RENOGY X
HYBRID INVERTER
48V | 5000W/8000W

RENOGY
Find Your Energy Freedom™

VERSION A0

USER MANUAL

Before Getting Started

The user manual provides important operation and maintenance instructions for RENOGY X Hybrid Inverter (hereinafter referred to as inverter).

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, potentially rendering it inoperable.

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- Renogy assumes no responsibility or liability for personal and property losses, whether directly and indirectly, caused by the user's failure to install and use the product in compliance with the user manual.
- Renogy is not responsible or liable for failures, damages, or injuries resulting from repair attempted by unqualified personnel, improper installation and operation.
- The illustrations in the user manual are for demonstration purposes only. Details may appear slightly different depending on product revision and market region.
- Renogy reserves the right to change the information in the user manual without notice. For the latest user manual, visit renogyx.com.

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Online Manual

User Manual

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1. General Information

1.1. Symbols Used

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

WARNING: Indicates a potentially dangerous condition which could result in 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.

The following symbols are used on the inverter and its packaging to indicate important information:

	UL certified.
	Before touching any live parts of the inverter, disconnect the inverter from the grid and solar modules and wait for at least five minutes to avoid electric shock.
	Keep dry.
	Read the user manual carefully before installation and operation.
	Handle with care.
	Do not dispose of Inverter as household waste.
	No more than six identical packages being stacked on each other.
	Recyclable.
	Danger of hot surface!
	Risk of electric shock.
	Caution! Failure to observe a warning indicated in this manual may result in injury.

1.2. Qualified Personnel

The installation and service of the inverter 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

RENOGY X Hybrid Inverter works as a powerful inverter, a battery charger, and a high-speed AC transfer switch. It can convert solar energy to AC power and store power into lithium iron phosphate batteries.

Featuring optimized self-consumption, the inverter stores power in batteries for future use or feeds the power to the grid. In addition, it supports flexible working modes according to solar module performance and user demands. It works as backup power for emergency use when the grid is lost by using the power from the battery and that generated from solar panels.

1.4. Key Features

- **Multiple Safety Certifications**

  UL1741SA all options, UL 1699B, and CSA C22.2

- **Intuitive LCD and LEDs**

  You can check the operating status of the inverter through the intuitive LCD and LEDs in real time. You can also configure the inverter on demand.

- **Automatic generator start**

  The inverter powers on the connected generator automatically to charge the battery through the included contacts.

- **Peak efficiency >98%**

  The inverter supports a conversion efficiency of more than 98% at peak times, ensuring little power loss.

- **Multiple electronic protections**

  The inverter features low voltage, overvoltage, overload, overtemperature, and short-circuit protections, ensuring secure system operations.

1.5. SKU

RENOGY X 48V 5000W Hybrid Inverter	RIV4850HI-SPS
RENOGY X 48V 8000W Hybrid Inverter	RIV4880HI-SPS

1.6. Anti-Islanding Effect

The islanding effect is a special phenomenon where a grid-connected solar power system still supplies power to the nearby grid when voltage loss is detected in the power system. It is dangerous for maintenance personnel and the public.

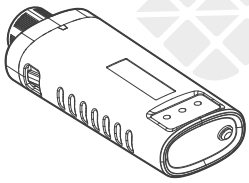
RENOGY X Hybrid Inverter adopts the active frequency drift (AFD) method to prevent islanding effect, ensuring safe operation and maintenance of the solar system.

2. Get to Know RENOGY X Hybrid Inverter

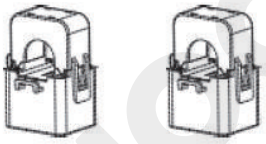
2.1. What's In the Box?

RENOGY X Hybrid Inverter × 1

User Manual × 1

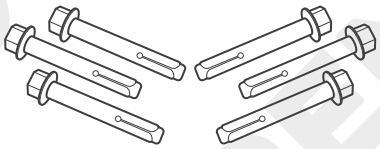


Wi-Fi Logger × 1



CT × 2

M6 x 50 mm

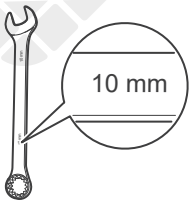


Expansion Screws × 6
(including two extras)

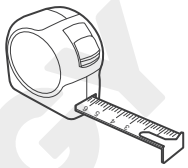
Make sure that all accessories are complete and free of any signs of damage.

2.2. Recommended Tools

Phillips Screwdriver (#2)



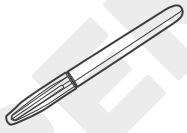
Wrench (10 mm)



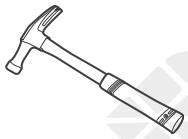
Measuring Tape

Inner Hexagon Spanner (M5)

Wire Stripper



Marker Pen



Hammer

Cold-Pressed Terminal
Crimping Pliers

Hammer Drill

For concrete or masonry wall

Masonry Drill Bit (3/8 inch)

For drywalls, stucco walls or
plywood sheets

Wood Drill Bit (3/8 inch)

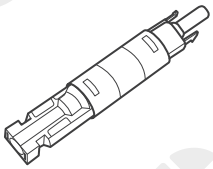
Prior to installing and configuring the inverter, prepare the recommended tools, components, and accessories.

The cable specifications listed above account for critical, less than 3% voltage drop and may not account for all configurations.

2.3. Optional Accessories

AURA Lithium Iron Phosphate Battery System

Meter

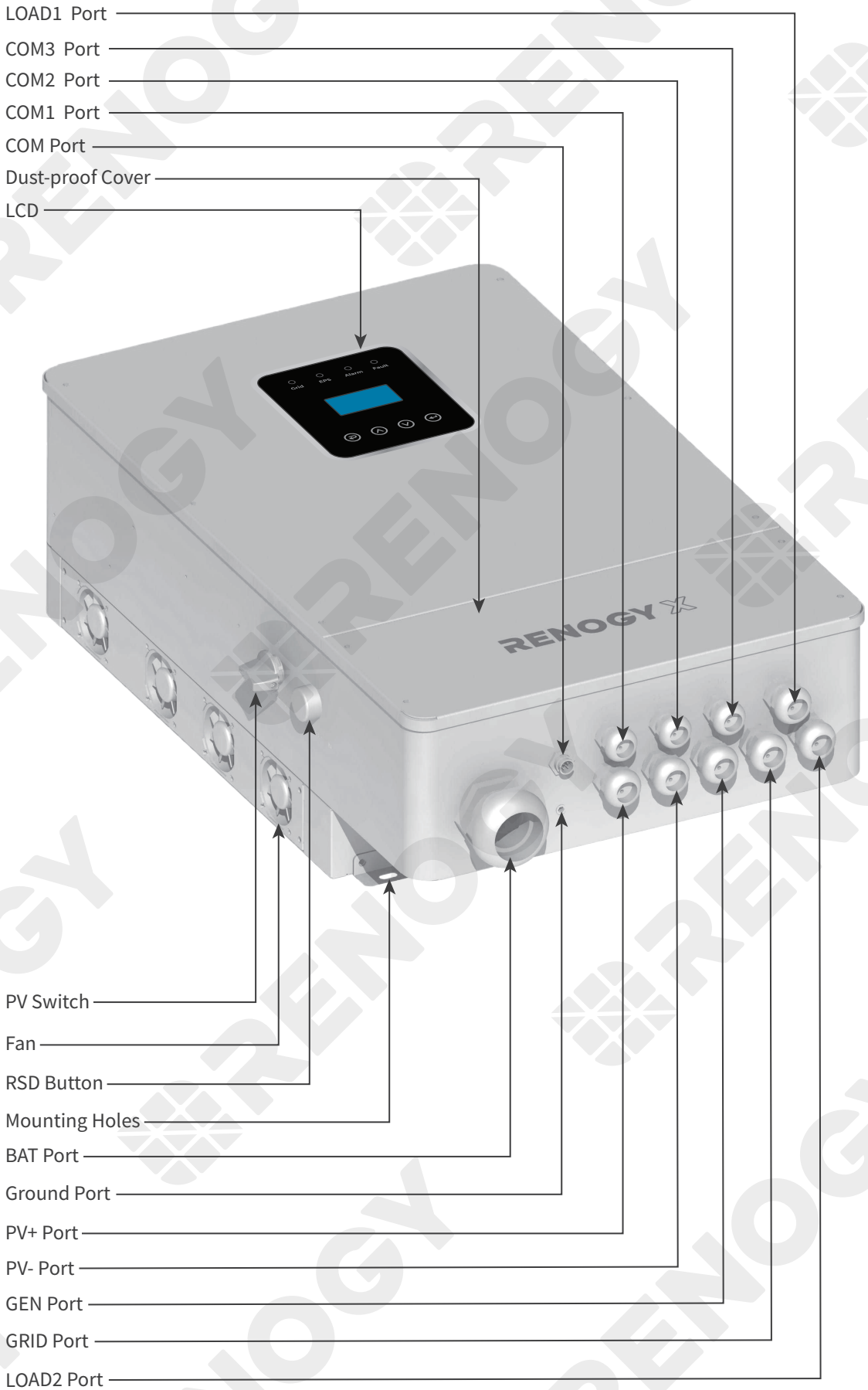


Solar Panel Fuse

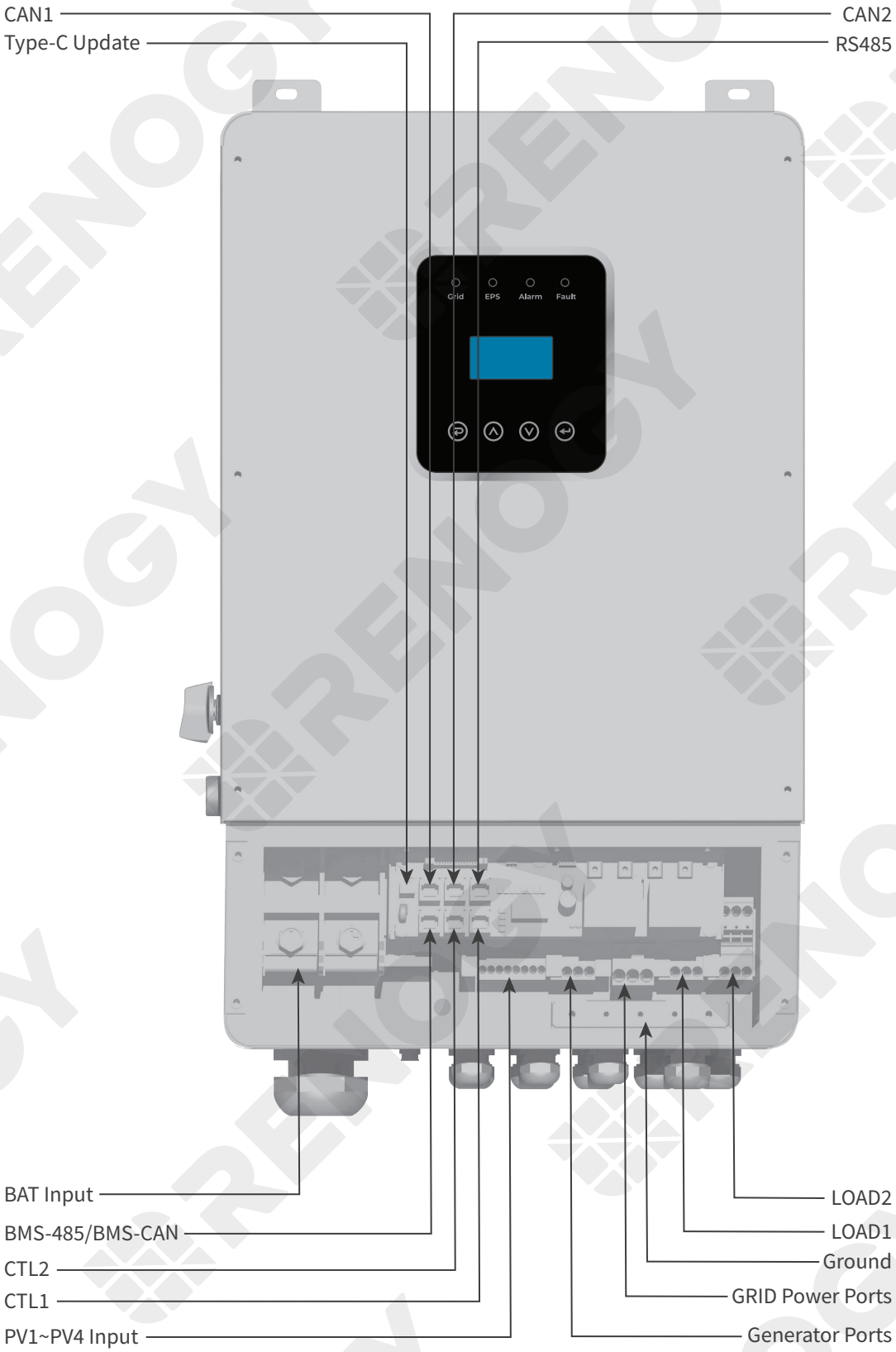
You can buy optional accessories from renogyx.com.

2.4. Product Overview

Exterior



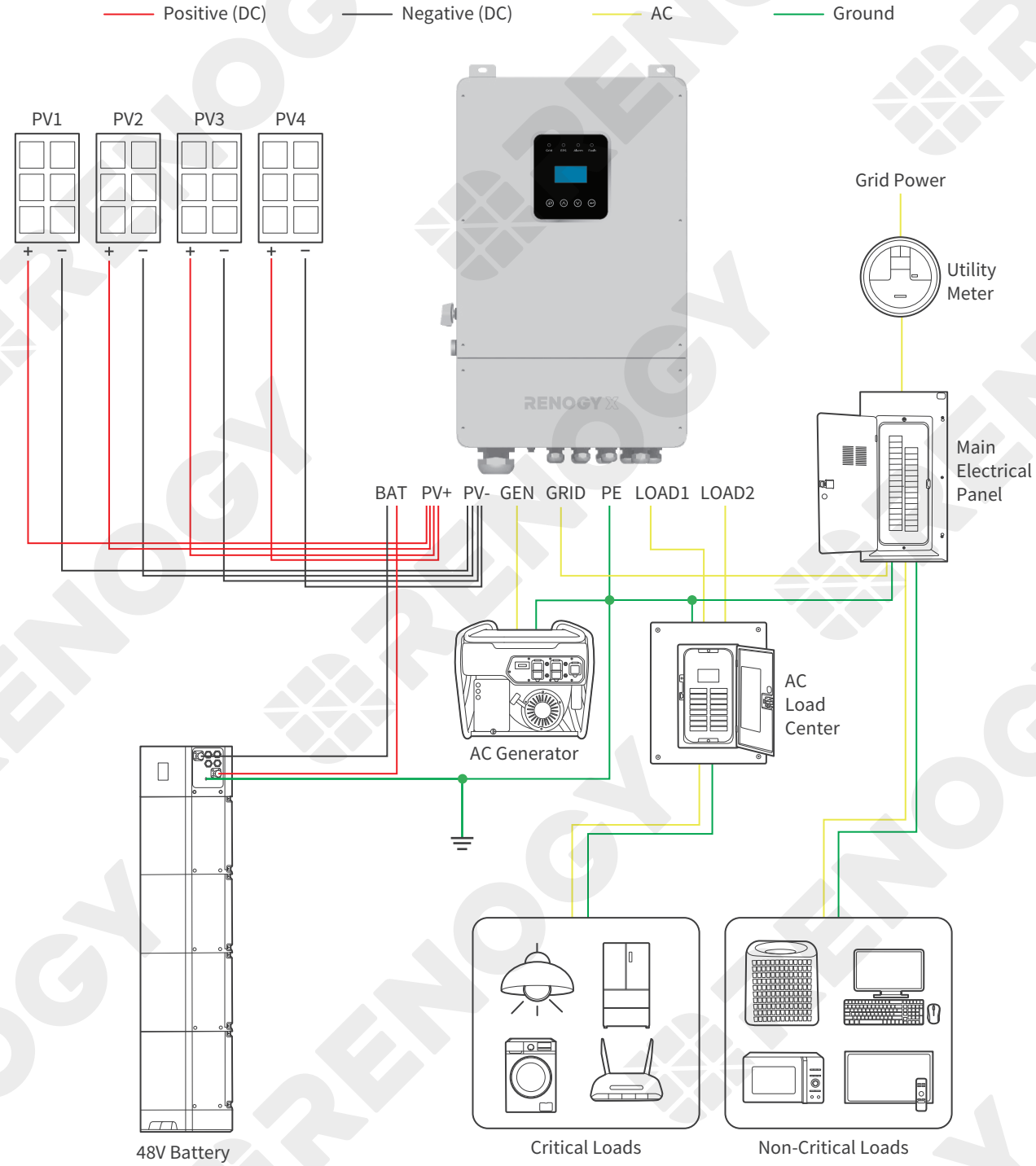
Interior (with the Dust-proof Cover removed)



CAN1 and CAN2 are used to connect Renogy X inverters in parallel. Type-C Update Port is used to upgrade the software in the inverter. For details, contact renogyx.com.

2.5. System Setup

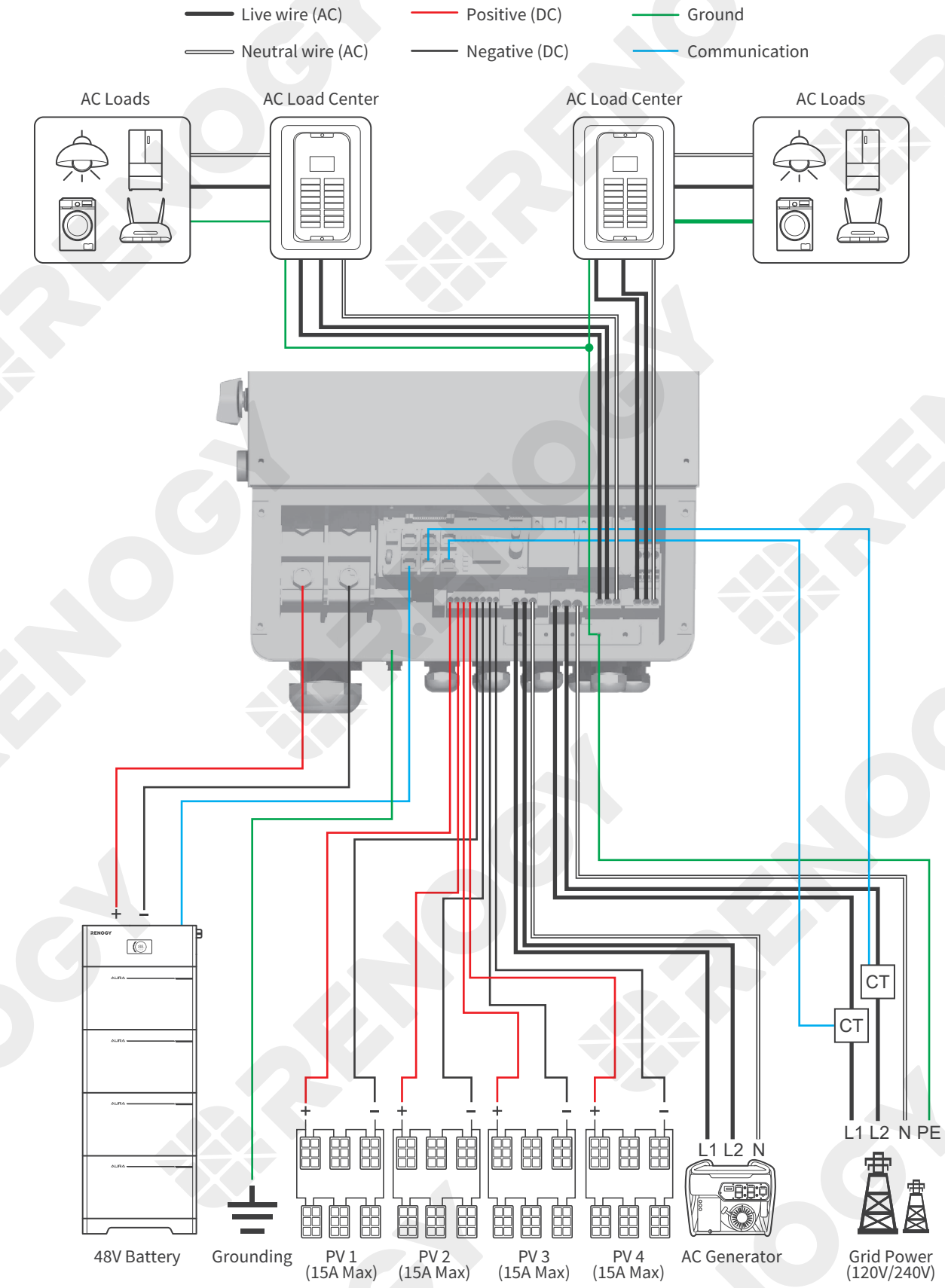
System Wiring



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

Connecting multiple inverters in parallel is applicable when more load power is required. The parallel connections must be handled by qualified personnel only. For details, visit renogyx.com.

