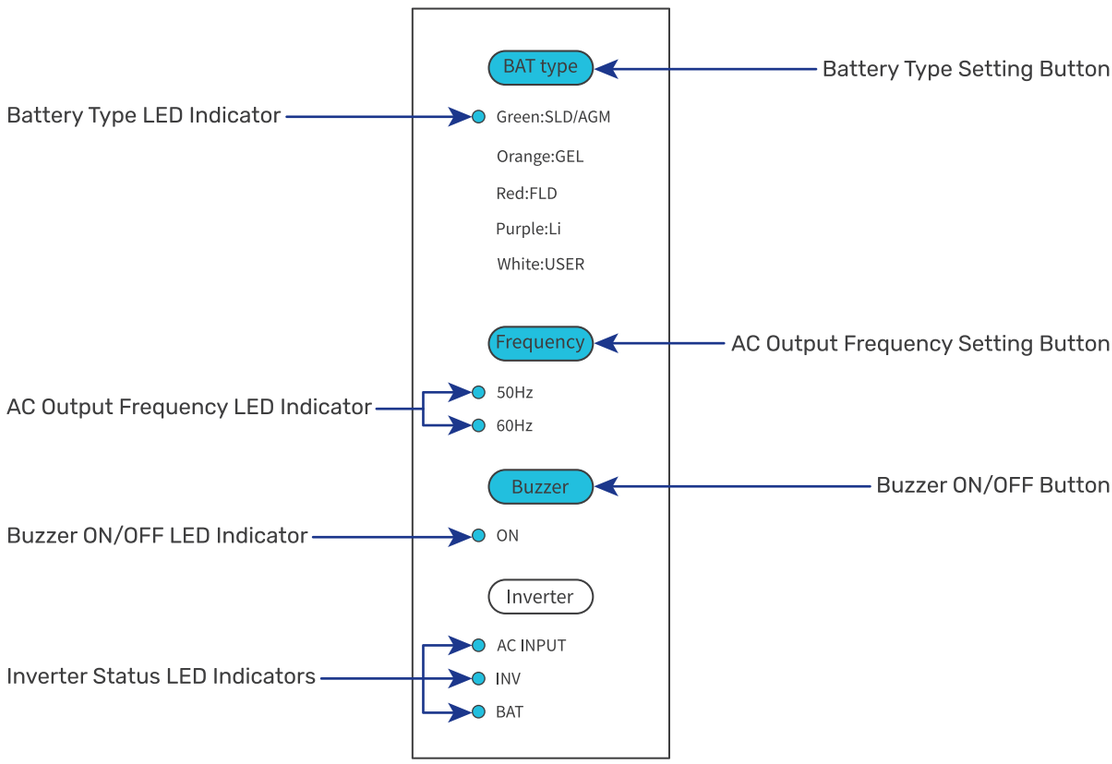


Enabled **Disabled**

In scenarios when N-G bonding relay is disabled, the inverter charger must be grounded.

Risk of electric shock! Ensure the inverter charger is powered off and all connected supplies are off when enabling or disabling the N-G bonding relay.

6.2. Configuration Panel

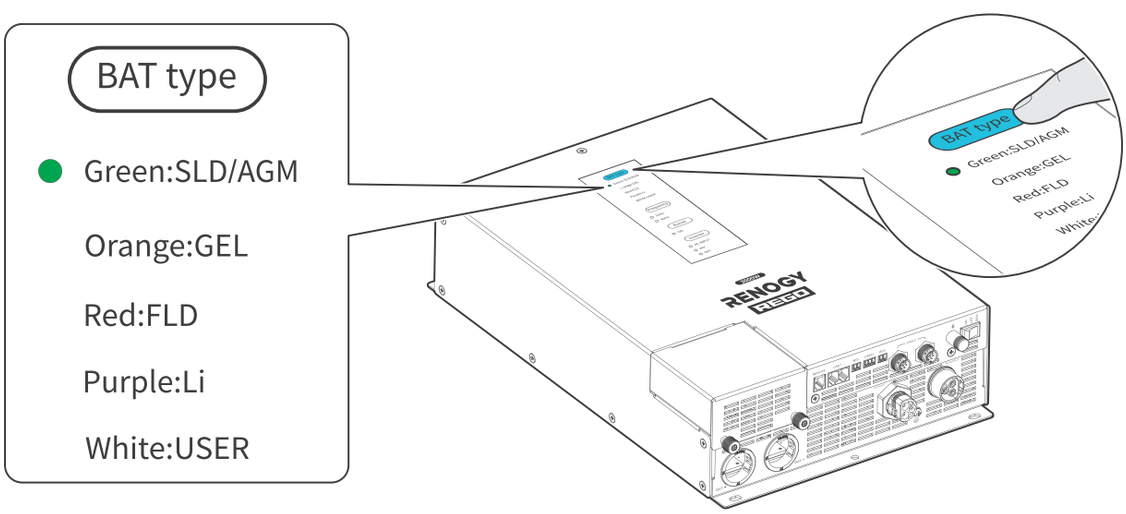


The inverter charger generates heat when working. To prevent burns, touch the configuration panel only when the inverter charger is working.

6.3. Set a Battery Type

Upon installing the inverter charger, set a correct battery type by using the Battery Type Setting Button.

Press the Battery Type Setting Button to cycle through different battery types with the LED indicator illuminating in respective colors.

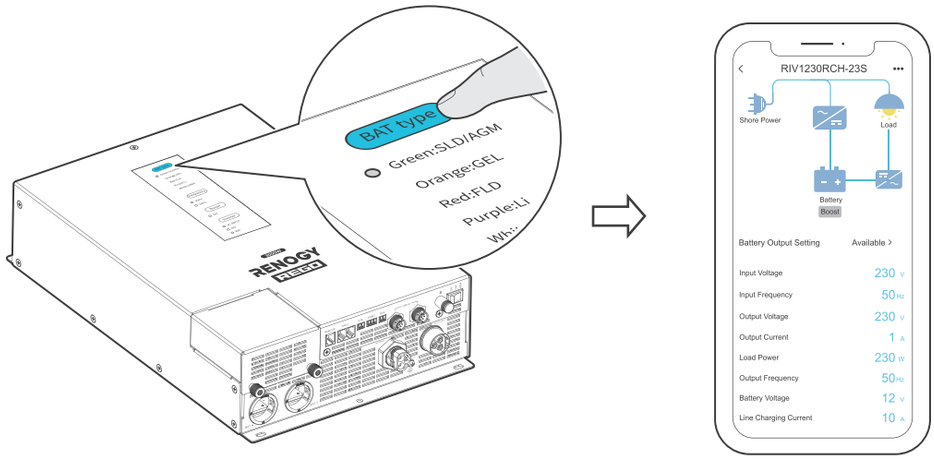


It is essential to ensure that the battery type is configured correctly to avoid any potential damage to the inverter charger because any damage to the inverter charger resulting from an incorrect battery type setting voids the warranty.