Inverter Wiring



For GEN ports, connecting the inverter to L1 or L2 provides 120V power while connecting the inverter to both L1 and L2 results in 240V. The same rule applies to GRID ports.

3. Preparation

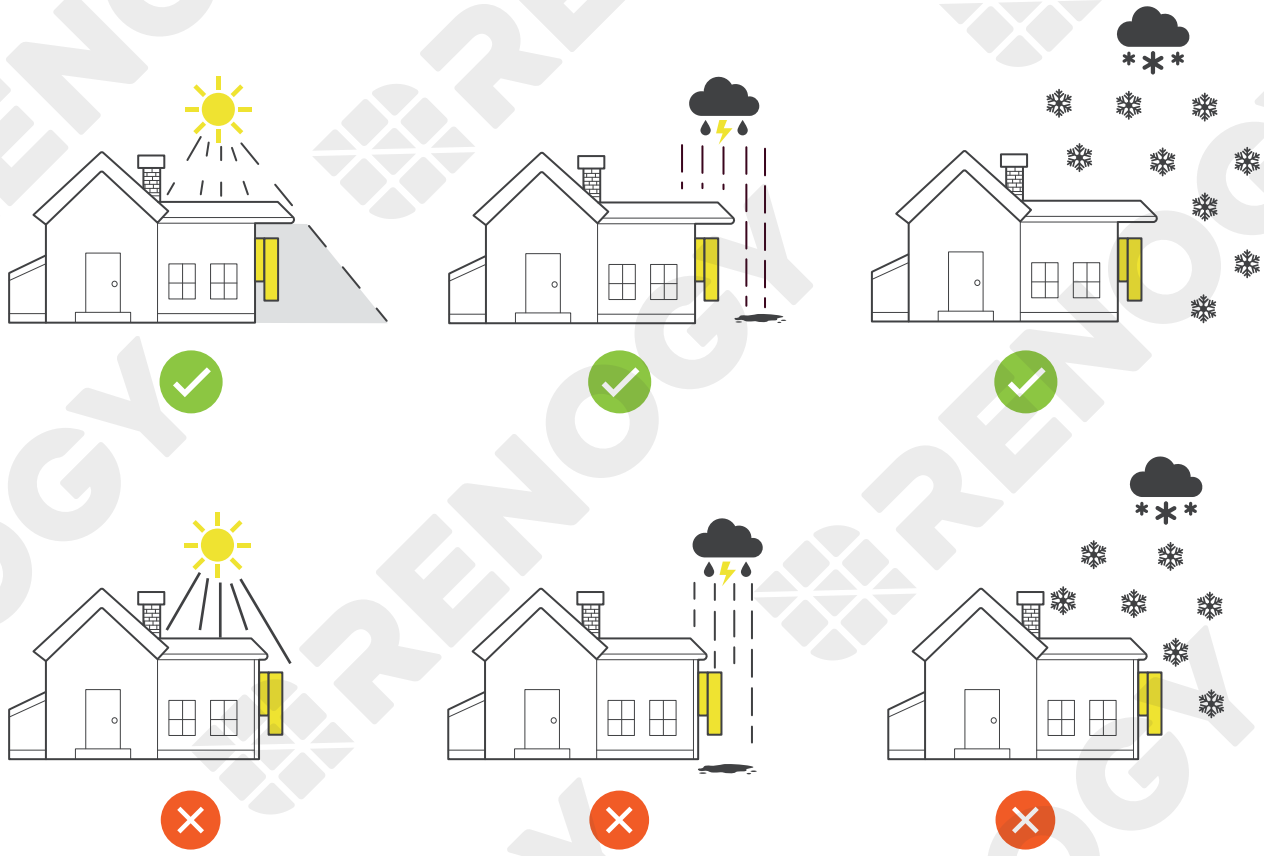
3.1. Plan a Mounting Site

The inverter is designed for outdoor installation (IP65 rated). Make sure the installation site meets the following conditions:

- Not in direct sunlight.
- Not exposed to rain or snow.
- Not in areas where highly flammable materials are stored. Not in potential explosive areas.
- Not in the cool air directly.
- Not near the television antenna.
- Not higher than altitude of 2000m above sea level.
- Not in environment of precipitation or humidity (>95%).
- Under good ventilation condition.
- At ambient temperature in the range of -13°F~140°F (-25°C~60°C).
- Wall slope within ±5°.

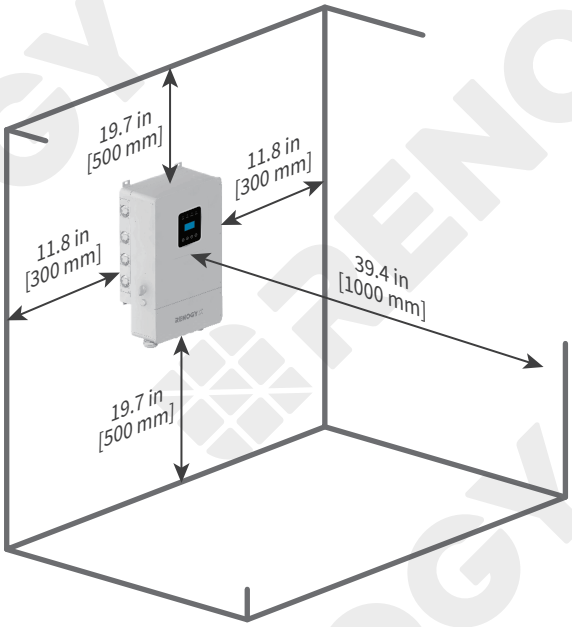
The inverter can be mounted to any of the following walls:

1. Solid brick or concrete walls
2. Other walls (drywalls, stucco walls, or plywood sheets) that can support the weight of the inverter. Note the inverter weighs 41 kg.



The inverter encounters limited charge and discharge current when it operates near -4°F (-20°C) or 140°F (60°C). Beyond the temperature range, the inverter stops charging or discharging.

The inverter requires adequate clearance for installation, wiring, and ventilation. The minimum clearance is provided below. Ensure that the installation location can accommodate the inverter with the minimum clearance. Consider cable lengths between the inverter and the connected battery as well as solar panels when planning the installation site.

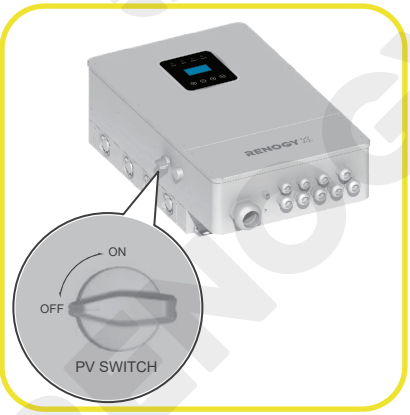


- Risk of explosion! Never install the inverter in a sealed enclosure with flooded batteries! Do not install it in a confined area where battery gases can accumulate.
- Keep the inverter out of the reach of children and animals.
- Do not expose the inverter to flammable or harsh chemicals or vapors.
- If the inverter is installed improperly on a boat, it may cause damage to components of the boat. Have the inverter by a qualified electrician.
- Install the inverter as close to the battery as possible to avoid voltage drops due to long cables.

3.2. Check the Inverter

1. Inspect the inverter 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.

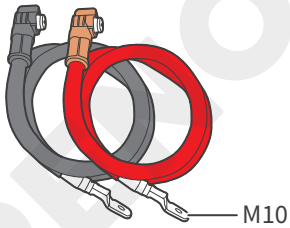
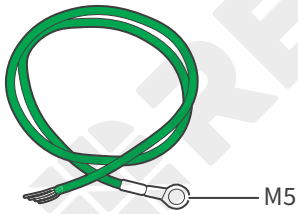
- Do not use the inverter if it has any visible damage.
- Do not puncture, drop, crush, penetrate, shake, strike, or step on the inverter.
- There are no serviceable parts in the inverter. Do not open, dismantle, repair, tamper with, or modify the inverter.
- Confirm the polarities of the devices before connection. A reverse polarity contact can result in damage to the controller and other connected devices, thus voiding the warranty.
- Do not touch the connector contacts while the inverter is in operation.
- Wear proper protective equipment and use insulated tools during installation and operation.
- Do not dispose of the inverter as household waste. Comply with local, state, and federal laws and regulations and use recycling channels as required.



2. Ensure the PV Switch is set to OFF when installing the inverter.

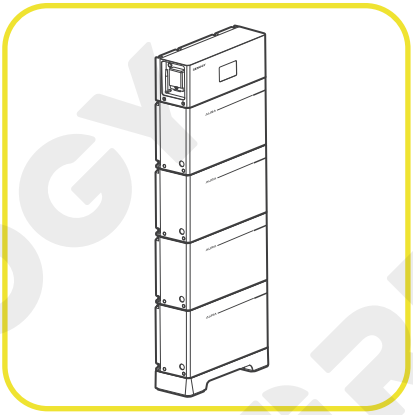
3.3. Check the Battery

Recommended Components

48V Battery	Battery Adapter Cable (4/0 AWG)	Grounding Cable (7 AWG)
		

Prepare a proper grounding cable by yourself based on the 48V battery you use. This manual takes AURA Lithium Iron Phosphate Battery System as an example.

The grommet of the BAT Port has an inner diameter of 1.48 inches (37.5 mm). Properly select the cable sizes of the Battery Adapter Cables and Grounding Cable to ensure they can run through the grommet.



1. Inspect the inverter 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.
   Ensure the battery is powered off when connecting the inverter to the battery. For batteries with no power on/off function, install a DC breaker (200A) on the battery prior to connecting it to the inverter. Toggle the DC breaker to OFF during installation to prevent electrical shock.

Do not use the battery if it has 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. Make sure there is good ventilation.

Combine batteries in parallel or in series as needed. Ensure the batteries are combined correctly before connecting them to the inverter.

Read the user manual of the battery in use carefully.

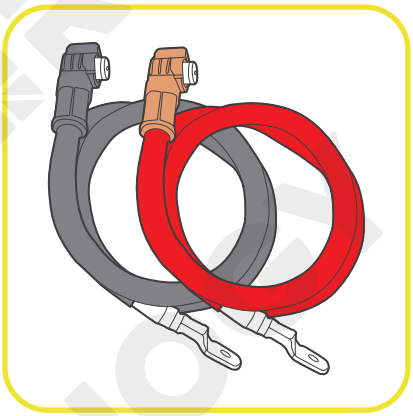
Do not dispose of the battery as household waste. Comply with local, state, and federal laws and regulations and use recycling channels as required.

System Voltage	
Battery or Battery Pack 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. This Inverter supports a maximum system voltage of 60V. Read the user manual 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 60V.

Do not connect batteries rating higher than 60V to the inverter. Doing so will damage the inverter.

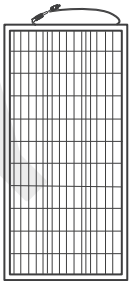
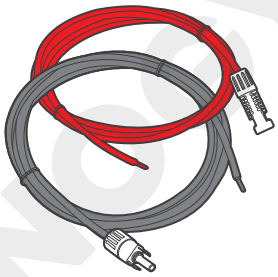
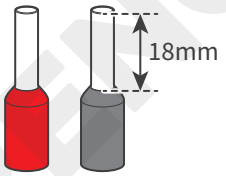
In the formula, U represents the battery voltage, and 1, 2 or 3 represents the battery number respectively.



3. Inspect the Battery Adapter Cable 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. All ring terminals are fastened to the cables.

3.4. Check the Solar Panel(s) (Optional)

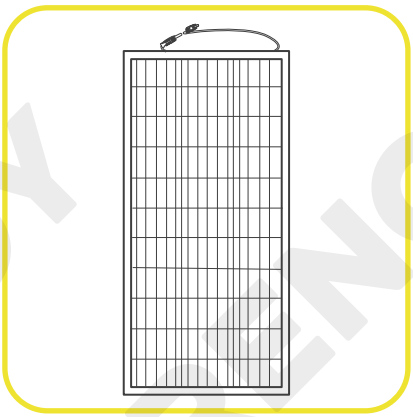
Recommended Components

Solar Panel	Solar Panel Extension Cables (12 AWG)	Cold-Pressed Terminal
		

The recommended components listed above apply to one solar panel. For scenarios involving more solar panels, multiply the number of the components on demand.

The grommet of the PV+ or PV- Port has an inner diameter of 0.75 inches (19 mm). Properly select the sizes of the Solar Panel Extension Cables to ensure they can run through the grommets.

Select Cold-Pressed Terminals according to the sizes of Solar Panel Extension Cables.



1. Inspect the solar panel 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 solar panel if it has any visible damage.

Cover the solar panel prior to connecting it to the inverter.

Read the user manual of the solar panel carefully before installation.

The solar panels can be combined in parallel or in series as needed.

Working Voltage	
Working Voltage of Solar Panel or Solar Panel Array = Working Voltage U	
Solar Panels in Series	**Solar Panels in Parallel**
Working Voltage U: $U_1+U_2+U_3$	Working Voltage U: $U_1=U_2=U_3$

2. Read the user manual of the solar panel for the maximum output power, and calculate the maximum output power of solar panel or solar panel array according to the formula.

Ensure that the working voltage of the solar panel/solar panel array ranges between 120V to 500V.

In the formula, U represents the working voltage of the solar panel, and 1, 2 or 3 represents the solar panel number respectively.

Output Current	
Output Current of Solar Panel or Solar Panel Array = Output Current I	
Solar Panels in Series	**Solar Panels in Parallel**
Output Current I: $I_1+I_2+I_3$	Output Current I: $I_1=I_2=I_3$

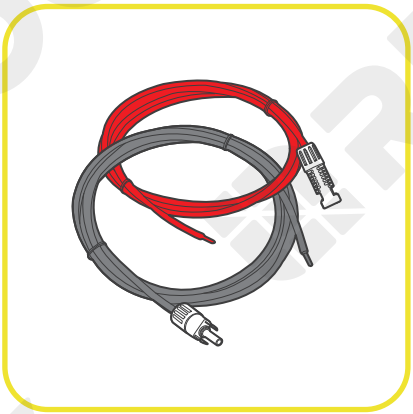
3. Read the user manual of the solar panel for the maximum output current, and calculate the maximum output current of solar panel or solar panel array according to the formula.

Ensure that the maximum output current of the solar panel/solar panel array does not exceed 15A.

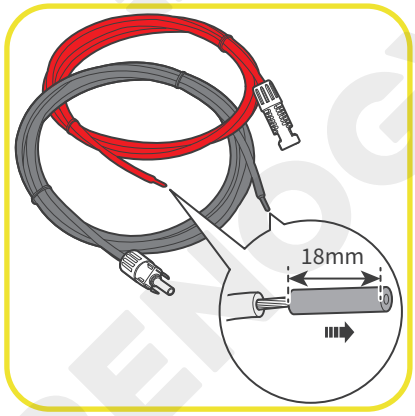
In the formula, I represents the output current of the solar panel, and 1, 2 or 3 represents the solar panel number respectively.

Model	Total Power
RENOGY X 48V 5000W Hybrid Inverter (RIV4850HI-SPS)	7500W Max
RENOGY X 48V 8000W Hybrid Inverter (RIV4880HI-SPS)	12000W Max

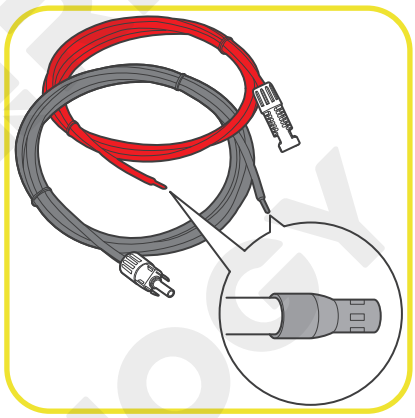
4. Ensure the total power of all the solar panels complies with the value listed in the table.



5. Inspect the Solar Panel Extension Cable 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.



6. Strip some insulation (18 mm) off the cables with a wire stripper.

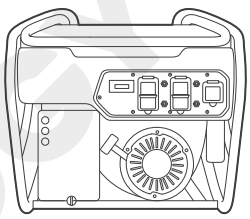
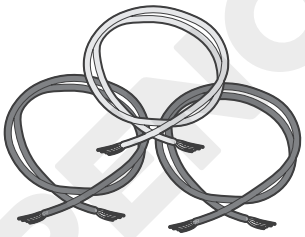
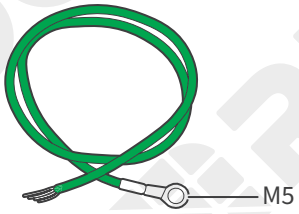
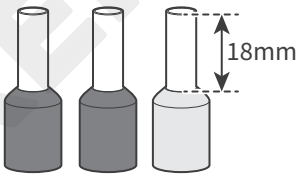


7. Insert the bare ends of the Solar Panel Extension Cables into the Cold-Pressed Terminals, and use Cold-Pressed Terminal Crimping Pliers to crimp the ends into the terminals.

Ensure the cables are securely fixed to the Cold-Pressed Terminals.

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

Recommended Components

AC Generator	Bare Wire	Grounding Cable (7 AWG, for the grid)	Cold-Pressed Terminal
Output: 90A Max 	5000W Inverter: 12AWG 8000W Inverter: 10AWG 		

Ensure the AC Generator is powered off during the installation.

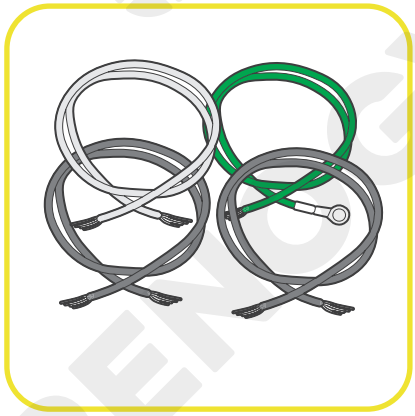
Ensure the grid power is off during the installation.

The recommended components listed above apply to connecting the inverter to either AC generator or grid power. For scenarios involving both AC generator and grid power, double the number of the components.

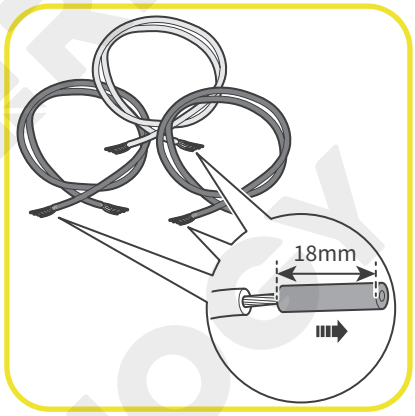
Read the user manual of the AC generator before the installation.

The grommet of each of the GEN or GRID Ports has an inner diameter of 0.75 inches (19 mm). Properly select the sizes of the Bare Wires to ensure they can run through the grommets.

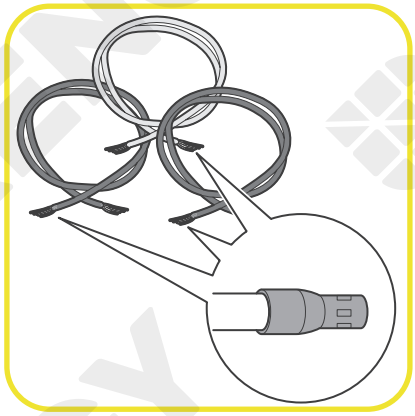
Select Cold-Pressed Terminals according to the sizes of Bare Wires.



1. 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.



2. Strip some insulation (18 mm) off the cables with a wire stripper.



3. Insert the bare ends of the Bare Wires into the Cold-Pressed Terminals, and use Cold-Pressed Terminal Crimping Pliers to crimp the ends into the terminals.

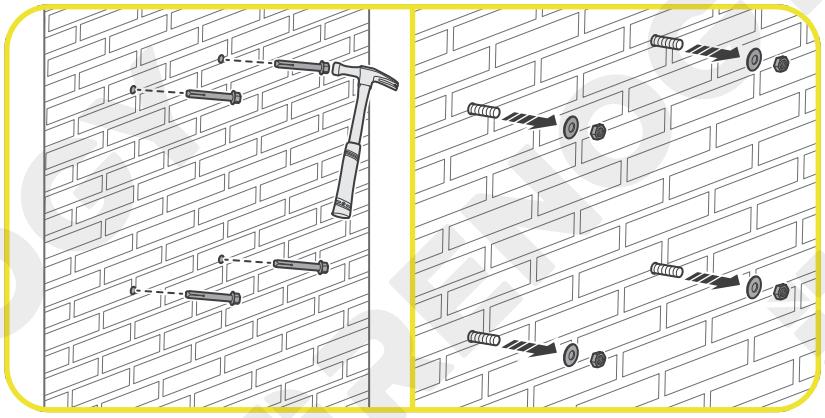
4. Installation

4.1. Mount the Inverter

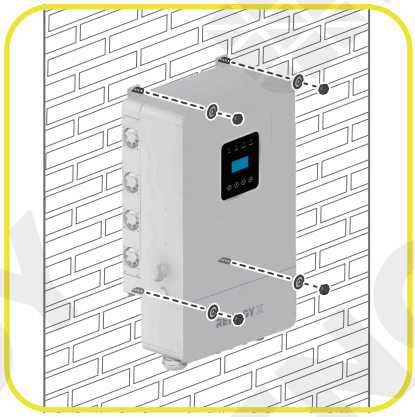
1. Place the inverter to the wall. Mark the mounting locations with a Marker Pen.

2. Remove the inverter.
   If the inverter is installed on a concrete or masonry wall, drill the pilot holes with the Hammer Drill and the Masonry Drill Bit at the marked locations.
   If the inverter is installed on drywalls, stucco walls or plywood sheets, drill the pilot holes with the Hammer Drill and the Wood Drill Bit at the marked locations.

The depth of the pilot holes must be at least 1.18 inches (30 mm).



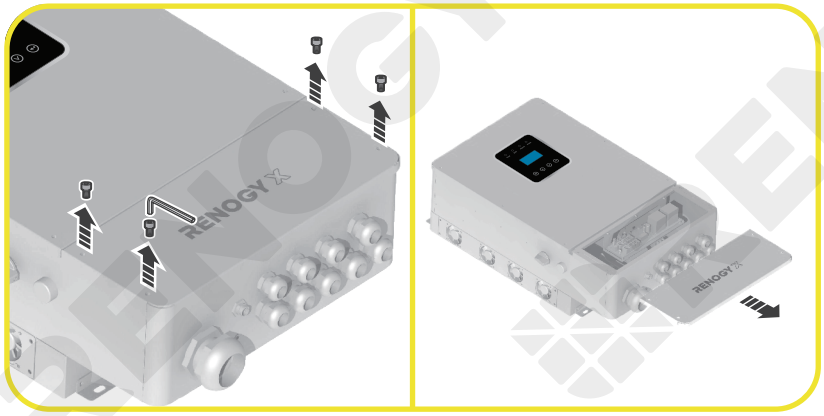
3. Knock down the included Sleeve Anchors into the pilot holes with the Hammer. Remove the Flat Washers and Flange Nuts from the Sleeve Anchors.



4. Hang the inverter on the wall by running the Sleeve Anchors through the mounting holes on the inverter. Fasten the Flat Washers and Flange Nuts to the Sleeve Anchors with the Wrench (10 mm).

Make sure that the inverter is installed firmly to prevent it from falling off.

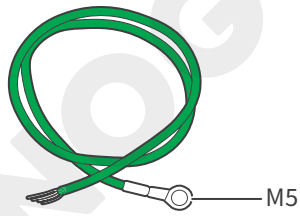
4.2. Remove the Dust-proof Cover



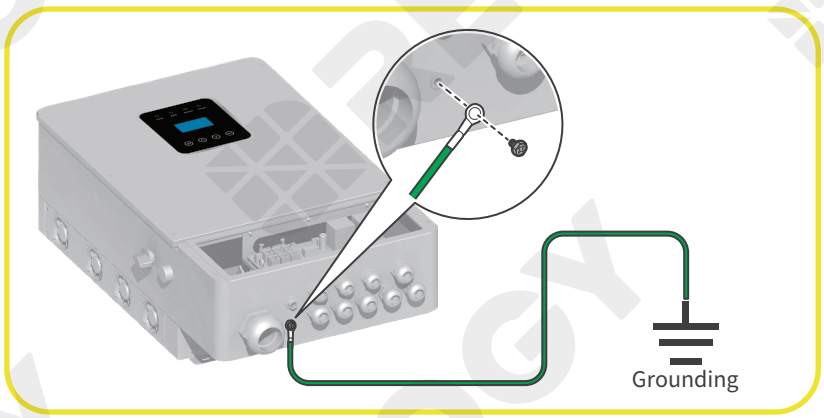
Remove the Dust-proof Cover from the inverter by using an Inner Hexagon Spanner (M5)

4.3. Ground the Inverter

Recommended Components

Grounding Cable (7 AWG)


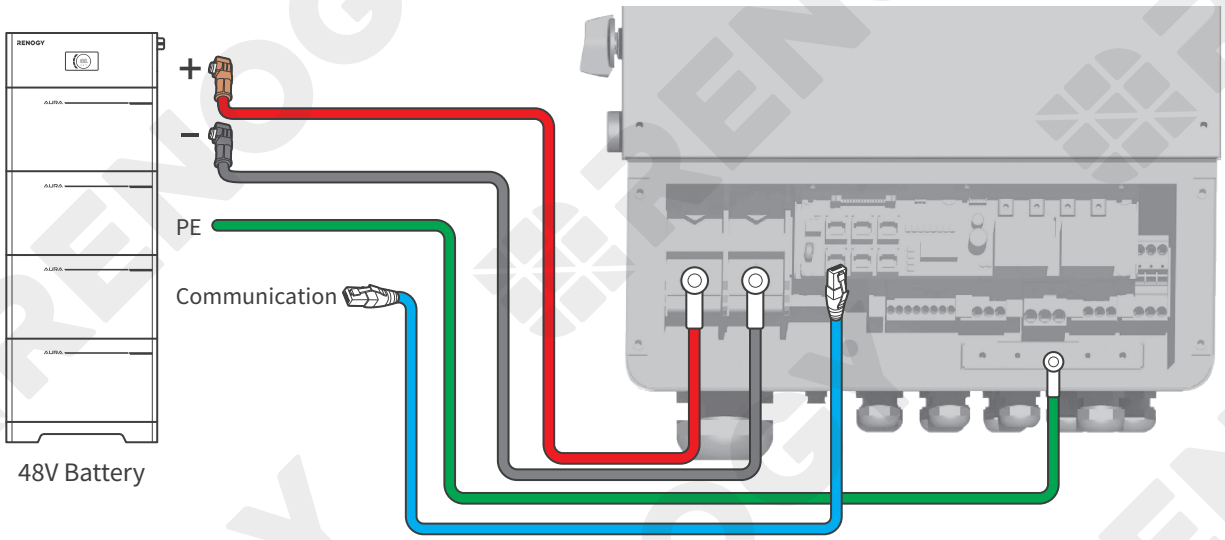
1. Remove the screw on the Ground Port with a Phillips Screwdriver (#2).



2. Connect the Grounding Cable Ring Terminal to the grounding port of the inverter with the removed screw by using the Phillips Screwdriver (#2). Connect the bare wire end of the grounding cable to a grounding rod (not included).

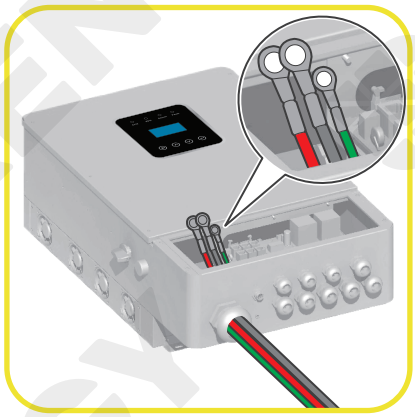
4.4. Connect the Inverter to a Battery

Wiring Diagram

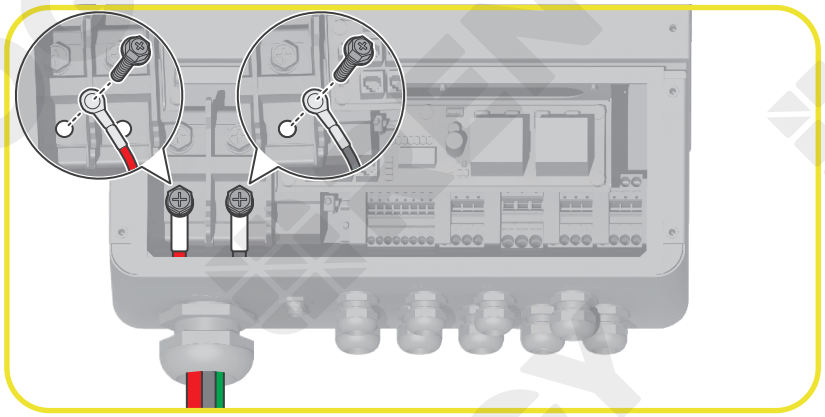


The inverter can communicate with the connected battery only when the battery management system is compatible with that of the inverter.

Power Cable Wiring

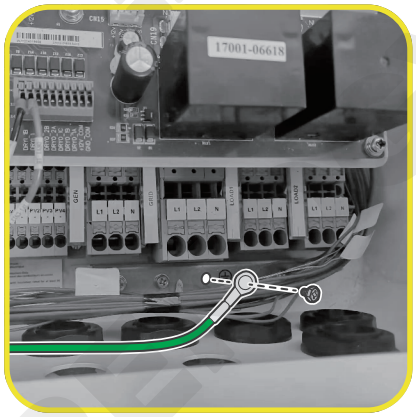


1. Run the Battery Adapter Cables (with the ends with ring terminals) and the Grounding Cable (with the ring terminal) through the grommet of the BAT Port.



2. Remove the screws from the BAT+ and BAT- ports on the inverter, and connect the positive and negative Battery Adapter Cable Ring Terminals to the BAT+ and BAT- ports respectively of the inverter with the removed screws by using the Phillips Screwdriver (#2).

The torque of the cable retainer is 10 N·m (4.3 lb-inch). Do not over tighten the cable retainer screws. Otherwise it will lead to stripped screws or screw bending.



3. Remove one of the grounding screws from the inverter, and connect the Grounding Cable Ring Terminal to the grounding port of the inverter with the removed screw by using the Phillips Screwdriver (#2).

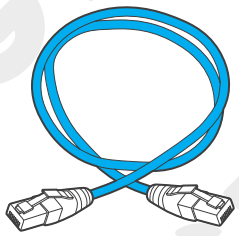
4. Connect the other end of the positive Battery Adapter Cable to the positive end of the battery, and the negative cable to the negative end of the battery.

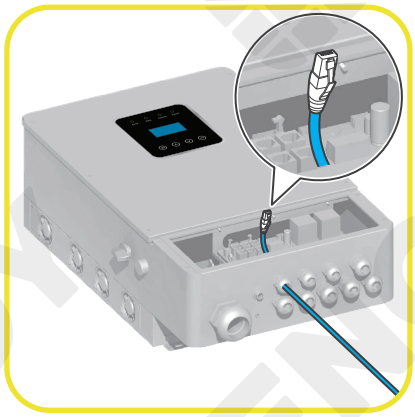
For details on how to connect the battery to the inverter, read the user manual of the battery.

Communication Wiring (Optional)

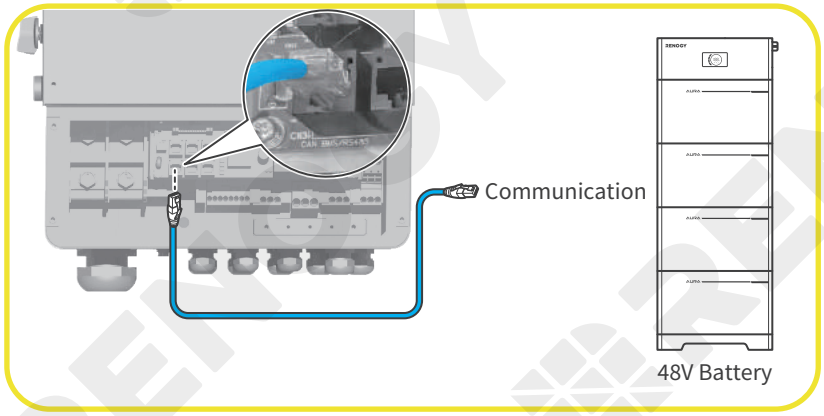
Communication wiring is required when the connected battery has a built-in battery management system (BMS) and supports RS-485 or CAN communication. The inverter communicates with the BMS of the battery to obtain battery performance data based on which the inverter automatically adjusts the charge and discharge currents to protect the battery. This results in a longer battery lifecycle.

Recommended Components

Ethernet Cables (CAT5 or above)




1. Insert any end of the Ethernet Cable through the grommet of COM1.

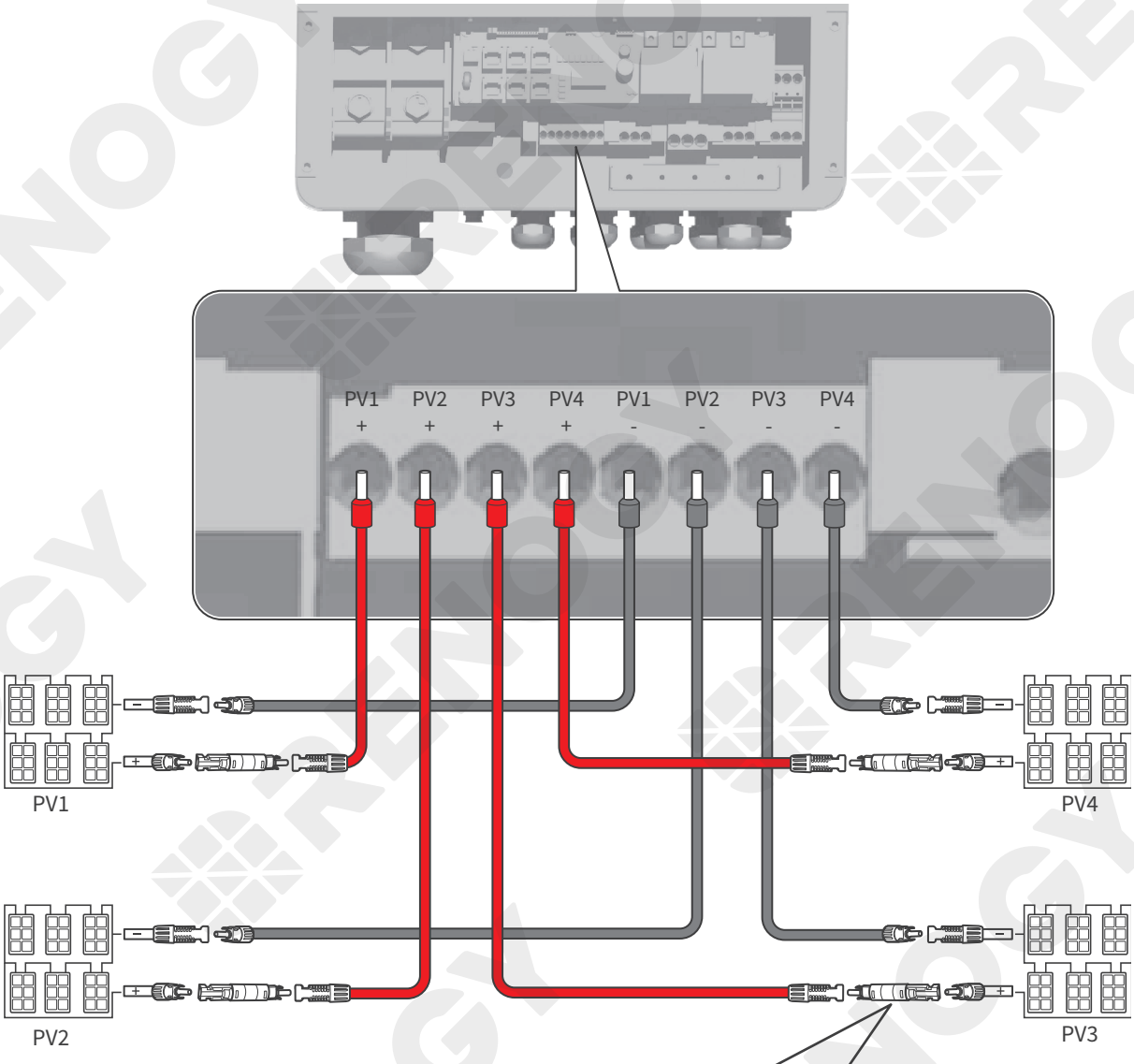


2. Connect the RJ45 connector to BMS-485/BMS-CAN on the inverter and the other end to the communication port of the battery.

For details on how to connect the battery to the inverter, read the user manual of the battery.

4.5. Connect the Inverter to a Solar Panel (Optional)

Wiring Diagram

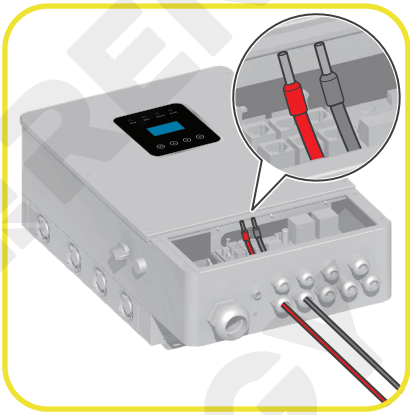


Fuse from Solar Panel to Charge Controller	
Solar Panel to Charge Controller Fuse = Solar Panel / Solar Panel Array Total Amps *1.56	
Solar Panels in Series	**Solar Panels in Parallel**
Total Amps I: $I_1=I_2=I_3$ Fuse = I_1*1.56	Total Amps I: $I_1+I_2+I_3$ Fuse = $(I_1+I_2+I_3)$*1.56

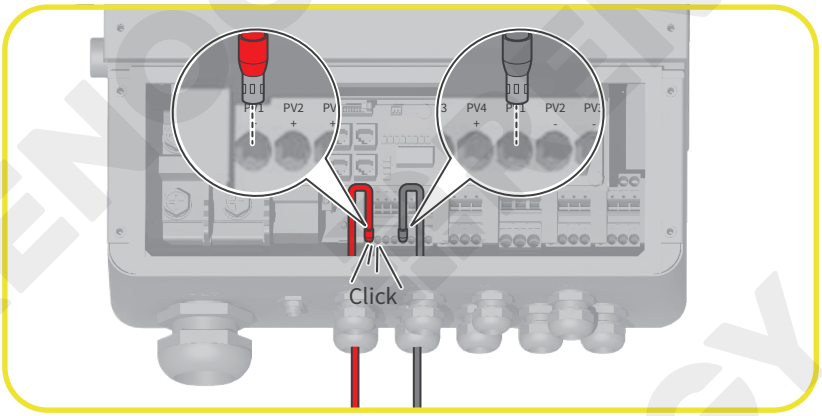
For your safety, it is recommended to connect a fuse between the solar panel and the inverter. The fuse protects the inverter and other connected components, improving the security of the whole system.

In the formula, I represents the maximum output current of the solar panel, and 1, 2 or 3 represents the solar panel number respectively.

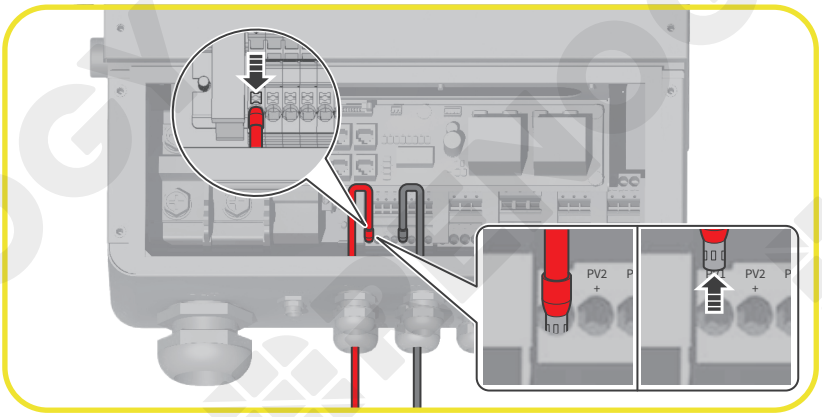
Additional protection devices including DC ground fault circuit interrupters (GFCIs), DC arc fault circuit interrupters, and rapid shutdown devices (not included) may be required to comply with the local, state, and federal regulations for solar systems.



1. The illustrations in this chapter are based on connecting a solar panel to PV1 ports of the inverter. The same rules apply to other PV ports. Run the Cold-Pressed Terminals of the Solar Panel Extension Cable to the respective PV+ and PV- Port grommets.

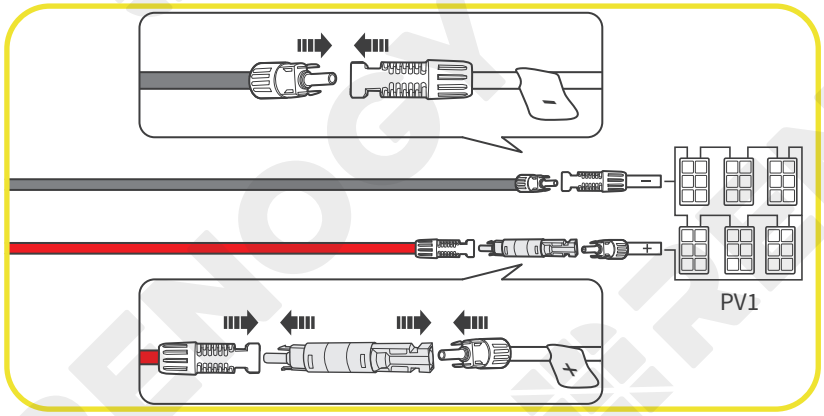


2. Insert the Cold-Pressed Terminal connecting to the positive Solar Panel Extension Cable into the PV1+ Port on the inverter. Insert the Cold-Pressed Terminal connecting to the negative Solar Panel Extension Cable into the PV1- Port.
When you hear a “click” sound, the Solar Panel Extension Cable is firmly installed on the inverter.