After entering the USER mode, you need to use the DC Home app to program the battery parameters. Refer to the "6.4. USER Mode" for details.

6.4. USER Mode

Setting the battery type to USER (white) allows you to customize your battery parameters. You can modify the parameters in the DC Home app.



Setting the inverter charger to USER Mode is available when the inverter charger is powered on and paired with the DC Home app. For details, see "7. Monitor the Inverter Charger".

The table below illustrates the default and recommended parameters for batteries that can be connected to the inverter charger. The parameters may vary depending on the specific battery you use. Read the user manual of the specific battery or contact the battery manufacturer for help if necessary.

Before modifying battery parameters, check the table below first. Incorrect parameter setting will damage the device and void the warranty.

Read the user manual of the battery when customizing a preset battery. Incorrect battery type selection damages the inverter charger and voids the warranty.

Battery Type / Parameters	SLD/AGM	GEL	FLOODED	LI (LFP)	USER (Default)	USER (Recommended)
Overvoltage Shutdowm	15.8V	15.8V	15.8V	15.8V	15.8V	9.0–16.0V
Overvoltage Limt	15.5V	15.5V	15.5V	14.8V	15.5V	9.0–16.0V
Equalization Volatge	–	–	14.8V	–	14.8V	9.0–15.5V
Boost Voltage	14.6V	14.2V	14.6V	14.4V	14.2V	9.0–15.5V
Float Voltage	13.8V	13.8V	13.8V	–	13.8V	9.0–15.5V
Boost Return Voltage	13.2V	13.2V	13.2V	13.6V	13.2V	9.0–15.5V
Low Voltage Reconnect	12.6V	12.6V	12.6V	12.8V	12.6V	9.0–16.0V
Under Voltage Warning	12.0V	12.0V	12.0V	12.0V	12.0V	9.0–15.5V
Low Voltage Shutdown	11.1V	11.1V	11.1V	11.5V	11.1V	9.0–15.5V

Battery Type / Parameters	SLD/AGM	GEL	FLOODED	LI (LFP)	USER (Default)	USER (Recommended)
Boost Duration	120 min*	120 min*	120 min*	—	120 min*	10—600 min
Equalization Duration	—	—	120 min	—	120 min	0—600 min
Equalization Interval	0 day**	0 day**	30 days	—	30 days	0—255 days

- *For SLD/AGM, GEL, and Flooded batteries, the inverter charger automatically switches to float charging when the charging current drops below the tail current of the battery for 30 seconds.
- **No equalized charging.
- Parameters in grey cannot be configured manually.
- When the battery voltage reaches the Low Voltage Shutdown value, the BAT LED is solid yellow or red. Disconnect all loads, and charge the battery immediately.

Before modifying battery parameters in USER mode, check the table below and consult the battery manufacturer to check whether modification is allowed. Incorrect parameter setting will damage the device and void the warranty.

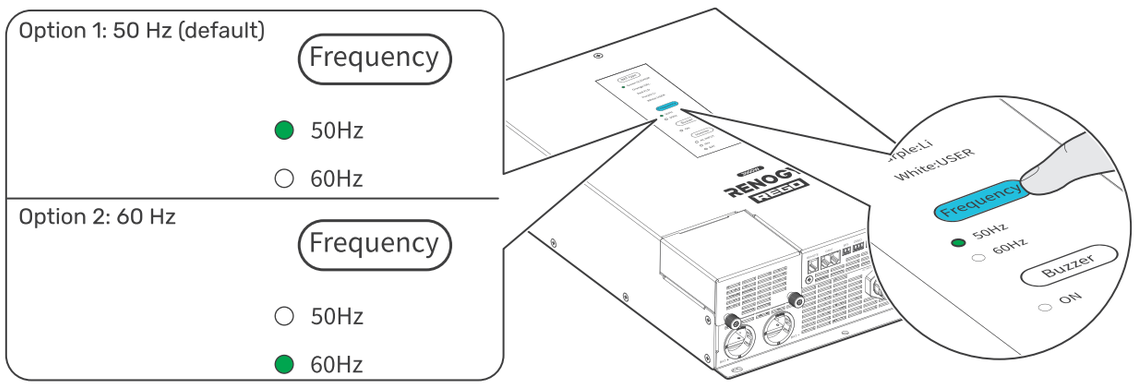
In USER mode, when the Equalization Voltage matches the Boost Voltage and Float Voltage, the activation mechanism for the lithium battery is initiated.

Overvoltage Shutdown	The default protection voltage is 15.8V. Improper setting may affect the safety of the battery. Please consult the battery manufacturer and check if this voltage value needs to be reset.
Equalization Voltage	1. For lead-acid batteries, please consult your battery manufacturer to obtain the voltage value and then complete the settings according to the feedback. 2. If equalization charging is not required, set the voltage to boost voltage.
Boost Voltage	This value affects whether the battery can be fully charged. Please consult the battery manufacturer and set the value properly.
Float Voltage	This value affects whether the battery can be fully charged. Please consult the battery manufacturer and set the value properly.
Under Voltage Warning	This voltage value affects the life of the battery. Consult the battery manufacturer and check if this voltage value needs to be set.
Low Voltage Shutdown	
Boost Duration	Please consult the battery manufacturer if it is necessary to set this parameter value.
Equalization Duration	
Equalization Interval	