3. To remove the cable from the inverter, press the terminal block of the related terminal, and the cable will be released.

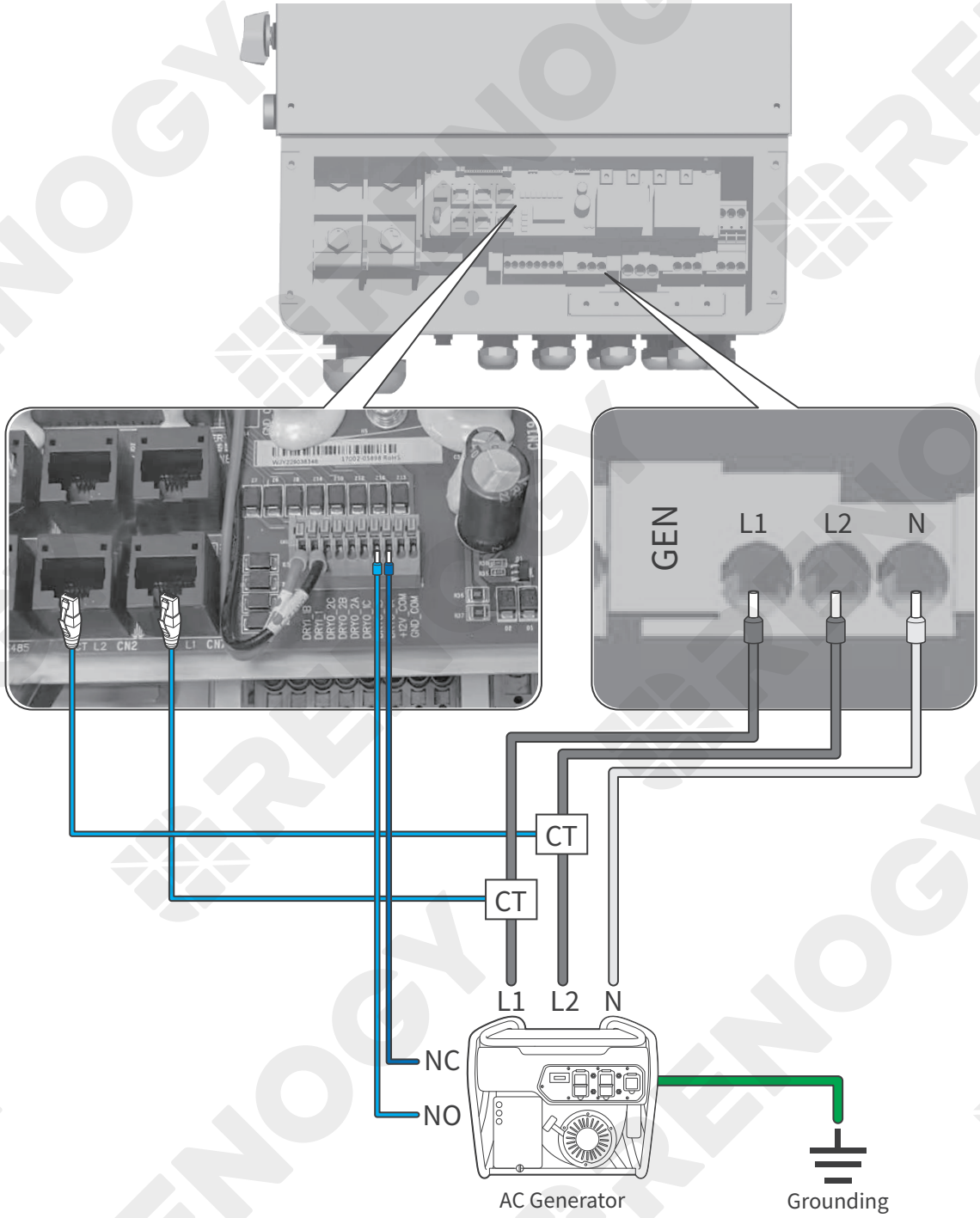
A screwdriver is required when you cannot remove the cable from the inverter by simple pressing by hands.



4. Connect the other end of the negative Solar Panel Extension Cable to the negative port of the solar panel.
   Connect the other end of the positive Solar Panel Extension Cable to the solar panel with a fuse.

4.6. Connect the Inverter to an AC Generator (Optional)

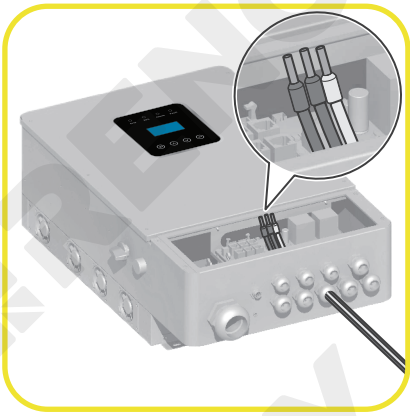
Wiring Diagram



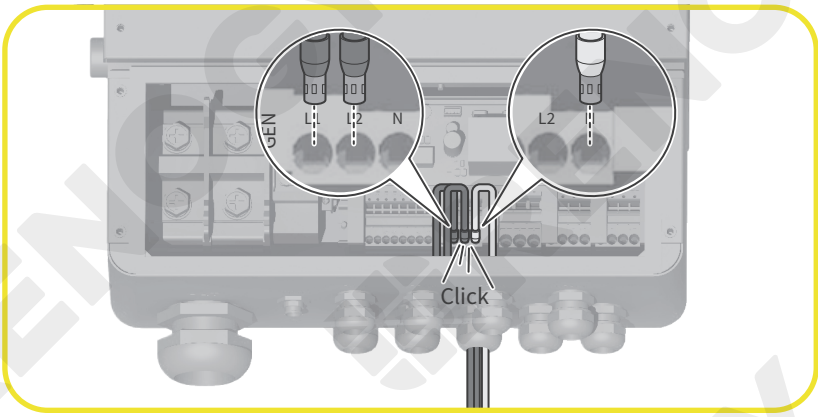
For details on how to install a current transformer (CT) to an AC generator, see "Install CTs".

For single-phase generators, only GEN L1 is used. For split-phase generators, both GEN L1 and GEN L2 are used.

Power Cable Wiring

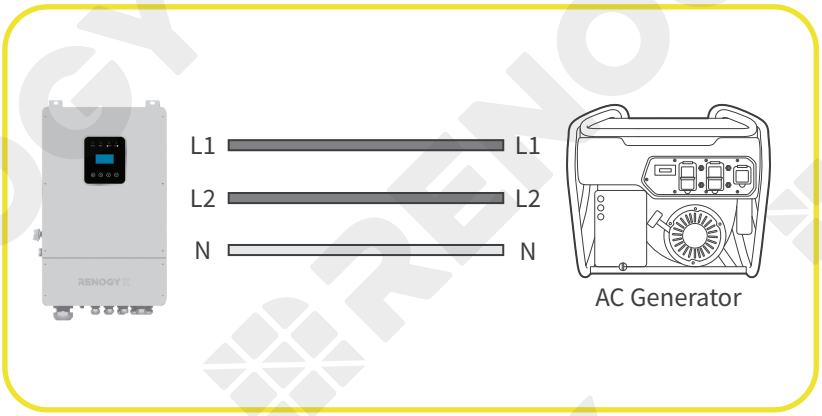


1. Run the three Bare Wires (with the ends with Cold-Pressed Terminals) through the grommet of the GEN Port.



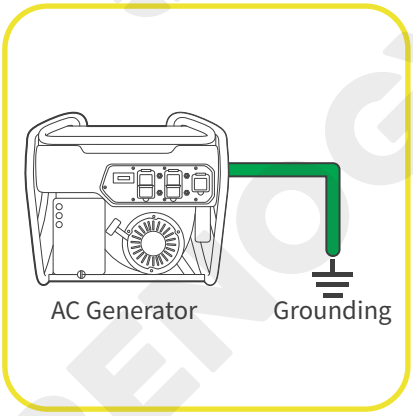
2. Plug two Cold-Pressed Terminals to the GEN L1 and L2 ports of the inverter. Insert the rest Cold-Pressed Terminal to the GEN N port of the inverter.
When you hear a "click" sound, the Bare Wire is firmly installed on the inverter.

To remove the Bare Wire from the inverter, refer to Step 3 in 4.5. Connect the Inverter to a Solar Panel (Optional).



3. Connect the Bare Wires linking to the GEN L1 and L2 ports of the inverter to the L1 and L2 ports of the AC Generator. Connect the rest Bare Wire to the N port of the AC Generator.

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



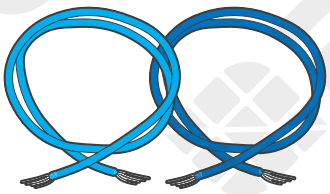
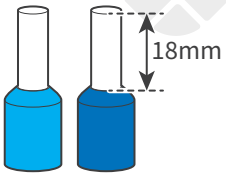
4. Complete grounding of the AC Generator in accordance with instructions in the user manual of the generator.

Communication Wiring

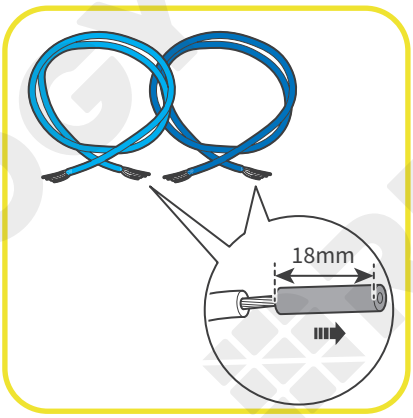
For AC Generators supporting automatic on/off, connect the generator to the inverter via the DRYO_1A and DRYO_1B ports.

When the battery SOC drops below the START SOC set on the inverter (Generator > 1.START SOC), the inverter automatically powers on the AC Generator to charge the battery. When the battery SOC exceeds the STOP SOC set on the inverter (Generator > 2.STOP SOC), the inverter automatically powers off the AC Generator.

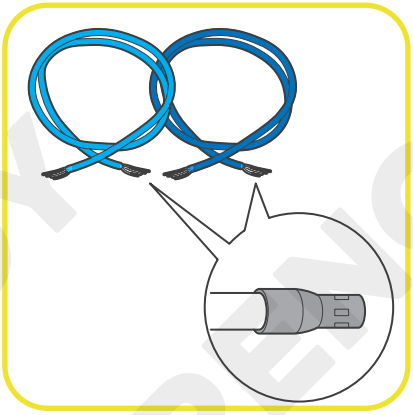
Recommended Components

Signal Line	Cold-Pressed Terminal
	

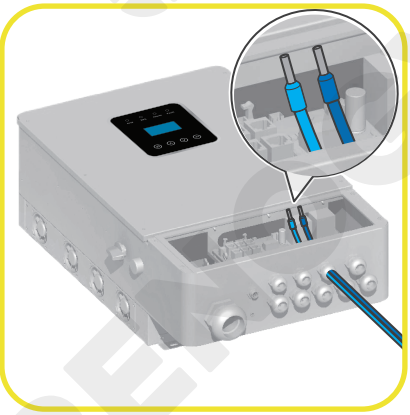
Select proper Cold-Pressed Terminals in accordance with the sizes of the Signal Lines.



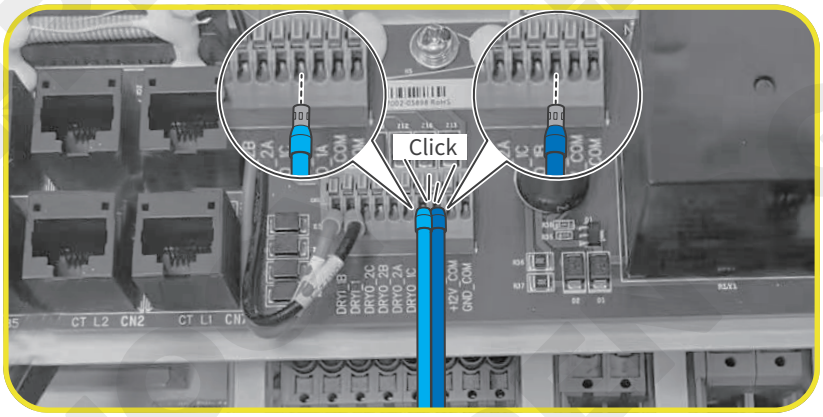
1. Strip the insulation (18 mm) from the Signal Lines with a wire stripper.



2. Insert the bare ends of the Signal Lines into the Cold-Pressed Terminals, and use Cold-Pressed Terminal Crimping Pliers to crimp the ends into the terminals.

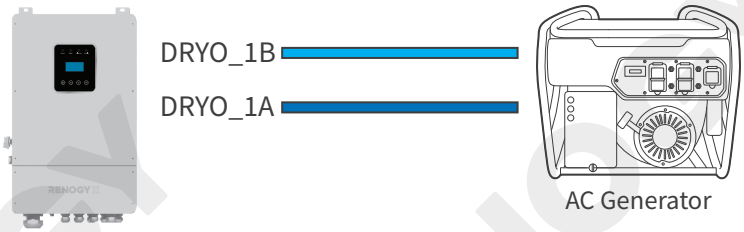


3. Run the two Signal Lines (with the ends with Cold-Pressed Terminals) through the grommet of the COM3 Port.



4. Insert the Cold-Pressed Terminals into the DRYO_1A and DRYO_1B ports on the inverter.
When you hear a “click” sound, the Signal Line is firmly installed on the inverter.

To remove the Signal Line from the inverter, refer to **Step 3 in 4.5. Connect the Inverter to a Solar Panel (Optional)**.



5. Generally, DRYO_1A and DRYO_1B are a set of contacts that are normally closed. To power on the generator, the set of contacts is switched to normally open. Refer to the user manual of the generator to check how to power on the generator (by normally closed or open contacts), and then connect DRYO_1A and DRYO_1B to the contacts.

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

To configure the AC Generator through the inverter, choose "**USER > 1. SETUP > PASSORD CHECK > 16. Generator**" on the LCD of the inverter.

- **Parameter Settings**

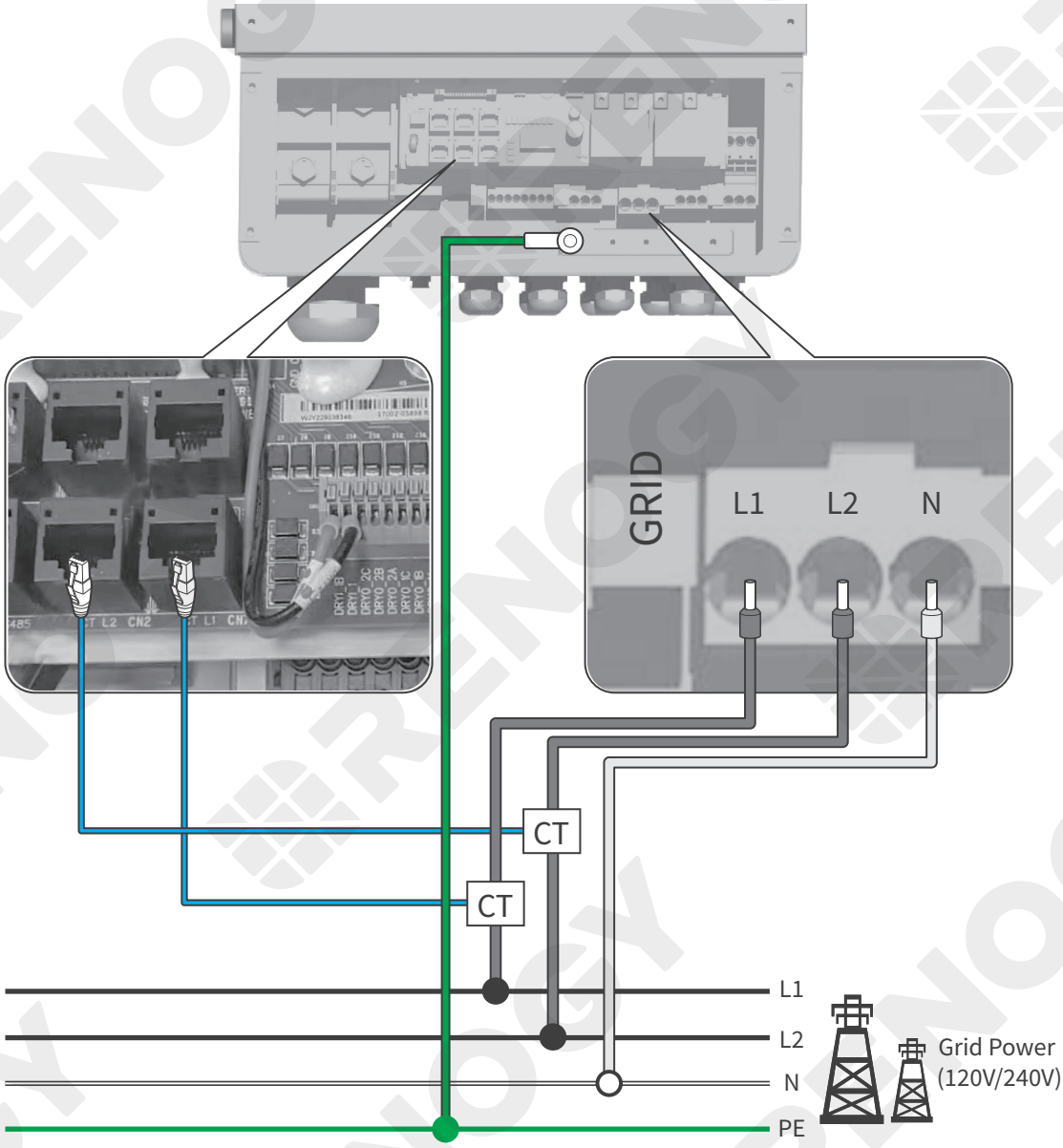
Interface	Description
GENERATOR → 1. START SOC 2. STOP SOC 3. ChgCurrToBAT 4. MAX RUN TIME 5. COOLDOWN 6. CONTRL 7. POWER	This interface shows general settings for the connected generator. 1. When the battery SOC drops below START SOC, the inverter automatically powers on the AC Generator to charge the battery. 2. When the battery SOC exceeds STOP SOC, the inverter automatically powers off the AC Generator. 3. It indicates the maximum current that the inverter charges the battery from the generator. 4. It indicates the maximum time the generator can run in a day. When the running time of the generator reaches this value, the generator is powered off. The value "240" means 24 hours in which state the generator stays on all the time. Unit: 0.1 hour. 5. It indicates the waiting time of the generator to restart after it has reached the maximum running time. Unit: 0.1 hour. 6. Refer to "**CONTRL Parameter Settings**" below. 7. It indicates the rated power of the generator.

- **CONTRL Parameter Settings**

Interface	Description
GEN CONTROL → 1. Generator En 2. Charge En 3. AutoCtrl En 4. Manual En 5. ManualCmd En 6. Connect Grid	This interface shows detailed settings for the CONTRL parameter of generators. 1. Enable/Disable the generator. 2. Enable/Disable charging the battery. 3. When AutoCtrl En is set to "Enable", the generator will be automatically powered on or off through DRYO_1A and DRYO-1B ports on the inverter. 4. When Manual En is set to "Enable", the generator needs be powered on or off manually. 5. It indicates the on/off command in manual control mode. 6. Connect the AC Generator to the grid input port.

4.7. Connect the Inverter to the Grid (Optional)

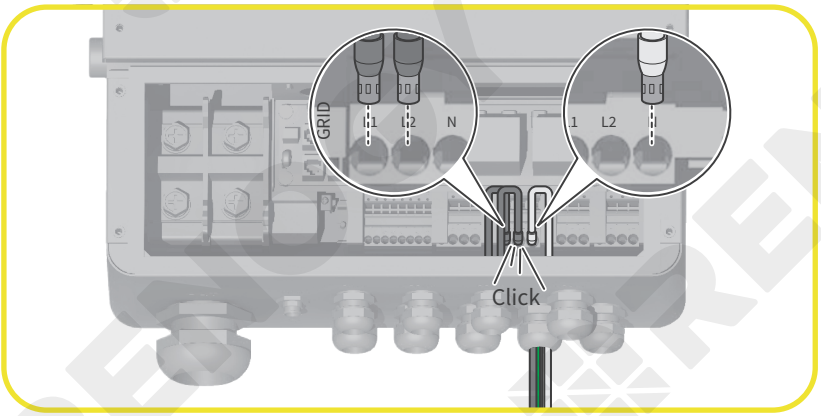
Wiring Diagram



For details on how to install a current transformer (CT) in a system, see "**Install CTs**".