6.5. Set an AC Output Frequency

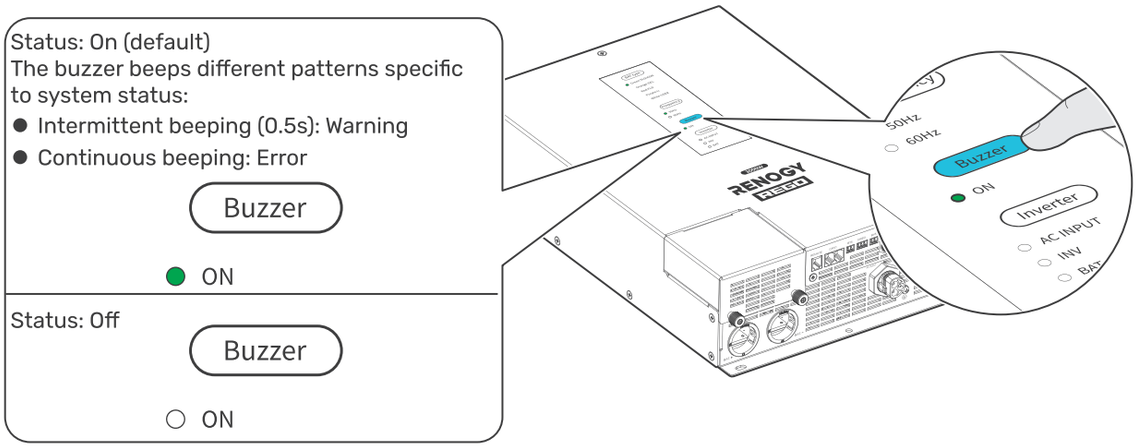
Configure the AC output frequency of the inverter charger in accordance with the frequency of the connected AC loads.

> The AC output frequency should be consistent with the input source frequency.



6.6. Enable/Disable the Buzzer

You can enable the built-in buzzer to warn you in case of a device error.

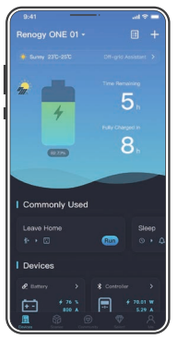


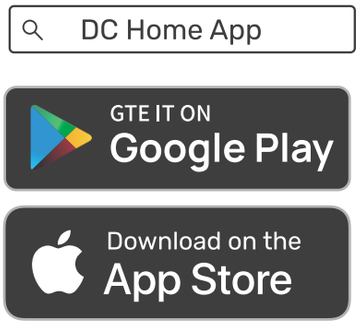
7. Monitor the Inverter Charger

Depending on the specific application, the inverter charger can establish either short-range or long-range communication connections with monitoring devices. These monitoring devices facilitate real-time monitoring, programming, and complete system management, offering comprehensive control and enhanced flexibility.

- Ensure the Bluetooth of your phone is turned on.
- 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.
- Ensure that the inverter charger is properly installed and powered on before it is paired with the DC Home app.
- To ensure optimal system performance, keep the phone within 10 feet (3 m) of the inverter charger.

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





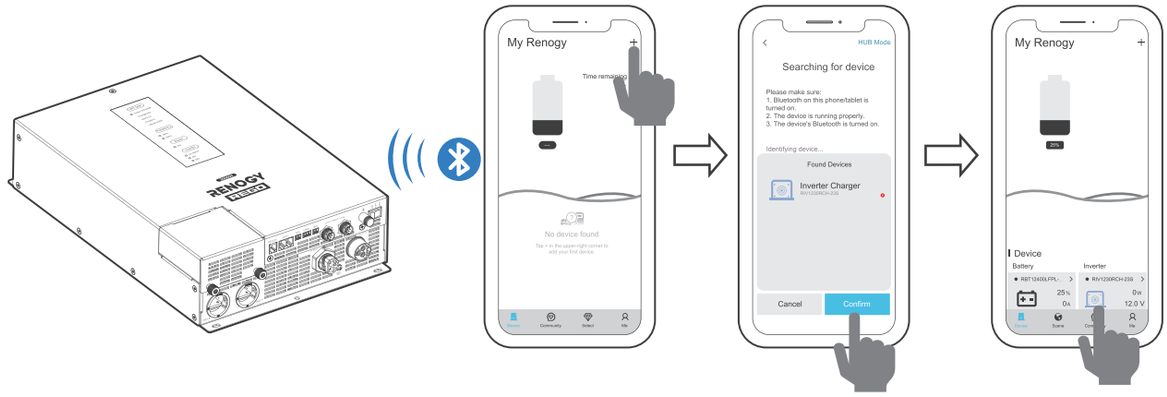
7.1. Short-Range Monitoring via DC Home App

If only short-range monitoring is required, connect the inverter charger to the DC Home app directly through the Bluetooth of your phone.

Step 1: Open the DC Home app. Tap **+** to search for new devices.

Step 2: Tap **Confirm** to add the newly found device to the device list.

Step 3: Tap the inverter charger icon to enter the device information interface.



7.2. Wireless Long-Range Monitoring

If long-range communication and programming are required, connect the inverter charger to Renogy ONE Core (sold separately) through Bluetooth, and the Renogy ONE Core to the DC Home app through Wi-Fi.

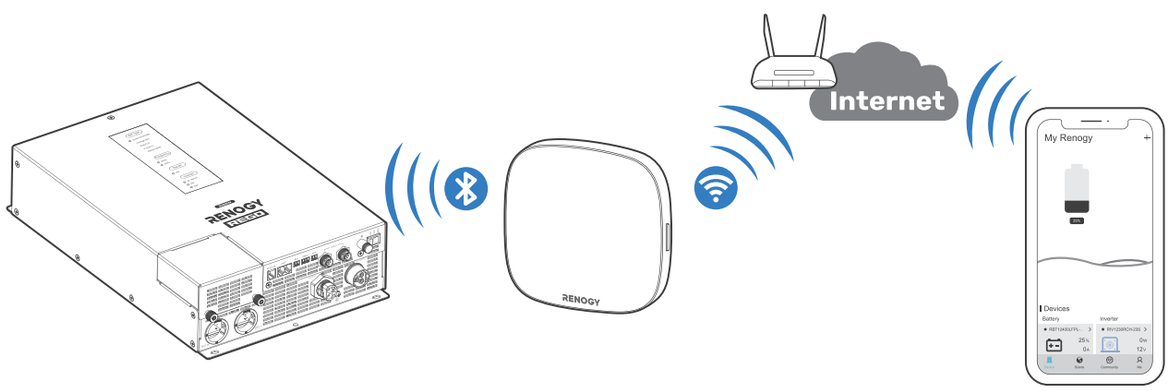
Recommended Components

*RENOGY ONE Core

- Components marked with "*" are available on renogy.com.
- Ensure that the Renogy ONE Core is powered on before the connection.
- For instructions on Renogy ONE Core, see Renogy ONE Core User Manual.
- Ensure the inverter charger does not communicate with any other device.

Step 1: Connect the inverter charger to the Renogy ONE Core through the Bluetooth of your phone.

Step 2: Pair the Renogy ONE Core with the DC Home app through Wi-Fi.

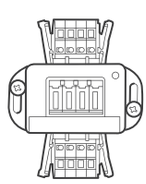


7.3. Wired Long-Range Monitoring (Backbone Network)

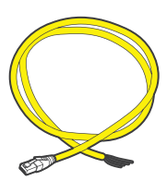
If long-range communication and programming are required, connect the inverter charger to Renogy ONE Core through wires, and the Renogy ONE Core to the DC Home app through Wi-Fi.

Recommended Components & Accessories

*RENOGY ONE Core



Common Drop Tap



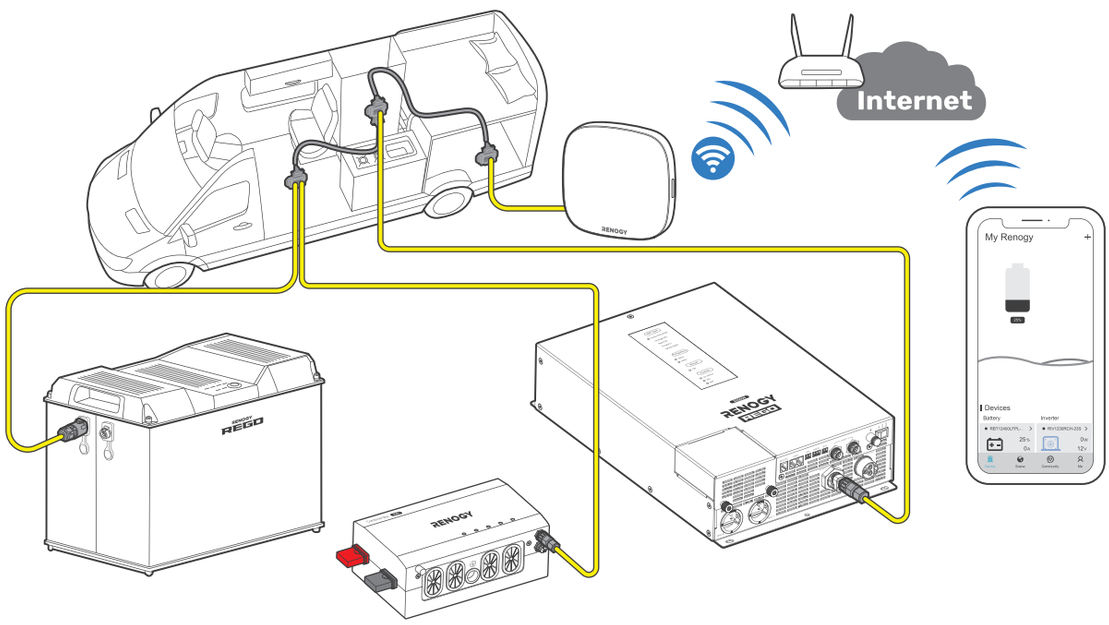
Communication Cable
(RJ45 Plug to Bare Drop Cable)

- Components marked with "*" are available on renogy.com.
- Ensure that the Renogy ONE Core is powered on before the connection.
- For instructions on Renogy ONE Core, see Renogy ONE Core User Manual.

- Ensure the inverter charger does not communicate with any other device.
- Select the appropriate communication cable (sold separately) according to the distance between devices. The communication cable should be less than 19.6 feet (6 m).
- Different terminal block plugs are used on different Common Drop Taps and follow different pinouts. If you are unsure about the pinout of the terminal block plug, contact the RV manufacturer.

Step 1: Replace the terminated drop tap at either end of the RV-C bus with the Common Drop Tap (not included). Secure the bare wires of the Drop Cable (not included) onto the terminal block plug of the Common Drop Tap following the terminal block plug pinout. Plug the Drop Cable to the RJ45 port of Renogy ONE Core.

Step 2: Monitor and program the complete system on Renogy ONE Core or the DC Home app.

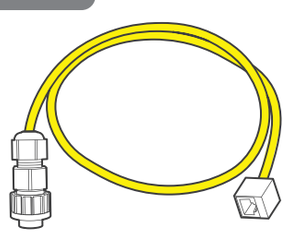


7.4. Wired Long-Range Monitoring (Daisy Chain Network)

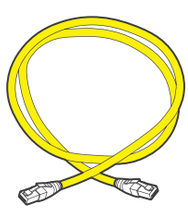
If long-range communication and programming are required, connect the inverter charger to Renogy ONE Core through wires, and the Renogy ONE Core to the DC Home app through Wi-Fi.

Recommended Components & Accessories

*RENOGY ONE Core



*7-Pin CAN Communication Terminal Plug to RJ45 Port Adapter Cable



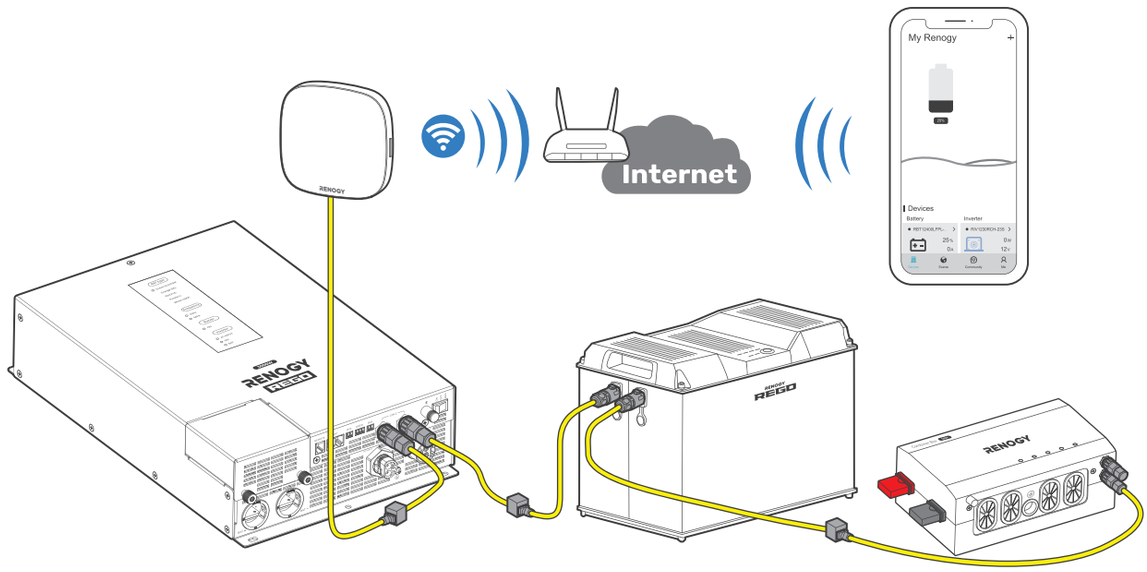
RJ45 Ethernet Cable (CAT5 or above)