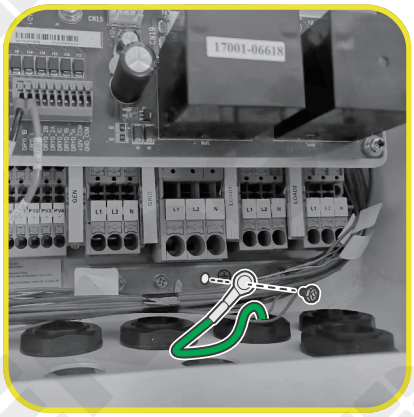
For single-phase grid systems (such as in Europe, Africa, Asia, and Australia), only GEN L1 is used. For split-phase grid systems (such as in North America), both GEN L1 and GEN L2 are used.

1. Run the three Bare Wires (with the ends with Cold-Pressed Terminals) and the Grounding Cable (with the ring terminal) through the grommet of the GRID Port.

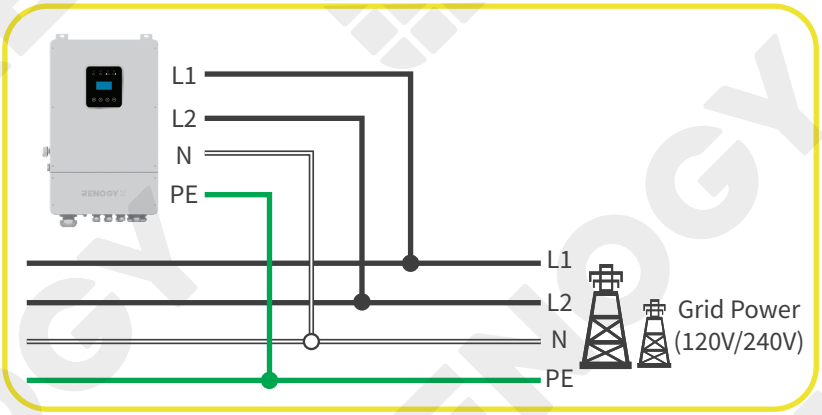


2. Plug two Cold-Pressed Terminals of the Bare Wires to the GRID L1 and L2 ports of the inverter. Insert the rest Cold-Pressed Terminal of the Bare Wire to the GRID N port of the inverter.
When you hear a “click” sound, the Bare Wire is firmly installed on the inverter.

To remove the Bare Wire from the inverter, refer to **Step 3 in 4.5. Connect the Inverter to a Solar Panel (Optional)**.



3. Remove one of the grounding screws from the inverter, and connect the Grounding Cable Ring Terminal to the grounding port of the inverter with the removed screw by using the Phillips Screwdriver (#2).



4. Connect the Bare Wires linking to the GRID L1 and L2 ports of the inverter to the L1 and L2 ports of the grid. Connect the rest Bare Wire to the N port of the grid. Connect the bare end of the Grounding Cable to PE.

4.8. Install CTs

A current transformer (CT) is a type of transformer that is used to reduce or multiply an alternating current (AC) for the protection and measurement purposes in a power system.

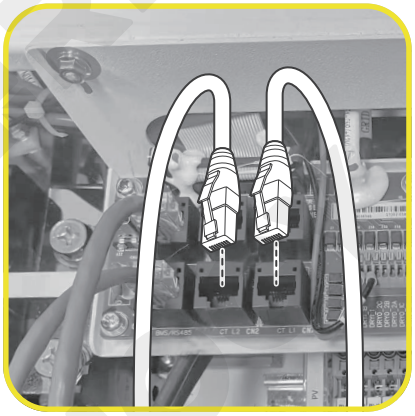
The position where a CT is installed depends on whether the inverter is connected to a generator or grid. If the inverter is connected to a generator only, the CTs are installed on the live wires connecting the generator to the inverter. If the inverter is connected to grid only or to both a generator and grid, the CTs are installed on the live wires connecting grid to the inverter.

For single-phase grid systems (such as in Europe, Africa, Asia, and Australia), only one CT is used. The RJ45 connector of the CT is connected to CT-L1, and the CT is connected to L phase.

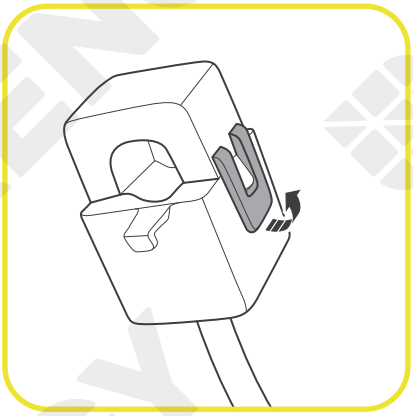
For split-phase grid systems (such as in North America), two CTs are used. The CT-L1 network interface corresponds to L1 phase, and CT-L2 is connected to L2 phase.

If the CT connector is improperly connected, the inverter cannot read the data correctly, so that the relevant working conditions cannot be realized normally.

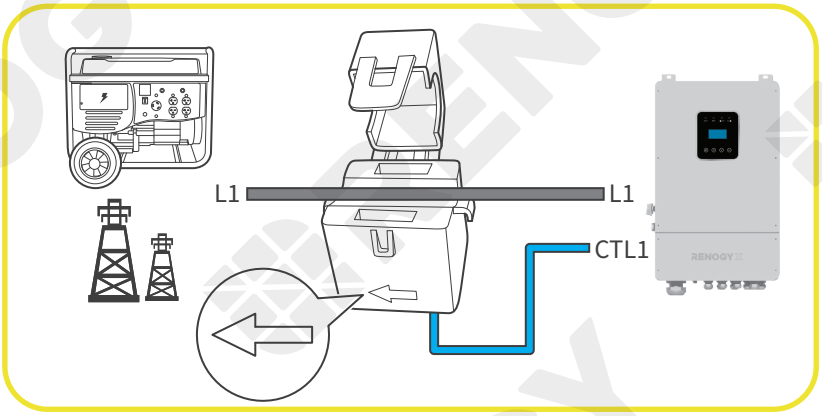
1. Run the RJ45 connectors of the CTs through the COM2 Port grommet on the inverter.



2. Connect the RJ45 connectors to CT L1 and CT L2 ports on the inverter.

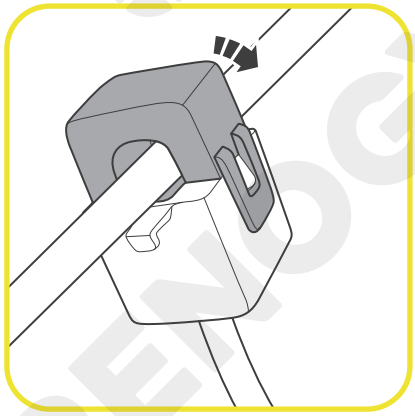


3. The illustrations take the CT L1 port as an example. The same installation rules apply to the CT L2 port. Push the buckle up to open up the CT.



4. Install the CT L1 CT on the L1 live wire connecting the inverter to the grid (or generator), and ensure the arrow on the CT points to the grid (or generator).

The CT L2 CT should be installed on the L2 live wire connecting the inverter to the grid (or generator).



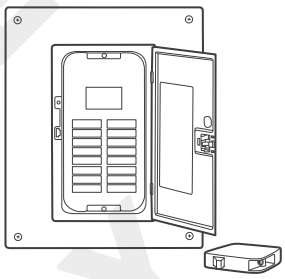
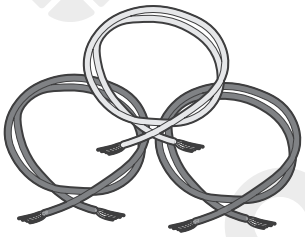
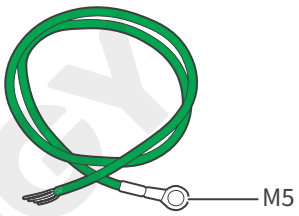
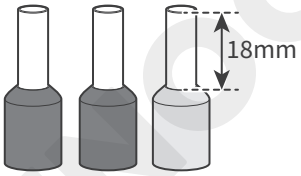
5. Close the CT when you hear a “click” sound.

4.9. Connect the Inverter to AC Loads (Appliances)

The inverter works in both on-grid and off-grid scenarios via the LOAD1 and LOAD2 ports. When connected to the grid or (and) a generator, the inverter powers AC loads via the grid first and then the generator. In off-grid mode (not connected to the grid or a generator), the inverter powers AC loads by using energy stored in the connected battery. You can configure the power parameters on demand. For details, see “**Chapter 5.4. Choose a Working Mode**” and “**Chapter 6.3.1. SYS SETTING**”.

In off-grid mode, when the battery SOC is insufficient to support the loads, the inverter shuts down the LOAD2 port first. Therefore, it is recommended that you should connect critial loads to LOAD1 and non-critical loads to LOAD2.

Recommended Accessories

AC Load Center	Bare Wire	Grounding Cable (7 AWG)	Cold-Pressed Terminal
	5000W Inverter: 12AWG 8000W Inverter: 10AWG 		

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

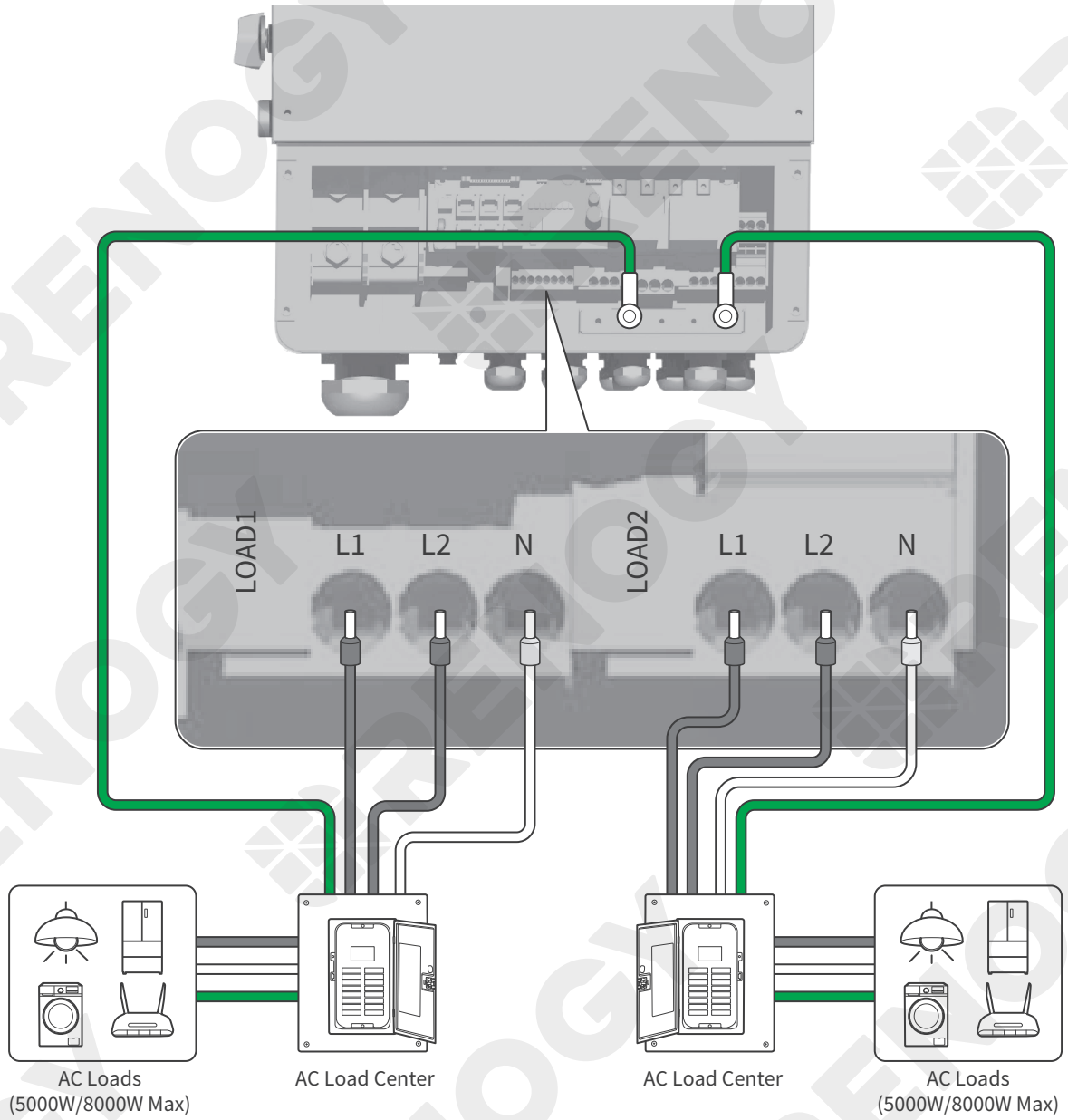
Read the user manual of the AC load center carefully before the installation.

Select proper Cold-Pressed Terminals in accordance with the sizes of the Bare Wires.

The recommended accessories listed above apply to connecting the inverter to either LOAD1 or LOAD2. For scenarios involving both LOAD1 and LOAD2, double the number of the accessories.

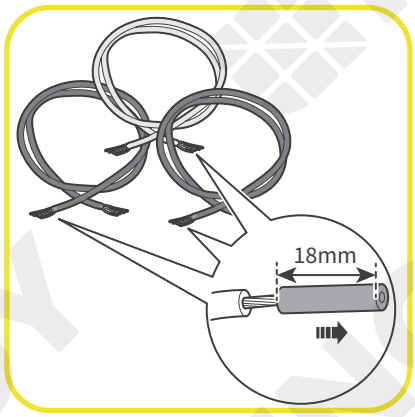
The grommet of either LOAD1 or LOAD2 has an inner diameter of 0.75 inches (19 mm). Properly select the sizes of the Bare Wires and Grounding Cable to ensure they can run through the grommets.

Wiring Diagram

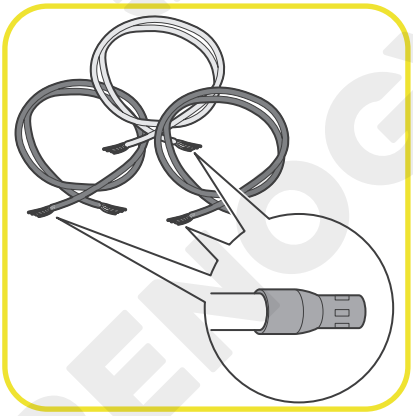


Either LOAD1 or LOAD2 can output a maximum of 5000W or 8000W power. For scenarios involving both LOAD1 and LOAD2, the total output power of LOAD1 and LOAD2 stands at up to 5000W (for RENOGY X 48 V 5000W Hybrid Inverter) or 8000W (for RENOGY X 48 V 8000W Hybrid Inverter).

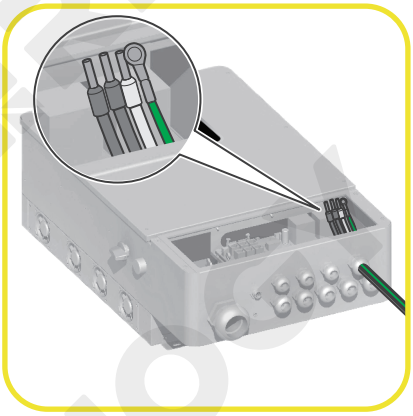
Connecting the inverter to loads rating more than 5000W or 8000W results in an overload warning.



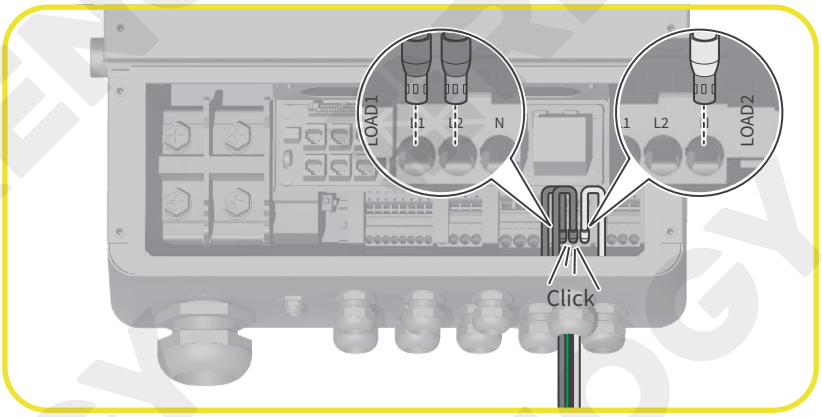
1. The illustrations in this section are based on connecting the loads to the LOAD1 port of the inverter. The same rules apply to LOAD2. Strip the insulation (18 mm) from the Bare Wires with a wire stripper.



2. Insert the bare ends of the Bare Wires into the Cold-Pressed Terminals, and use Cold-Pressed Terminal Crimping Pliers to crimp the ends into the terminals.

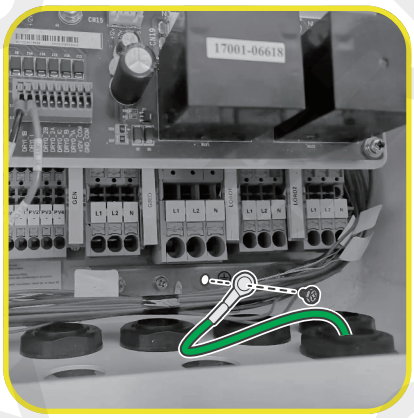


3. Run the three Bare Wires (with the ends with Cold-Pressed Terminals) and the Grounding Cable (with the ring terminal) through the grommet of the LOAD1 Port.

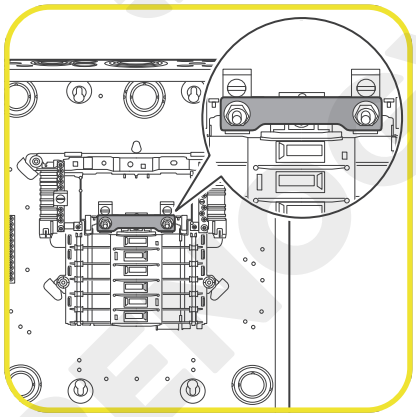


4. Plug two Cold-Pressed Terminals of the Bare Wires to the LOAD1 L1 and L2 ports of the inverter. Insert the rest Cold-Pressed Terminal of the Bare Wire to the LOAD1 N port of the inverter.
When you hear a “click” sound, the Bare Wire is firmly installed on the inverter.

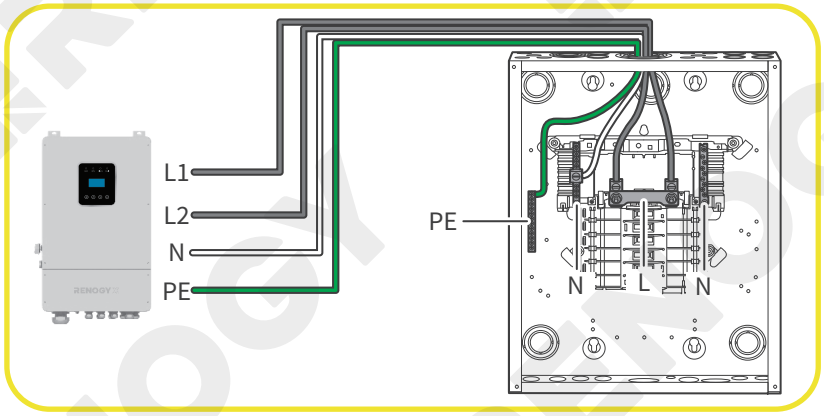
To remove the Bare Wire from the inverter, refer to **Step 3 in 4.5. Connect the Inverter to a Solar Panel (Optional)**.



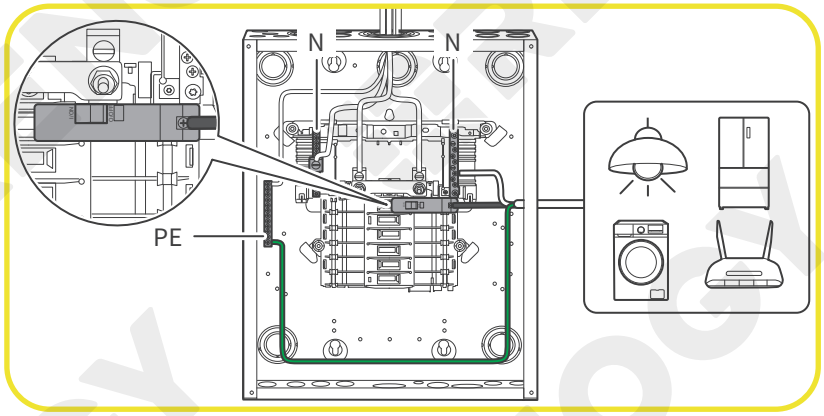
5. Remove one of the grounding screws from the inverter, and connect the Grounding Cable Ring Terminal to the grounding port of the inverter with the removed screw by using the Phillips Screwdriver (#2).



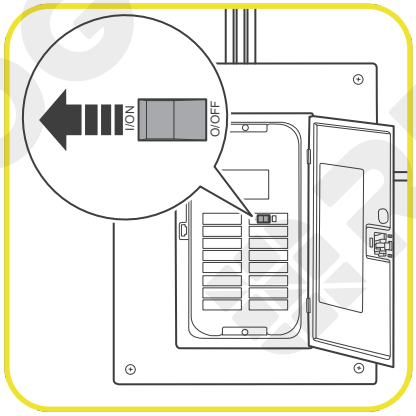
6. Remove the front cover of the AC load center and connect the two live wire busbars with a copper strip.



7. Connect the AC Output cable of the inverter to the distribution box. The live wire is connected to the (L) terminal. The neutral wire is connected to the (N) busbar. And the ground wire is connected to the (PE) busbar.



8. Select an appropriate circuit breaker according to the operating load current, and connect the load to the AC load center. Connect the live wire to the (L) terminal hole, the neutral wire to the (N) terminal, and the ground wire to the (PE) busbar.



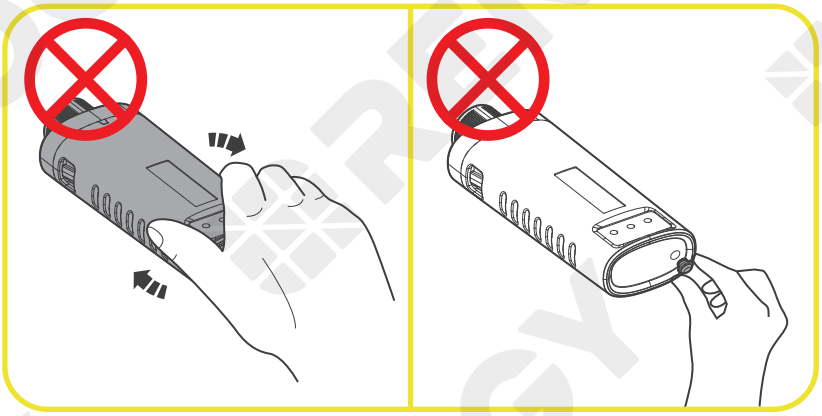
9. Install the front cover of the AC load center and turn on all the circuit breakers in the AC load center.

4.10. Wi-Fi Connection

1. Remove the dust cover from the COM port.

2. Plug the Wi-Fi Logger to the COM Port.

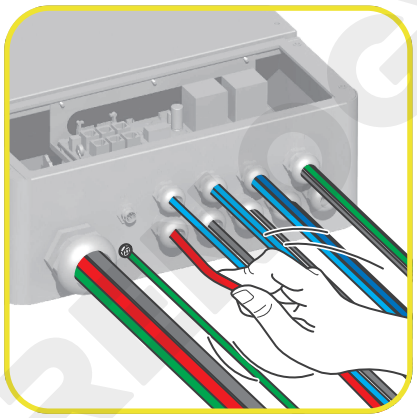
3. Turn the nut of the Wi-Fi Logger clockwise to fasten the logger to the inverter. Power on the inverter, and start the Renogy X Home app. Follow the instructions in the app to connect the inverter to the Wi-Fi Logger. This enables you to monitor the inverter and configure its parameters remotely.



4. Do not rotate the logger body while installing or removing the logger to/ from the inverter.
   Do not remove the waterproof plug.

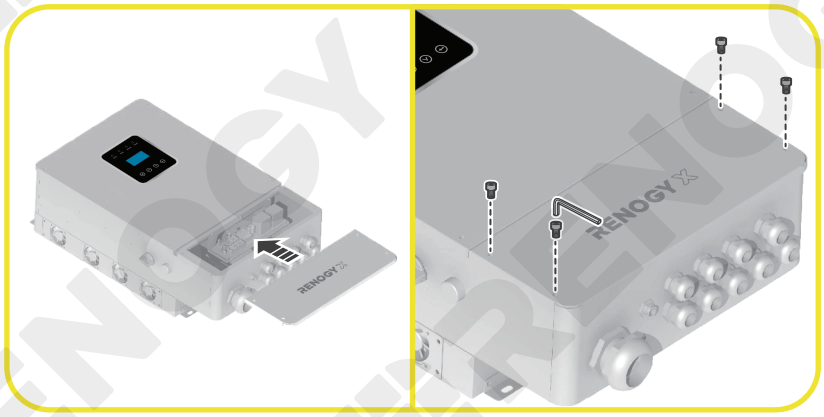
The Wi-Fi Logger only connects to the 2.4GHz Wi-Fi network.

4.11. Check All Wires



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

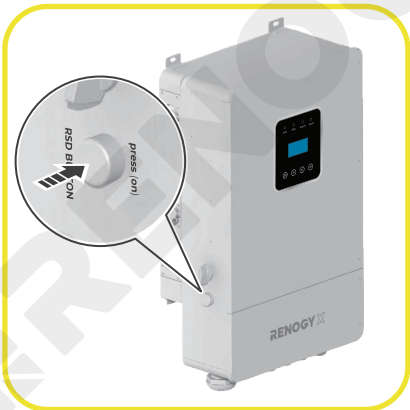
4.12. Install the Dust-proof Cover



Install the Dust-proof Cover on the inverter by using an Inner Hexagon Spanner (M5).

5. Power On/Off and Configuration

5.1. Power On



After completing all connections, power on the battery and press the RSD Button on the inverter to turn it on. The LCD lights up simultanesously.

Prior to configuring the inverter, ensure all power supplies except the battery are OFF.

The inverter cannot be powered on when the battery voltage is lower than 40V.

Prior to powering on the inverter, ensure all connected loads are OFF to prevent low voltage warnings from the battery.

5.2. LCD and LEDs

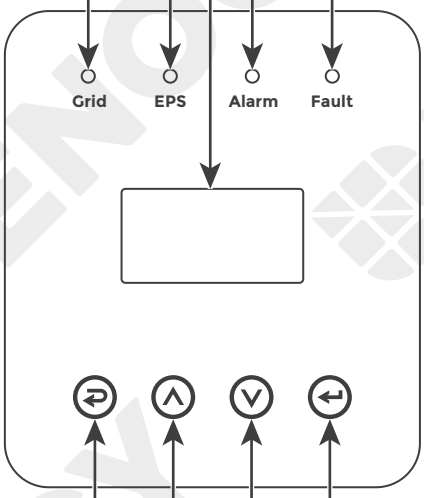
LCD
Displays the operating information of the inverter.

EPS
On (green): Off-grid mode enabled.
Off: Off-grid mode disabled.

Grid
On (green): Grid mode enabled.
Off: Grid mode disabled.

Alarm
On (yellow): The inverter contains warnings.
Off: The inverter runs normally with no warnings

Fault
On (red): A fault is detected in the inverter.
Off: The inverter runs normally with no faults.



Esc
Return to the previous page.

Up
Move the cursor upside or increase a parameter value.

Enter
Confirm.

Down
Move the cursor downside or decrease a parameter value.

For details about parameters on the LCD Screen, see "6.1. General Parameters".

Wi-Fi Logger LEDs

You can check the operating status of the Wi-Fi logger through the embedded LEDs. Note that all LEDs are green lights.

LED	Implication	Status Description
○ NET	Indicates the communication between the logger and the router	• Off: The logger fails to communicate with the router. • Slow flash (on for 1s/Off for 1s): Communication with the router succeeded. • Solid on: Connection to the server succeeded. • Fast flash (on for 100 ms/off for 100 ms): Fast network distribution.
○ COM	Indicates the communication between the logger with inverter	• Solid on: The logger communicates normally with the inverter. • Off: The logger fails to communicate with the inverter. • Slow flash (on for 1s/off for 1s): The logger is communicating with inverter.
○ READY	Indicates the operating status of the logger.	• Off: The logger is operating abnormally. • Slow flash (on for 1s/off for 1s): The logger is operating normally. • Fast flash (on for 100 ms/off for 100 ms): The logger is being restored to factory settings.

If the LEDs are abnormal after the Wi-Fi logger runs stably for two minutes, check the table below for troubleshooting.

Alternatively, visit renogyx.com for technical support.

○ NET	○ COM	○ READY	Fault Description	Fault Cause	Solution
Any state	Off	Slow flash	The logger fails to communicate with the inverter.	1. The logger is not secured to the inverter. 2. The communication rate of the inverter does not match that of the logger.	1. Check the connection between the logger and the inverter. Remove the logger and re-install it to the inverter. 2. Check if the communication rate of the inverter matches that of the logger. 3. Long press the Reset button under the dust-proof plug on the logger for 5s to reboot it.
Off	On	Slow flash	The logger fails to connect to the router.	1. The logger encounters a network failure. 2. The Wi-Fi signal strength of the router is weak.	1. Check if the wireless network of the logger is properly configured. 2. Enhance the Wi-Fi signal strength of the router.
Slow flash	On	Slow flash	The logger fails to communicate with the router or the server.	1. The router network is abnormal. 2. The server address of the logger has been modified. 3. The logger cannot connect to the server due to network limitation of the server.	1. Check if network access of the router is normal. 2. Check the network access limitations of the router. 3. Contact renogyx.com for technical support.

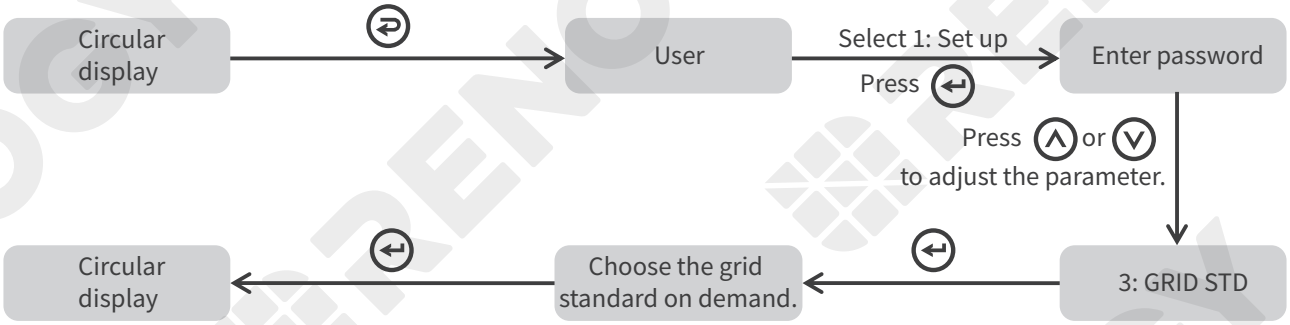
○ NET	○ COM	○ READY	Fault Description	Fault Cause	Solution
Off	Off	Off	The power supply of the logger is abnormal.	1. Connection between the logger and the inverter is loosen or abnormal. 2. The inverter output power is insufficient. 3. The logger runs abnormally.	1. Check the connection between the logger and the inverter. Remove the logger and re-install it to the inverter. 2. Check the inverter output power. 3. Contact renogyx.com for technical support.
Fast flash	Any state	Any state	The logger is distributing the network.	Normal	1. This status lasts for only 2 minutes. 2. Long press the Reset button on the logger for 5s to reboot it. 3. Long press the Reset button on the logger for 10s to restore it to factory settings.
Any state	Any state	Fast flash	The logger is being restored to factory settings	Normal	1. This status lasts for only 1 minute. 2. Long press the Reset button on the logger for 5s to reboot it. 3. Long press the Reset button on the logger for 10s to restore it again to factory settings.

5.3. Configure Grid, Solar Panel, and Battery Parameters

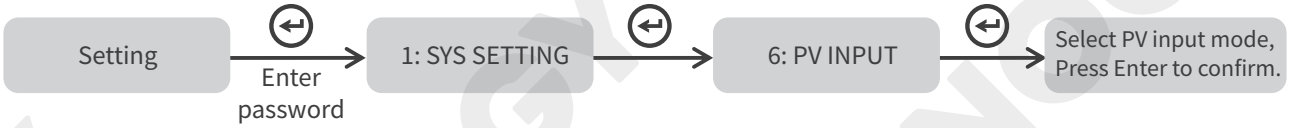
Follow the steps below to configure parameters for the connected grid, solar panel, and battery.

The default password for the inverter is 00000.

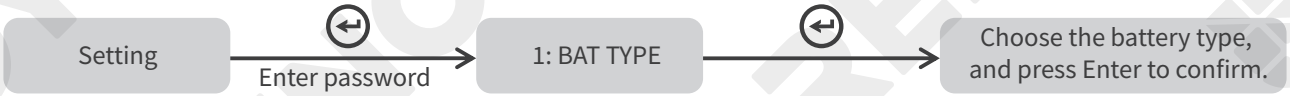
Grid Parameters



PV input mode



Battery parameters



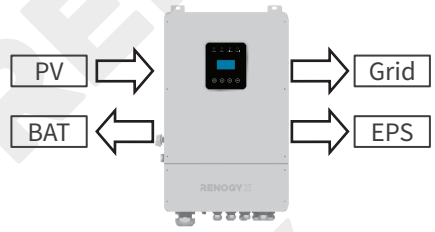
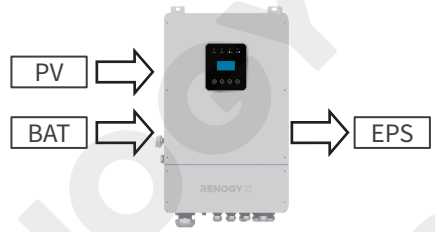
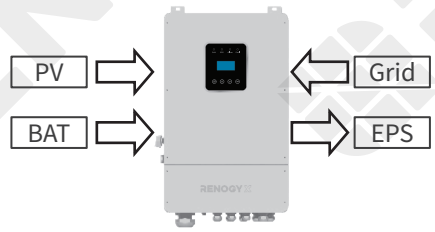
5.4. Choose a Working Mode

The inverter supports three in-built working modes: SELFCONSUME, PEAK SHIFT, and BAT PRIORITY. You can choose one on demand. Alternatively, you can customize your mode by referring to "**5.5. Advanced Mode Settings**".

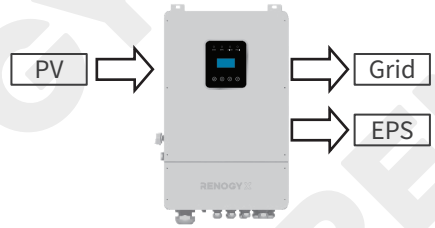
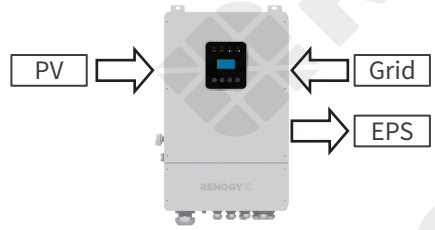
If the Anti-Reflux function is enabled, the inverter will not feed power to grid.

5.4.1. SELFCONSUME

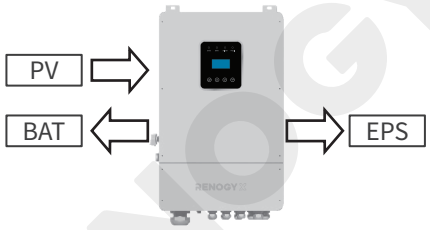
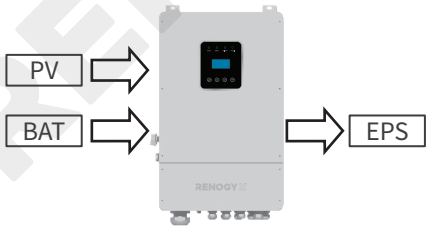
When the inverter is connected to a solar panel, the grid, and a battery

	The connected loads are powered by the solar panel. If the solar power is sufficient to supply all the connected loads, the surplus power goes to the battery first and then is fed to the grid.
	The connected loads are first powered by the solar panel and then by both the solar panel and battery when the solar power is insufficient to supply all the connected loads.
	The connected loads are first powered by the solar panel and then by both solar panel and battery when the solar power is insufficient to supply all the connected loads. If the power from solar panel and battery is insufficient, the connected loads are powered by both the grid and solar panel simultaneously.

When the inverter is connected to a solar panel and the grid

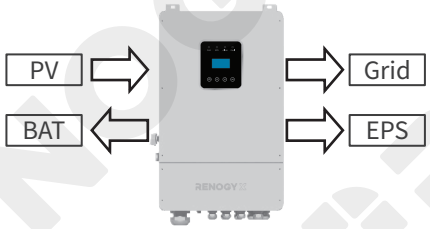
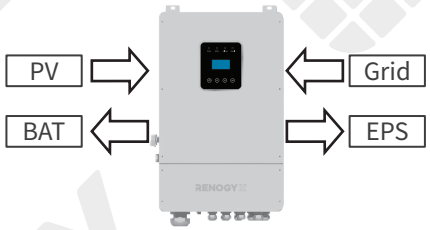
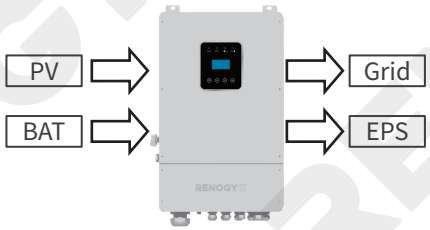
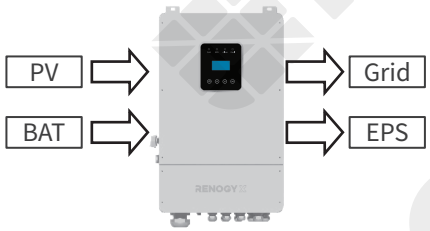
	The connected loads are powered by the solar panel. If the solar power is sufficient to supply all the connected load, the surplus power feeds to the grid.
	The connected loads are first powered by the solar panel and then by both solar panel and the grid when the solar power is insufficient to supply all the connected loads.

When the inverter is connected to a solar panel and a battery

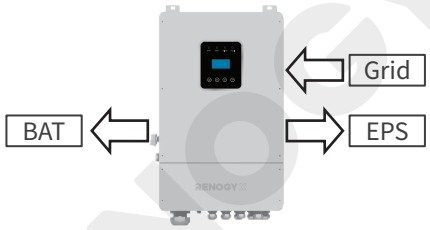
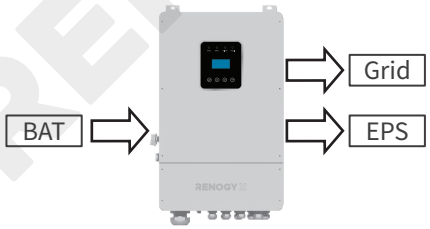
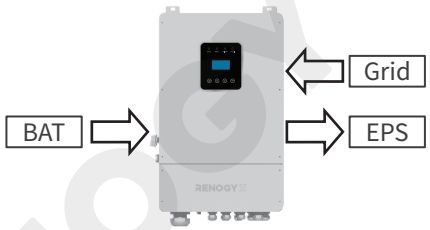
	The connected loads are powered by the solar panel. If the solar power is sufficient to supply all the connected load, the surplus power is used to charge the battery.
	The connected loads are first powered by the solar panel and then by both the solar panel and battery when the solar power is insufficient to supply all the connected loads.

5.4.2. PEAK SHIFT

When the inverter is connected to a solar panel, the grid, and a battery

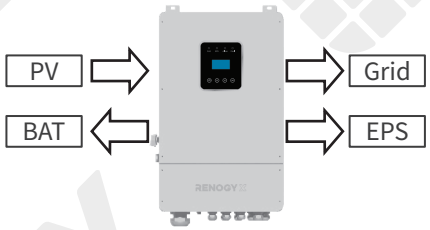
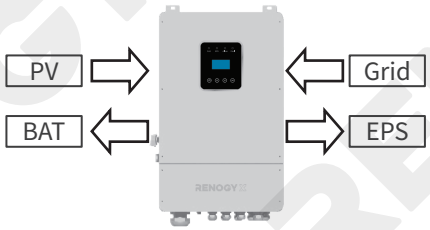
	In charge mode, the battery is first charged by the solar panel. The surplus solar power supplies the connected loads. If the solar energy is sufficient to supply loads and charge battery, the surplus power is fed to the grid.
	In charge mode, the battery is first charged by the solar panel. The surplus solar power supplies the connected loads. If solar energy is insufficient to charge battery and supply loads, the connected loads are powered by both the solar panel and the grid simultaneously.
	In battery discharge mode, the connected loads are powered by the solar panel. If the solar energy is sufficient to supply the connected loads, the surplus power is fed to the grid. At the same time, the battery power is fed to the grid.
	In the period involving no charge or discharge, the solar power supplies loads first and then is fed to the grid if there is surplus solar power.