- Components and accessoriesmarked with "*" are available on renogy.com.
- Ensure that the Renogy ONE Core is powered on before the connection.
- For instructions on Renogy ONE Core, see Renogy ONE Core User Manual.
- Ensure the inverter charger does not communicate with any other device.
- Select the appropriate communication cable (sold separately) according to the distance between devices. The communication cable should be less than 19.6 feet (6 m).

Step 1: Remove the Terminator Plug from the Renogy device at either end of the daisy chain.

Step 2: Connect the Renogy ONE Core to the free CAN Communication Port on the Renogy device with the Communication Adapter Cable (sold separately) and RJ45 Ethernet Cable.

Step 3: Pair Renogy ONE Core with the DC Home app. Monitor and program the complete system on the Renogy ONE Core or the DC Home app.



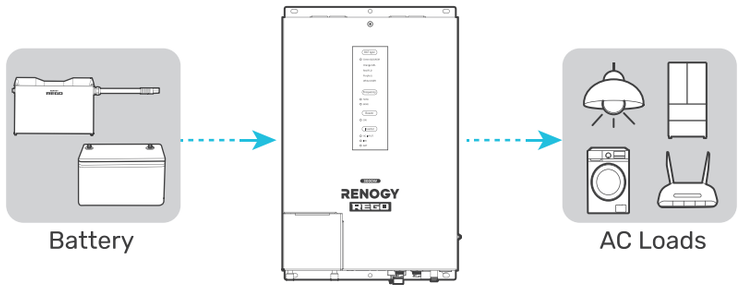
8. Working Logic

REGO 12V 3000W HF Inverter Charger combines an inverter charger with an automatic transfer switch into one complete system.

Featuring a three-stage battery charging mode when connected to the AC grid input, the inverter charger is capable of producing cleaner, smoother, and more reliable electricity to address your diverse needs.

8.1. Power Supply Logic

Supply by Battery First



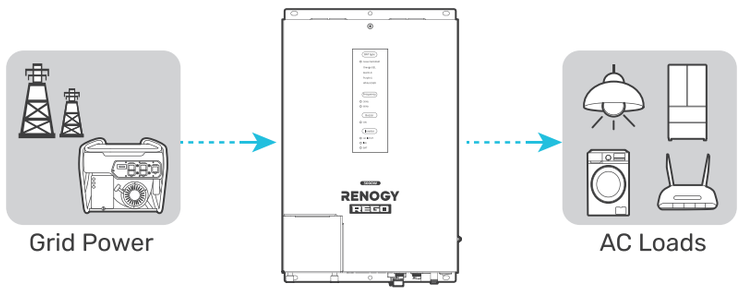
The inverter charger works in Battery First mode when all of the following conditions are met:

- The Output Priority of the inverter charger is set to Battery First on the DC Home app.
- The battery voltage is no lower than the Low Voltage Shutdown value.
- The battery current is sufficient to power the connected loads.

When none of the designated working conditions are met, the inverter charger seamlessly transitions to AC First mode. In instances where grid power is unavailable, the inverter charger ceases its operation.

If the battery fails to supply all loads, the grid seamlessly joins in to provide the necessary power.

Supply by AC First



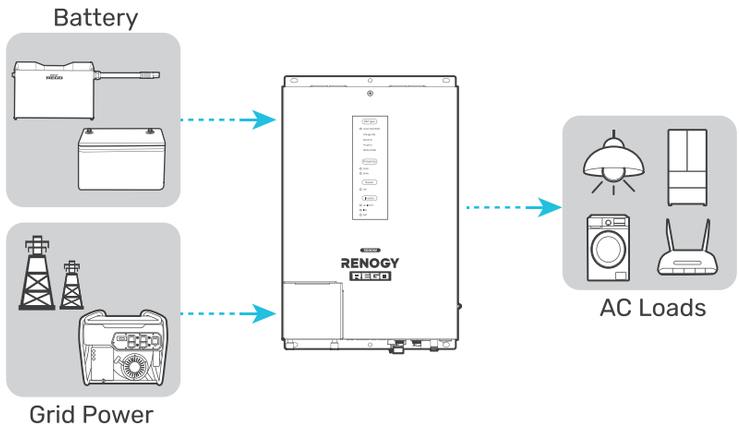
The inverter charger works in AC First mode when all of the following conditions are met:

- The Output Priority of the inverter charger is set to Grid First on the DC Home app.
- Grid power is available.
- The grid power is sufficient to supply all loads.

When none of the designated working conditions are met, the inverter charger seamlessly transitions to Battery First mode. In instances where the battery voltage is lower than the Low Voltage Shutdown value, the inverter charger ceases its operation.

If the grid fails to supply all loads, the battery seamlessly joins in to provide the necessary power.

Supply by Both Battery and AC



The inverter charger works in Hybrid Mode in which it utilizes both battery and grid as the supply when all of the following conditions are met:

- Neither the battery nor the grid can independently supply all loads.
- The battery voltage is no lower than the Low Voltage Shutdown value.

In Hybrid Mode, the grid supply power is dependent on the input current from the grid. You can set the grid input current in the “Grid Input Amps Limit Max” parameter in the DC Home app. The allowed maximum is 30A. The maximum output power for AC loads totals 6000W with a maximum of 3000W from the inverter charger.

- For 10A grid outlets, the grid provides up to 2300W (10A x 230V) and the inverter charger provides up to 3000W, totaling 5300W output.
- For 16A grid outlets, the grid provides up to 3680W (16A x 230V) and the inverter charger provides up to 2320W, totaling 6000W output.