When the inverter is connected to the grid and a battery

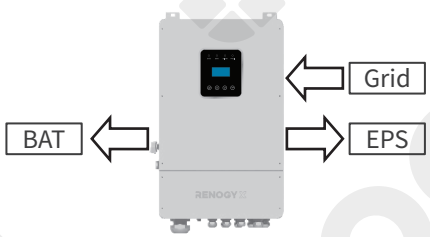
	In charge mode, both the connected loads and the battery are supplied by the grid.
	In discharge mode, the connected loads are powered by the battery when the rated power of the loads is less than the battery power. The surplus battery power is fed to the grid.
	In discharge mode, the connected loads are powered by both the battery and the grid when the rated power of the loads is higher than the battery power.

5.4.3. BAT Priority

When the inverter is connected to a solar panel, the grid, and a battery

	The battery is powered by the solar panel. If the solar power is sufficient to supply the battery, the surplus power is used to supply the connected loads. If there are still extra solar power, the power is fed to the grid.
	The battery is powered by the solar panel. If the solar power is sufficient to supply the battery, the surplus power is used to supply the connected loads. If the solar energy is insufficient to both charge battery and supply loads, the connected loads are powered by the grid.

When the inverter is connected to the grid and a battery

	The grid power is used to supply loads and charge the battery simultaneously.

5.5. Advanced Mode Settings

The hybrid inverter can be programmed to control how and when to use grid power. The advanced mode allows management of flexible loads and time-of-use billing.

There are three advanced modes available: Sell First Mode, Limit Grid Mode and Zero Export Mode.

- **Sell First Mode**

In this mode, the AntiReflux setting is automatically disabled. The users can use this mode to feed surplus solar power back to the grid. If TOU Set (time-of-use) is enabled, the battery power can also be feed to the grid.

- **Limit Grid Mode**

In this mode, the CT limiters are used to sense the grid power flow direction. You can choose to set the hybrid inverter to feed power to the grid on demand by using the CT Limit Power parameter. In this mode, both the battery and the grid are used to supply the connected loads. Similar rules apply to the SELF CONSUME working mode.

- **Zero Export Mode**

In this mode, the CT limiters should be installed in the input of the inverter's grid port. The hybrid inverter will not feed power back to the grid. You can use Zero Export Mode to ensure the inverter will not feed power to the grid.

You can define the advanced parameters of these modes: Grid Chg En (Global Grid Charge Enable), PVChgOnly (Pv Charge only), BAT Prio (Bat Charge On Priority), Time-of-use Enable and 6 Time-of-use Slots. The time slots parameters are shown in as below:

Time Slot	Grid Charge	Start Time	End Time	End Time	Bat SOC
Time Slot1	Yes	1h	8h	8000W	50%
Time Slot2	-	8h	9h	8000W	100%
Time Slot3	Yes	9h	13h	8000W	100%
Time Slot4	-	13h	19h	8000W	15%
Time Slot5	Yes	19h	20h	8000W	100%
Time Slot6	Yes	20h	1h	8000W	100%

Grid Chg En: It is a high-level control parameter of grid charge. If the time-of-use function is disabled, this parameter is used to judge whether to charge the battery by the grid. If the time-of-use function is enabled, the battery can be charged by the grid only when the time slot grid charge parameter is enabled.

PVChgOnly: If you do not want to use the grid to charge the battery in any time, please enable this parameter.

BAT Prio: This parameter can be used to adjust the power distribution priority in emergencies. If this parameter is disabled, the solar power will be first used to cover the connected loads by default.

SLOT: In total, six slots can be programmed. If grid charge/generator charge is enabled, the grid is used to power the loads and charge the battery to the target SOC at specific battery power parameter value.

The Advanced Mode Settings page can be accessed through the following steps on the LCD screen: **USER > 1. SETUP > PASSORD CHECK > 16. ADVAN SET**.

- **Advanced Settings**

Interface	Description
ADVAN SET → 1. Mode Set 2. Advan Ctrl 3. TOU Set 4. CT Limit 5. Grid Power	This interface displays advanced mode settings for the inverter. 1. Inverter working mode. 2. Inverter related function control. See **Advan Ctrl** for details. 3. Time of use setting. See **Time of use** for details. 4. The CT will detect power flowing back to the grid and limit the grid output according to the set value. 5. Maximum power entering the household grid.

- **Working Mode**

Interface	Description
MODE SET → 1. Disable 2. Sell First 3. Limit Grid 4. Zero Export	Sets the working mode of the inverter.

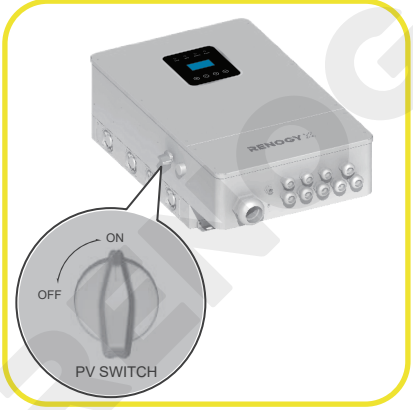
- **Advan Ctrl**

Interface	Description
ADVAN CONTROL → 1. Grid Chg En 2. TOU En 3. BAT Prio 4. PVChgOnly	1. Global control. Indicates whether the grid can charge the battery. 2. Enable/Disable TIME OF USE. 3. Solar energy is firstly used to charge the battery and then used to power the loads. If solar power is insufficient, the grid will make supplement for the battery and loads simultaneously. 4. The battery is charged only by solar panels, and cannot be charged by the grid.

- **Time of use**

Interface	Description
SLOT → 1. Slot 2. GridChg 3. GeneratorChg Start: 00:00 End: 00:00 Power: 00.0KW SOC: 0%	1. From the start time to the end time, charge the battery with the input power to the preset SOC. If GridChg is enabled, the grid is allowed to charge the battery. If GeneratorChg is enabled, the connected generator is allowed to generate power for the battery. 2. In the slot section, GridChg sets whether the grid can be used to charge the battery. 3. In the slot section, GeneratorChg set whether the generator can be used to charge the battery.

5.6. Operation



After the inverter is set up, remove the shading from the solar panels and turn the inverter PV Switch to the ON position. Power on the grid or the generator, and the inverter starts to work.

Please do not operate the inverter while it is in operation. If you need to operate it, please turn off all power supplies and wait for 5 minutes, because the high voltage inside the inverter will last for 5 minutes even after the inverter is powered off.

CAUTION-RISK of electric shock from energy stored in Capacitor! Never operate on the inverter couplers, the MAINS cables, Battery cables, PV cables or the PV generator when power is applied. After switching off the PV, battery, and the grid, always wait for five minutes to let the intermediate circuit capacitors discharge before unplugging DC, battery in plug and the grid couplers.

The inverter will generate heat when it is working, so please do not touch other parts other than the LCD to prevent burns.

The inverter will produce radiation when it is working, so please keep a distance of more than 20 cm from the inverter.

5.7. Rapid Shutdown (RSD)

The inverter has a Rapid Shutdown (RSD) function. In the event of a power failure, the RSD button automatically pops up to disconnect the input from all solar panels. This helps prevent high voltage in the system circuit, reducing the risk of electric shock and improving safety.

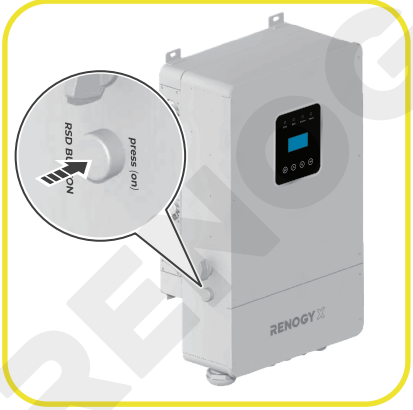
The RSD feature protects firefighters attempting to extinguish a fire. In grid-tied solar systems, the voltage can be as high as 600V to 1000V. In the event of a solar-related fire, the cables from the solar panels to the inverter still carry high voltage, even if the inverter is automatically shut down per UL1741 and the grid is manually disconnected.

The RSD function allows firefighters to disconnect the DC power from the solar panels to the inverter in the fastest and safest way to protect the personal safety of firefighters.

Press down the RSD Button to disconnect the solar panels from the inverter, and the inverter automatically shuts down.

For troubleshooting, visit renogyx.com.

5.8. Power Off



1. Turn off all connected loads. Press the RSD Button when the inverter is on, and the RSD Button will pop up. The inverter will automatically shut down.

2. Set the PV Switch to OFF and power off all the connected supplies.

When accessing the internal circuit of inverter, it is very important to wait 5 minutes before operating the power circuit or demounting the electrolyte capacitors inside the device. Do not open the device beforehand since the capacitors require time sufficiently discharge!

6. Parameter Configuration

6.1. Check General Parameters

You can press ⓐ or ⓥ on the LCD Screen to configure the general parameters for your system.

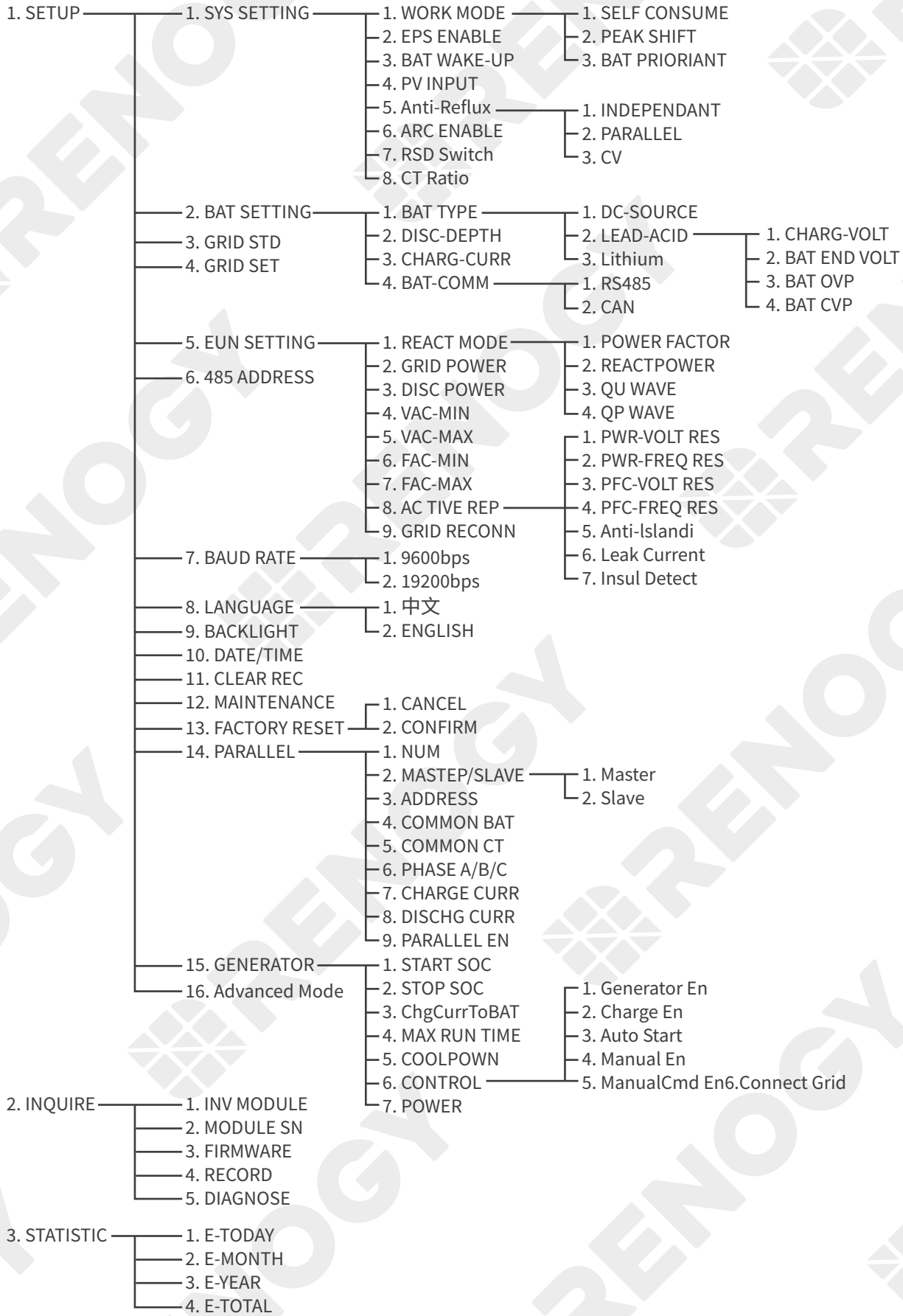
Parameter	Interface	Description
Error information	ERROR NO. 02: BatDisconnect 27: BMS Comm.fail	This interfaces displays error code and relative error information. When there is a lock mark in the upper right-corner of the screen, you need to press ↵ to unlock it first.
System setting1	SYSTEM1 STATE: SELF CSM GRID STD: UK PV I/P: PARALL	• STATE: Displays the working mode of the inverter. Options: SELF CONSUME, PEAK SHIFT, and BAT PRIORITY. • GRID STD: Displays the grid standard. • PV I/P: Indicates the PV input type. Options: INDEPENDANT, PARALLEL, and CV.
System setting2	SYSTEM2 BMS Com: CAN AntiReflux: DISA DOD: 80%	• BMS Com: Battery Management System communication mode. Options: CAN/RS485. • AntiReflux: Displays whether the inverter is allowed to feed electricity to the grid. Options: DISABLE/ENABLE. • DISA DOD: Depth of discharge (DoD) of the battery.
System setting3	SYSTEM3 EPS ENABLE: ENAB	• EPS ENABLE: Indicates whether the battery can supply power to the connected loads when grid and PV are powered off. • Default: ENAB (enable)
PV1 Input display interface	PV1 INPUT VOLT: 0.0V CURR: 0.00A POWER: 0W	Real-time voltage, current, and power of PV1 input.
PV2 Input display interface	PV2 INPUT VOLT: 0.0V CURR: 0.00A POWER: 0W	Real-time voltage, current, and power of PV2 input
PV3 Input display interface	PV3 INPUT VOLT: 0.0V CURR: 0.00A POWER: 0W	Real-time voltage, current, and power of PV3 input
PV4 Input display interface	PV4 INPUT VOLT: 0.0V CURR: 0.00A POWER: 0W	Real-time voltage, current, and power of PV4 input

Parameter	Interface	Description
DC Voltage	DC VOLTAGE VpBUS: 235.0V VnBUS: 235.0V LearkCur: 0mA	• VpBUS: Real-time voltage of bus capacitor of the inverter. • VnBUS: Real-time voltage of bus capacitor of the inverter. • LeakCurr: Real-time leak current of the inverter.
Battery	BATTERY VOLT: 0.0V CURR: 0.0 A	Displays the real-time voltage and current of the battery. • STA: Battery status. • C: Indicates that the battery is rechargeable (from the BMS). • D: Indicates that the battery can discharge (from the BMS). • F: The battery requests a forcible charge (from the BMS).
Battery current	BATTERY INFO TYPE: Lithum TEMP: 26°C SOC: 30%	• TYPE: Battery type (currently lithium battery only). • TEMP: Battery temperature. • SOC: Percentage of surplus battery capacity from the BMS.
Battery current	LI BAT 1000AH CHARG-V: 55.00V BAT END-V: 43.0V BAT OVP: 58.0V	• CHAR VOL: Battery charge or discharge voltage. • CHARGE: Battery charge current. • DISCHA: Battery discharge current.
Grid-connected	GRID: 0.00Hz L1: 0.0V 0.00A L2: 0.0V 0.00A	• GRID FREQ: Grid real-time frequency. • L1: Gird-L1 real-time voltage and current. • L2: Gird-L1 real-time voltage and current. • CT: Current sensor accessories.
INV (not for end user)	INV: 0.00Hz L1: 0.0V 0.00A L2: 0.0V 0.00A	• INV FREQ: Grid real-time frequency. • L1: INV-L1 real-time voltage and current. • L2: INV-L2 real-time voltage and current.
LOAD	LOAD: L1: 0.0V 0.00A L2: 0.0V 0.00A	• L1: LOAD-L1 real-time voltage and current. • L2: LOAD-L2 real-time voltage and current.
ON GRID POWER	POWER GRID L1: 0W GRID L2: 0W	• GRID L1: Grid -L1 power. • GRID L2: Grid -L2 power.
INV POWER	POWER INV L1: 0W INV L2: 0W	• INV: INV-L1 power. • INV: INV-L2 power.

Parameter	Interface	Description
LOAD POWER PER	LOAD POWER PER L1: 0W 0% L2: 0W 0%	• L1 : Load- L1 power percentage. • L2 : Load- L2 power percentage.
POWER	POWER PV I/P: 0W BAT: 0W	• PV I/P: PV power. • BAT: BAT power.
Temperature	TEMPERATURE INVER: 0°C DCDC: 0°C INSIDE: 0°C	• INVER: Inverter module temperature. • DCDC: DC-DC module temperature. • INSIDE: Internal ambient temperature of the inverter.
State	STATE SYS: STANDBY INV: STANDBY DCDC: STANDBY	System information: Displays status information of the whole system. • INIT: Initialization. • PV GRID: Solar panels generate electricity for the grid. • BAT GRID: Battery discharges to the grid. • BYP: By-pass band load. • AC BAT CHG: The grid charges the battery. • HYBRID POW: Hybrid power supply (Multiple Power Supply). • INV: Displays the inverter status including: STANDBY, OFF GRID, GRID, OFF GRID PL, and INV TO PFC. • GRID: Grid connected state. • OFF GRID PL: Working state of off-grid conversion to grid connection. • INV TO PFC: The inverter is switched from the inverter mode to PFC (power factor correction) mode. • DCDC: Displays charging and discharging status including: STANDBY, CHARGE, and DISCHARGE.

6.2. Custom Settings

In the main interface of the LCD Screen, press ⏎ to enter the custom settings page. You can customize the following parameters.



6.3. USER - SETUP

Interface	Description
USER → 1. SETUP 2. INQUIRE 3. STATISTIC	• SETUP: Press ↵ to display the user settings interface. • INQUIRE: Displays the model, serial number, and software version of the inverter. • STATISTIC: Displays the operating statistics of the inverter.
PASSWORD INPUT: XXXXX	Enter the password required for custom settings. Default : 00000. Press ∧ or ∨ to adjust the number, and press ↵ to move the cursor forward, and press ↩ to move the cursor backward.
SETUP → 1. SYS SETTING 2. BAT SETTING 3. GRID STD 4. GRID SETTING 5. RUN SETTING 6. 485 ADDRESS 7. BAUD RATE 8. LANGUAGE 9. BACKLIGHT 10. DATE/TIME 11. CLEAR REC 12. MAINTENANCE 13. FACTORY RESET 14. PARALLEL 15: GENERATOR	This interface displays various setting parameters. Press ∧ or ∨, and press ↵ to configure the parameter on demand.

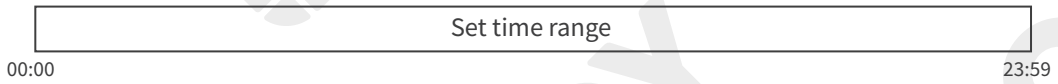
6.3.1. SYS SETTING

Interface	Description
SYS SETTING → 1. WORK MODE 2. EPS ENABLE 3. BAT WAKE-UP 4. PV INPUT 5. Anti Reflux 6. ARC Enable 7. RSD Switch 8. CT Ratio	This interface displays system information. Press ∧ or ∨, and press ↵ to configure the parameter on demand. Press ↩ to return to the system setting interface.

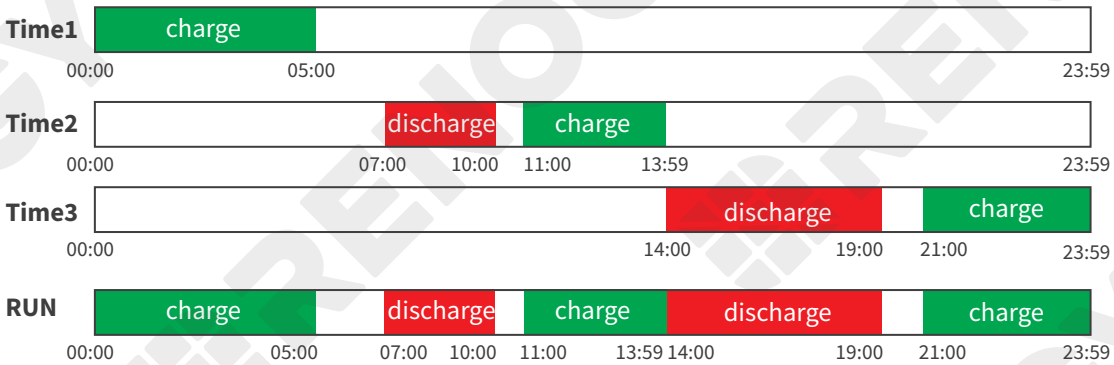
Parameter	Interface	Description
WORK MODE	WORK MODE →1. SELFCONSUME 2. PEAK SHIFT 3. BAT PRIORITY	This interface is used to set the working mode of the inverter.
	WORK MODE 1. SELFCONSUME →2. PEAK SHIFT 3. BAT PRIORITY WORKTIME* →1: TIME 1 2: TIME 2 2: TIME 3 CHR START1 00:00 CHRG END1 00:02 DIS START1 00:03 DISC END1 23:59	PEAK SHIFT is used to adjust the time of peak load shifting of the battery. In PEAK SHIFT mode, you need to set the WORKTIME (charge and discharge time) for the battery. Ensure the inverter is working in the local time. ● CHR START: Starting time point of the charge of the day ● CHARG END: End time point of the charge of the day ● DIS START: Starting time point of the discharge of the day ● DIS END: End time point of the discharge of the day

WORKTIME*

1. The maximum allowable value for TIME1/2/3 is 24h (one day). It is allowed to set six groups of charging and discharging periods for the battery within 24h. The inverter runs repeatedly every day according to the set time.