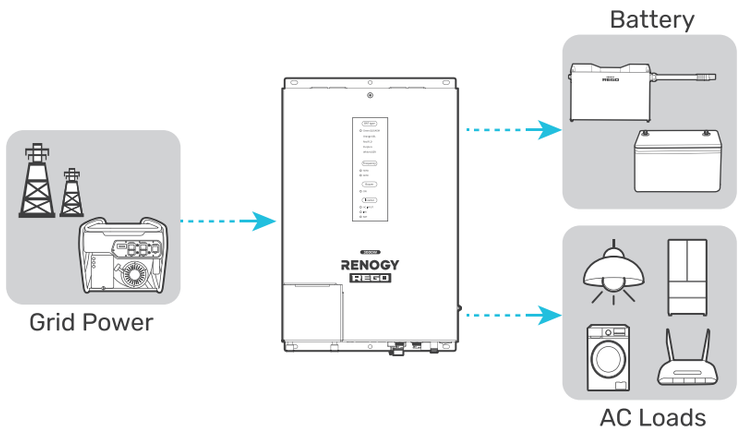
This configuration ensures optimal use of both grid and inverter power to meet load demands effectively.

When none of the designated working conditions are met, the inverter charger seamlessly transitions to AC First mode. Powering off some loads to ensure the grid can supply the rest loads and the inverter charger charges the battery.

8.2. Charging Logic

In AC First mode where the grid power is the only supply source, the inverter charger automatically recognizes the battery voltage and charges the battery.

By default, the inverter charger charges the battery at 150A. You can customize the charging current to a value from 5A to 150A on the DC Home app. For the recommended charging current, refer to the user manual of the specific battery.

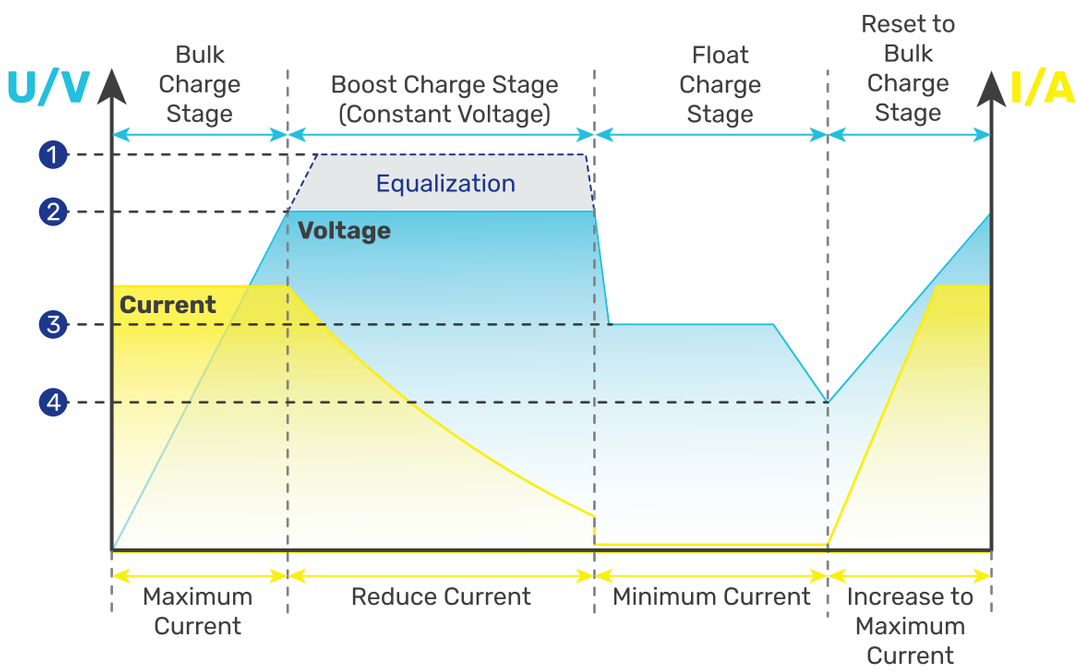


Battery Voltage	Charging Status
Drops to the Overvoltage Limt value: ● For lithium batteries: 14.8V (default) ● For non-lithium batteries: 15.5V (default)	Start charging
Rises to Overvoltage Shutdown value: 15.8V (default)	Stop charging

How to check whether a battery charging process completes?

- For non-lithium batteries: The battery charging is considered complete when the battery stays in the float charging stage for 2 hours.
- For lithium batteries: The battery charging is considered complete when the battery stays in the constant voltage charging stage with a charging current less than the battery tail current for 2 hours.

8.3. Battery Charging Stages



1 Equalization charging voltage
2 Boost charging voltage
3 Float charging voltage
4 Low voltage reconnect charging voltage

Adjust the time depending on the specific battery bank size.

Bulk Charge Stage

The inverter charger will supply constant current until the battery voltage reaches the boost voltage.

Boost Charge Stage

The inverter charger will supply constant voltage and reduce the current slowly through this stage. By default, the Boost Duration is set to 2 hours. You can customize it on the DC Home app. After this time the charger will enter the float stage.

For details on Boost Duration, see "6.4. USER Mode" in this user manual.

Boost Duration is not required for lithium batteries.

The stage is determined by internal software in the inverter charger.

Float Charge Stage

During this stage the inverter charger will supply a constant voltage which is determined by the battery selected and will keep current at a minimum level. This stage acts as a trickle charger.

The float charge stage is not applicable to lithium batteries.

Equalization

This stage is only available for batteries with equalization, such as flooded. During this stage the batteries are charged at a higher voltage than normal and for most batteries this could cause damage. Refer to the user manual of the battery or contact the battery manufacturer to see if this stage is needed.

8.4. Heat Dissipation Logic

The inverter charger uses fans for heat dissipation. The working logic of the fans is as follows:

Inverter Charger	Inverter Charger Power	Fan
Ambient Temperature ≥95°F (35°C)	–	ON
–	≥ 500W	ON

The fans start working when any of the above condition is met.

The inverter charger fans start working when the output reaches 500W or higher, with the fan speed increasing as the output power rises. The fans operate at full speed when the output power reaches 3000W.

8.5. Activation Logic for Lithium Battery

The inverter charger can activate connected lithium batteries. Lithium batteries may enter sleep mode when the in-built protection is triggered. In such case, the inverter charger provides a small current to reactivate the sleeping lithium battery. The lithium battery can be charged normally after successful activation.

Operation Conditions

1. Set the battery type of the inverter charger to LI or USER. For details, see "6.3. Set a Battery Type".
2. Ensure the inverter charger is connected to the grid and the grid power is accessible.

Operation Logic

1. In lithium battery mode, the inverter charger automatically enables the activation function and provides a constant voltage of over 14.0V to 14.4V to activate the lithium battery.
2. After activation for 1 minute, the inverter charger temporarily stops activation and detects the battery voltage again. If the battery voltage is no less than 9V, the inverter charger will automatically turn off the activation mode. Otherwise, it will continue to activate the lithium battery.

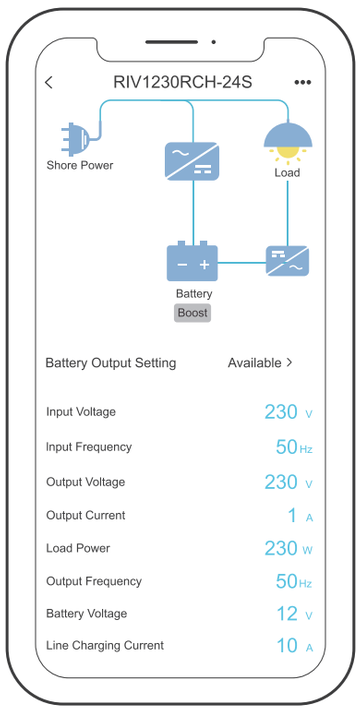
By default, the lithium activation function is enabled in the inverter charger. You can disable it in the DC Home app.

8.6. Heating Module Activation Logic for Lithium Battery

The inverter charger is equipped with a heating module that enables the connected lithium battery to function normally even at temperatures as low as 32°F (0°C) by providing heat to the battery. This feature ensures that the inverter charger can operate smoothly even in extremely cold conditions down to -4°F (-20°C).

9. Troubleshooting

A solid yellow or red LED indicates that the inverter charger is faulty. Please login to the DC Home app for troubleshooting details.

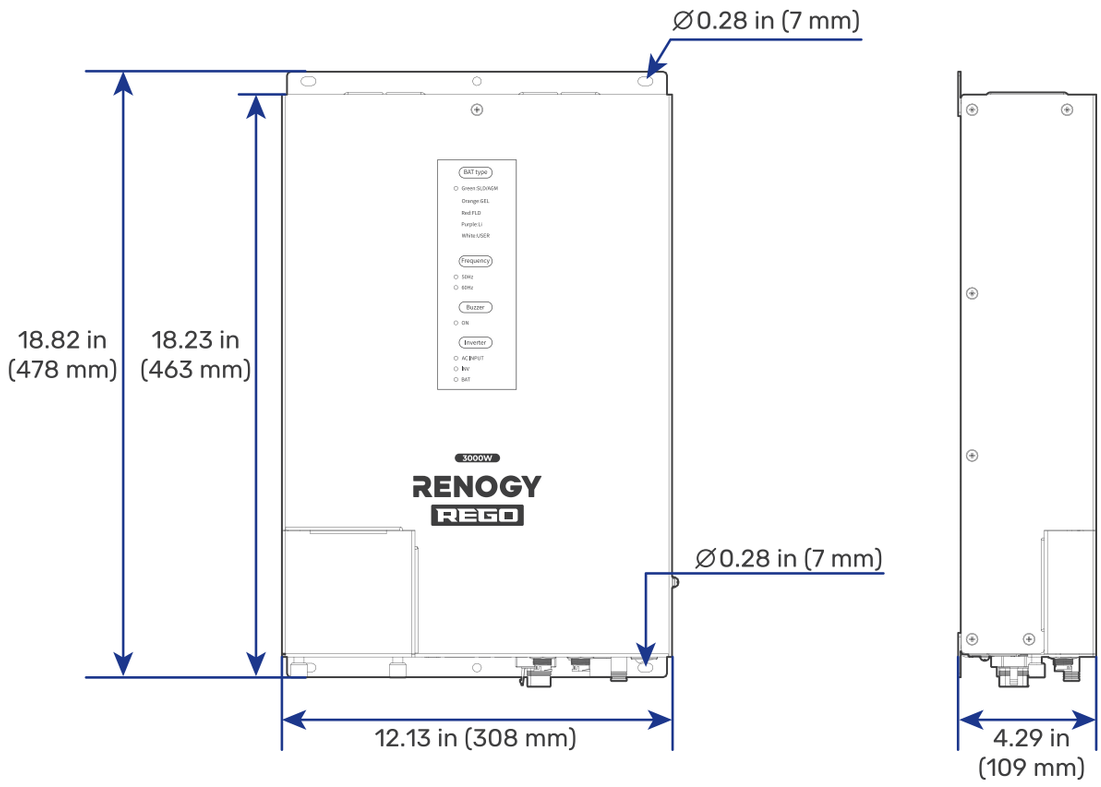


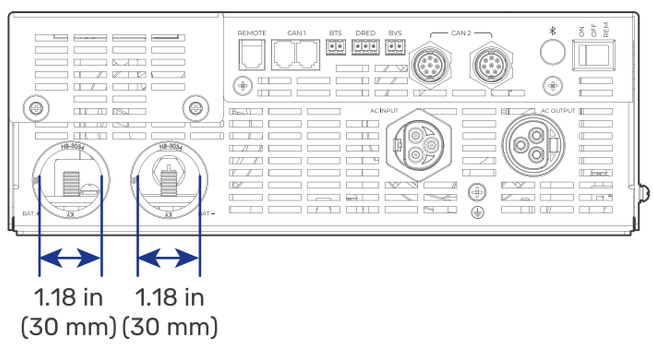
Problem	Possible Causes	Solution
No battery is detected.	1. The cables between the battery and the inverter charger are loose. 2. Abnormal battery voltage	1. Check the cable wiring between the battery and the inverter charger, and ensure the cables are correctly and firmly installed. 2. Measure the battery voltage with a multimeter. A normal battery voltage should range from 11V to 15.8V. The inverter charger may fail to detect the battery when the battery voltage is lower than 11V. In such case, charge the battery, and reconnect it to the inverter charger.
The DC Home app fails to discover the inverter charger.	1. Your phone's Bluetooth is off. 2. The inverter charger is off. 3. The inverter charger is far away from the phone of tablet where the DC Home app runs.	1. Turn on Bluetooth on your phone or tablet. 2. Turn on the inverter charger. 3. Keep the phone or tablet within 10 feet (3 m) of the inverter charger.

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

10. Dimensions & Specifications

10.1. Dimensions





Dimension tolerance: ±0.2 in (0.5 mm)

10.2. Technical Specifications

Inverter Specifications	
Rated Output Power	3000W @113°F (45°C)
Surge Power (1 second)	9000VA
Surge Power (3 seconds)	4500VA
Surge Power (10 seconds)	3600W
Nominal Output Voltage RMS	230V AC
Output Frequency	50Hz (±0.1Hz) (Default) / 60Hz (±0.1Hz)

Output Wave Form	Pure Sine Wave
Nominal Input Voltage	12V DC
Input Voltage Range	9V to 17V DC (±0.3V) (Full load 11V to 15.8V DC)
Short Circuit Protection	Software Protection
Total Harmonics Distortion (THD)	< 3% (Resistance load)
Nominal Efficiency	> 90% peak
No load power Consumption	< 20W (Normal)
Warranty	5 Years
Charger Specifications	
Nominal Input Voltage	187V to 265V AC
Input Frequency Range	45Hz to 65Hz
Maximum Charging Efficiency	> 90%
Output Current	150A @25°C, 5A to 150A adjustable, 5A intervals, default 150A
Transfer Switch Specifications	
Transfer Time	Max. 20 ms
Transfer Relay Rating	30A Maximum, 6000W Maximum
General Specifications	
Battery Types	SLD, AGM, GEL, FLD, LI and USER
Operating Temperature Range	Full load: -4°F to 113°F / -20°C to 45°C Non-full load: 113°F to 140°F / 45°C to 60°C
Storage Temperature	-40°F to 158°F / -40°C to 70°C
Humidity	0% to 95%, RH
Noise	< 54dB
Dimensions	18.82 x 12.13 x 4.29 in / 478 x 308 x 109 mm
Weight	19.4 lbs / 8.8 kg
Wired Remote Control	
Dimensions	2.8 x 4.3 x 1.3 in / 70 x 110 x 31.8 mm
Wire length	Approx 16.4ft
Standard	
EMC certification	EN61000-6-1, EN61000-6-3, EN61000-3-2/-3, EN302489-1, EN301489-17, EN300328, EN62479 and EN50663
Safety	EN62477

11. Maintenance

11.1. Inspection

For optimum performance, it is recommended to perform these tasks regularly.

- Ensure the inverter charger is installed in a clean, dry, and ventilated area.
- Ensure there is no damage or wear on the cables.
- Ensure the firmness of the connectors and check if there are any loose, damaged or burnt connections.
- Ensure the indicators are in proper condition.
- Ensure there is no corrosion, insulation damage, or discoloration marks of overheating or burning.
- If the inverter charger is dirty, use a damp cloth to clean the outside of the device to prevent dust and dirt from accumulating. Before the inverter charger is powered on, make sure it is completely dry after cleaning.
- Ensure the ventilation holes are not blocked.

In some applications, corrosion may exist around the terminals. Corrosion can loosen screws and increase resistance, leading to premature connection failure. Apply dielectric grease to each terminals contact periodically. Dielectric grease repels moisture and protects the terminals contacts from corrosion.

Risk of electric shock! Ensure that all power supplies are turned off before touching terminals on the inverter charger.

11.2. Cleaning

Follow the steps below to clean the inverter charger regularly.

- Disconnect all cables connected to the inverter charger.
- Wear proper protective equipment and use insulated tools during operation. Be careful when touching bare terminals of capacitors as they may retain high lethal voltages even after power is removed.
- Wipe the housing of the inverter charger and connector contacts with a dry cloth or nonmetallic brush. If it is still dirty, you can use household cleaners.
- Ensure the ventilation holes are not blocked.
- Dry the inverter charger with a clean cloth and keep the area around the inverter charger clean and dry.
- Ensure the inverter charger is completely dry before reconnecting it to the battery and AC input.

11.3. Storage

Follow the tips below to ensure that the inverter charger is stored well.

- Disconnect all cables connected to the inverter charger.
- Applying dielectric grease to each terminals to repel moisture and protect the connector contacts from corrosion.
- Store the inverter charger in a well-ventilated, dry, and clean environment with the temperature between -40°F to 158°F (-40°C to 70°C).

12. Emergency Responses

In the event of any threat to health or safety, always begin with the steps below before addressing other suggestions.

- Immediately contact the fire department or other relevant emergency response team.
- Notify all people who might be affected and ensure that they can evacuate the area.

Only perform the suggested actions below if it is safe to do so.

12.1. Fire

1. Disconnect all cables connected to the inverter charger.
2. Put out the fire with a fire extinguisher. Preferable fire extinguishers include CO_2 and ABC. Altervatively, you can use water to put out the fire if there is no preferable fire extinguishers.

Do not use type D (flammable metal) fire extinguishers.

12.2. Flooding

1. If the inverter charger is submerged in water, stay away from the water.
2. Disconnect all cables connected to the inverter charger.

12.3. Smell

1. Ventilate the room.
2. Disconnect all cables connected to the inverter charger.
3. Ensure that nothing is in contact with the inverter charger.

12.4. Noise

1. Disconnect all cables connected to the inverter charger.
2. Ensure no foreign objects are stuck in the fan of the inverter charger or the terminals.

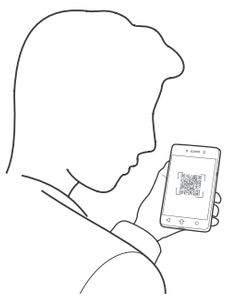
The normal noise value of the inverter charger is less than 54dB during operation. If the noise is abnormal, contact our technical service through renogy.com/contact-us.

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	China	www.renogy.cn
Australia	au.renogy.com	Japan	jp.renogy.com
South Korea	kr.renogy.com	Germany	de.renogy.com
United Kingdom	uk.renogy.com	Other Europe	eu.renogy.com

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.

YouTube @Renogy Solar @renogyofficial @Renogy

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

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