2. The inverter executes charge and discharge for the battery according to the pre-configured TIME1, TIME2, and TIME3 in the order of time. The following figure is an example. Different time periods do not overlap.



3. If you want to set a continuous charging time from the first night to the next morning. For example, if you want charge the battery from 21:00 p.m. on the first day to 5:00 a.m. on the next day, divide this time period into two time periods (21:00~23:59, 00:00~05:00), and select two charging time periods from TIME1, TIME2, and TIME3.

Parameter	Interface	Description
EPS ENABLE	EPS ENABLE 1. DISABLE →2. ENABLE	When the grid and solar panels are powered off, enable/disable the battery to supply power to the loads. Default: ENABLE.

Parameter	Interface	Description
BAT WAKE-UP	WAKE-UP EN → 1. DISABLE 2. ENABLE	This parameter is used to enable/disable the inverter to send instructions to the battery forcibly sucking relay by BMS and enable the inverter to charge the battery when the battery is low and the battery relay has been disconnected. Default: DISABLE (Partial battery support).
PV INPUT	INPUT MODE → 1. INDEPENDENT 2. PARALLEL 3. CV	Sets the PV Input mode. ● Default factory setting: INDEPENDENT. ● INDEPENDENT: PV power will be imbalanced. ● PARALLEL: Commonly used in testing. Two or four road PVs in parallel. ● CV: (Constant voltage test model) not for customer.
Anti Reverse	Anti Reverse → 1. DISABLE 2. ENABLE	Indicates whether the inverter is allowed to feed power to the grid. Default: DISABLE which means the inverter is allowed to feed power to the grid.
ARC Enable	-ARC- → 1. DISABLE 2. ENABLE	Enables/Disables the ARC detection function.
RSD Button	BUTTON ENABLE → 1. DISABLE 2. ENABLE	● ENABLE: You can power on or off the inverter through the RSD Button. ● DISABLE: The inverter will start automatically regardless of the status of the button.

6.3.2. BAT SETTING

Interface	Description
BAT SETTING → 1. BAT TYPE 2. DISC-DEPTH 3. CHARG-CURR 4. BAT-COMM	This interface is used to set battery parameters.

Parameter	Interface	Description
BAT TYPE	BAT TYPE 1. DC-SOURCE 2. LEAD-ACID → 3. Lithium	This interface allows you to select the battery type. Choosing DC-SOURCE means the inverter is in test mode (not for customers).
	Lithium → 1. CHARG-VOLT 2. BAT END VOLT 3. BAT OVP 4. BAT CAP CHARG VOLT IN PUT: 55.0V UNIT: V BAT END VOLT IN PUT: 045.0 UNIT: V BAT OVP IN PUT: 055.0 UNIT: V BAT CAP IN PUT: 0450 UNIT: AH	This interface is used to configure parameters for the connected lithium battery. ● CHARG-VOLT: charge voltage (range 40–58). ● BAT END VOLT: discharging voltage(range: 40–51) ● BAT OVP: charge protection voltage (range: 50–59.5) The charge protection voltage should be recommended by the battery manufacturer. ● BAT CAP: battery capacity. It is related to the input power (ranging from 50 to 1000). The battery capacity will affect the maximum charge current,
DISC-DEPTH	DISC DEPTH Grid DOD: 080% OFF Grid DOD: 080% Return: 020%	● Grid DOD/OFF Grid DOD: When the battery discharge is higher than the preset value, the inverter generates a battery low-voltage alarm. ● Note: The low-voltage alarm can be cleared if the battery is charged to a value higher than Grid DOD/OFF Grid DOD.
BAT-COMM	BAT-COMM → 1. RS485 2. CAN	Indicates the battery communication protocol. Default: CAN.

6.3.3. Grid Standard (GRID STD)

Interface	Description
GRID STD → 1. AU 2. AU-W 3. NZ 4. UK 5. PE 6. KP 7. PHI 8. CN 9. US-CA 10. THAIL 11. ZA 12. CUSTOM 13. POL 14. EN50549 15. VDE4105 16. JPN	Indicates the grid standard. 1. AU: Australia 2. AU-W: Western Australia 3. NZ: New Zealand 4. UK: United Kingdom 5. PE: Pakistan 6. KR: Korea 7. PHI: Philippines 8. CN: China 9. US-CA: America 10. THAIL: Thailand 11. ZA: South Africa 12. CUSTOM: User defined 13. POL: Poland 14. EN50549 15. VDE4105 16. JPN: Japan

6.3.4. GRID SETTING

Interface	Description
GRID SETTING → 1. 220V single 2. 120/240V 3. 120/208V 4. 120V single	● 220V single: 220V single-phase. ● 120/240V: 120/240V split-phase. ● 120/208V: 120/208V split-phase. ● 120V single: 120V single-phase.

6.3.5. RUN SETTING

Interface	Description
RUN SETTING → 1. REACT MODE 2. GRID POWER 3. DISC POWER 4. VAC-MIN 5. VAC-MAX 6. FAC-MIN 7. FAC-MAX 8. ACTIVEREP 9. GRID RECONN	Indicates the run settings of the inverter. This is a factory default setting, and please consult Renogy for modification.

Parameter	Interface	Description
REACT MODE	REACT MODE →1.POWER FACTOR 2.REACT POWER 3.QU WAVE 4.QP WAVE	• QU WAVE: Voltage-reactive curve. • QP WAVE: Active power-reactive power curve. (These two functions are not available on the screen, and please contact Renogy if you need to use them.)
	POWER FACTOR INPUT: C1.00	POWER FACTOR: The input value should range between L0.80 and L0.99 or C0.8 and C1.00.
	REACT POWER INPUT: +00%	REACT Power: The input xxxx.
GRID POWER	GRID PERCENT INPUT: 100%	Grid power percentage.
DISC POWER	DISC PERCENT INPUT: 100%	Percentage of battery discharge.
	CHAG PERCENT INPUT: 100%	Percentage of battery charge.
	PV PERCENT INPUT: 100%	Percentage of solar panel power.
VAC-MIN	GRID VOLT LOW INPUT: 176 UNIT: V	The input value of grid low voltage. It is available when grid mode is set to “custom”.
VAC-MAX	GRID VOLT HIGH INPUT: 270 UNIT: V	Grid high voltage. It is available when grid mode is set to “custom”.
FAC-MIN	GRID FREQ LOW INPUT: 42.0 UNIT: Hz	Grid low frequency. It is available when grid mode is set to “custom”.
FAC-MAX	GRID FREQ HIGH INPUT: 58.0 UNIT: Hz	Grid high frequency. It is available when grid mode is set to “custom”.
ACTIVEREP	ACTIVE Type 1. PWR-VOLT RES 2. PWR-FREQ RES 3. PFC-VOLT RES 4. PFC-FREQ RES 5. Anti-Islandi 6. Leak Current 7. Insul detect	This interface is used to set the active reference. Options include ENABLE and DISABLE. Default: ENABLE.

6.3.6. 485 ADDRESS

Interface	Description
485 ADDRESS INPUT: 1	Indicates the RS-485 address.

6.3.7. BAUD RATE

Interface	Description
SELECT →1. 9600 bps 2. 19200 bps	Indicates the RS-485 baud rate.

6.3.8. LANGUAGE

Interface	Description
LANGUAGE 1. 中文 →2. English	Indicates the language of the inverter.

6.3.9. BACKLIGHT

Interface	Description
LIGHT TIME INPUT: 20 UNIT: SEC	This parameter is used to set the light time of the LCD.

6.3.10. DATE/TIME

Interface	Description
DATE/TIME DATE: 2021-12-25 TIME: 22:30:00 WEEK: Saturday	This parameter is used to set date and time.

6.3.11. CLEAR REC

Interface	Description
DEL REC →1. CANCEL 2. CONFIRM	This parameter is used to clear operation history.

6.3.12. MAINTENANCE

Interface	Description
PASSWORD INPUT: XXXXX	This parameter is used to enter maintenance password.

6.3.13. FACTORY RESET

Interface	Description
FACTORY RESET →1. CANCEL 2. CONFIRM	This parameter is used to reset the inverter to factory settings.

6.3.14. PARALLEL

Contact Renogy for details about the parallel function.

Interface	Description
PARALLEL 1. NUM →2. MASTEP/SLAVE 3. ADDRESS 4. COMMON BAT 5. COMMON CT 6. PHASE A/B/C 7. CHARGE CURR 8. DISCHG CURR 9. PARALLEL EN	This parameter is used to set parameters of the inverters connected in parallel.

Parameter	Interface	Description
NUM	PARALLEL NUM INPUT: 2	This parameter is used to set the number of parallel inverters.
Master/Slave	Master/Slave →1. Master 2. Slave	This parameter is used to set the inverter as the master or slave.
ADDRESS	Parallel Addr INPUT: 1	This parameter is used to select the parallel address. The host address is set to 1 by default. When there is a slave, and the slave is set to 2; if there are two slaves, the slaves are set to 2 and 3 respectively; the address settings of each inverter cannot be the same.
COMMON BAT	COMMON BAT →1. DISABLE 2. ENABLE	Enables or disables battery sharing.
COMMON CT	COMMONM CT →1. DISABLE 2. ENABLE	Enables or disables CT sharing.
PHASE A/B/C	Phase A/B/C →1.A 2.B 3.C	This parameter is used to select the output phase of the device when three phases are used. (Reserved function).

Parameter	Interface	Description
CHARGE CURR	Charge Curr INPUT: 0100 UNIT: A	This parameter is used to select the parallel charge current.
DISCHG CURR	Discharge Curr INPUT: 0100 UNIT: A	This parameter is used to select the parallel discharge current.
PARALLEL EN	Parallel EN →1. DISABLE 2. ENABLE	Enables or disables the parallel function.

6.3.15. GENERATOR

Interface	Description
GENERATOR →1. START SOC 2. STOP SOC 3. ChgCurrToBAT 4. MAX RUN TIME 5. COOLDOWN 6. CONTROL 7. POWER	This parameter is used to select running parameters of the connected generator.

Parameter	Interface	Description
START SOC	STRART SOC INPUT: 020%	This parameter is used to set the minimum battery capacity when starting the generator.
STOP SOC	STOP SOC INPUT: 020%	This parameter is used to set the maximum battery capacity when the generator is turned off.
ChgCurrToBAT	Chg Curr to BAT INPUT: 030 UNIT: A	This parameter is used to set the battery charge current when the generator is used.
MAX RUN TIME	MAX RUN TIME INPUT: 10.0 UNIT: hours	This parameter is used to set the maximum running time of the generator.
COOLDOWN	COOL DOWN TIME INPUT: 02.0 UNIT: hours	This parameter is used to set the cooling time.

Parameter	Interface	Description
CONTROL	GEN CONTROL →1.Generator En 2.Charge En 3.AutoCtrl En 4.Manual En 5.ManualCmd En 6.Connect Grid	Tis interface shows the control parameters of the generator. 1. Enable/Disable the generator function. 2. Enable/Disable the charge function of the generator. 3. Enable/Disable the generator to be automatically controlled to start and stop through the dry contact. 4. Enable/Disable manual power on/off the Generator. The value of AutoCtrl should be the opposite to that of Manual. 5. The on/off command in manual control mode. 6. Connect the generator to the grid input port.
POWER	POWER INPUT: 08.0 UNIT: KW	This parameter is used to set the generator power.

6.4. USER - INQUIRE

Interface	Description
INQUIRE →1. INV MODULE 2. MODULE SN 3. FIRMWARE 4. RECORD 5. DIAGNOSE	This interface allows you to inquire information of the inverter.

Parameter	Interface	Description
INV MODULE	MODEL 8K	This interface shows the inverter model.
MODULE SN	S / N GUID: XXXXXXXX XXXXXXXXXXXXX SN:FXXXXXXXXXX	This interface shows the inverter SN.
FIRMWARE	FIRMWARE ARM: V1.XX.XX DSP: V1.XX.XX	This interface shows the software version of the inverter.
RECORD	REC(01) 02: Batdisconnect UP: 12-25 23:00 DOWN:	This interface shows the running recodes of the inverter.
DIAGNOSE	DIAGNOSE 000000 000000 000000 000000 000000 000000	Settings for factory testing

6.5. USER - STATISTIC

Interface	Description
STAT. → 1. E-TODAY 2. E-MONTH 3. E-YEAR 4. E-TOTAL	This interface shows the operating statistics of the inverter. 1. Displays power statistic for the day (KWH). 2. Displays power statistic for the month (KWH). 3. Displays power statistic for the year (KWH). 4. Displays power statistic of the inverter (KWH). E-TODAY/MONTH/YEAR/TOTAL > INPUT > PV/GRID (Consume)/BATD (Batteryd ischarge) > OUTPUT > BatC(Battery charge)/GRID (Generation)/CNSUM (Load consume). If the inverter shuts down before 24:00 on that day, and the day statistic will not be stored.

7. Troubleshooting

When an error occurs in the inverter, refer to the error code on the LCD and find a solution from the table below.

For more information about troubleshooting, see https://www.renogyx.com.

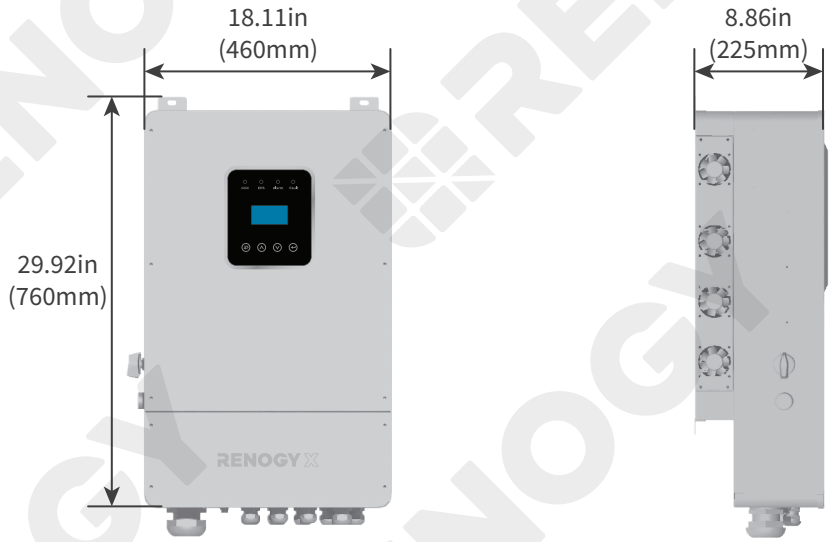
Error	Code	Explaination	Solutions
Dischg Over Cur	00	Battery discharge overcurrent. When the battery is loaded, the load power excesses what the battery can provide.	1. Wait for one minute for the inverter to restart. 2. Check whether the load power is within the power provided by the battery. 3. Cut off all the supplies and shut down the inverter. 4. Disconnect all loads from the inverter, reconnect them to the inverter, and restart the inverter.
Overload	01	The load power is greater than power provided by solar panels and/or the battery.	1. Check whether the load power is no greater than the maximum power of the inverter. 2. Cut off all the supplies and shut down the inverter. 3. Disconnect all loads from the inverter, reconnect them to the inverter, and restart the inverter. 4. Check whether the load is short circuited if the fault has been eliminated. 5. Contact renogyx.com if the error warning continues.
Bat Disconnect	02	The battery is disconnected from the inverter (battery voltage not identified).	1. Check whether the battery is correctly connected to the inverter. 2. Check if the battery wiring port is open circuited. 3. Contact renogyx.com if the error warning continues.
Bat Under Vol	03	The battery voltage is lower than the normal value.	1. Check System Settings on the LCD to find out whether the battery type and relevant parameters are correctly configured in accordance with the specifications of the battery. 2. Check whether the grid is down. The grid will automatically recharge the battery when the grid is on. 3. Contact renogyx.com if the error warning continues.
Bat Low Capacity	04	Battery low capacity	The battery capacity (SOC) is lower than the preset value (SOC < 100% – DOD).
Bat Over Vol	05	The battery voltage is greater than the maximum voltage of the inverter (40 V ~ 60 V).	1. Checking System Settings, If so, power off and restart. 2. Contact renogyx.com if the error warning continues.
Gird low vol	06	Grid voltage is abnormal.	1. Check if the grid power is abnormal. 2. Restart the inverter, and wait until it functions normally. 3. Contact renogyx.com if the error warning continues.
Grid over vol	07		
Grid low freq	08	The grid power frequency is abnormal.	1. Check if the grid power is abnormal. 2. Restart the inverter, and wait until it functions normally. 3. Contact renogyx.com if the error warning continues.
Grid over freq	09		

Error	Code	Explaination	Solutions
GFCI over	10	GFCI protection is triggered.	1. Ensure the PV input is grounded. 2. Ensure no current leakage occurs in the inverter or the connected loads. 3. Contact renogyx.com if the error warning continues.
Bus under vol	13	The bus voltage is lower than the normal value.	1. Check whether the input mode setting is correct. 2. Restart the inverter, and wait until it functions normally. 3. Contact renogyx.com if the error warning continues.
Bus over vol	14	The bus voltage is over the maximum value.	1. Check whether the input mode setting is correct. 2. Restart the inverter, and wait until it functions normally.
Inv over cur	15	The inverter current exceeds the normal value.	Restart the inverter, and wait until it functions normally.
Chg over cur	16	The battery charge current is higher than the maximum voltage of the inverter.	Restart the inverter, and wait until it functions normally.
Bus vol osc	17	Bus voltage instability	1. Check whether the input and output mode settings are correct. 2. Restart the inverter, and wait until it functions normally.
Inv under vol	18	The inverter voltage is abnormal.	1. Check if the inverter voltage is abnormal. 2. Restart the inverter, and wait until it functions normally. 3. Contact customer service if error.
Inv over vol	19		
Inv Freq Abnor	20	The inverter frequency is abnormal.	1. Check if the inverter frequency is abnormal. 2. Restart the inverter, and wait until it functions normally. 3. Contact renogyx.com if the error warning continues.
Igbt temp high	21	The inverter temperature is higher than the allowed value.	Cut off all the supplies on the inverter, and wait for one hour. Power on the inverter again.
Bat over temp	23	The battery temperature is higher than the allowed value.	Disconnect the battery from the inverter, and reconnect it to the inverter after an hour.
Bat Under Temp	24	The battery temperature is low than the allowed value.	Check the ambient temperature near the battery to see if it meets the specifications.
BMS comm.fail	27	The communication between lithium battery and inverter is abnormal.	1. Check the cable, crystal, Line sequence. 2. Checking the Battery switch.
Fan fail	28	The inverter fans fail to work normally.	1. Check whether the inverter temperature is abnormal. 2. Check whether the fans run properly.
Grid Phase err	30	Grid phase fault	Check whether the grid wires are correctly connected.

Error	Code	Explaination	Solutions
Arc Fault	31	Solar panel arc fault	1. Check the solar panels and related wires are correctly connected. 2. Contact renogyx.com if the error warning continues.
Bus soft fail	32	The inverter may be damaged.	1. Restart the inverter, and wait until it functions normally. 2. Contact renogyx.com if the error warning continues.
Inv soft fail	33		
Bus short	34		
Inv short	35		
Fan fault	36	Fan fault	1. Check whether the inverter temperature is abnormal. 2. Check whether the fans run properly.
PV iso low	37	The insulation resistance of the solar panel is low.	1. Check if the PE line is connected to the inverter and is connected to the ground. 2. Contact renogyx.com if the error warning continues.
Bus Relay Fault	38	The inverter may be damaged.	1. Restart the inverter, and wait until it functions normally. 2. Contact renogyx.com if the error warning continues.
Grid Relay Fault	39		
EPS rly fault	40		
Gfci fault	41		
Selftest fail	44		
System fault	45		
Current DCover	46		
Voltage DCover	47		

8. Dimensions & Specifications

8.1. Dimensions



Dimension tolerance: ±0.2 in (0.5 mm)

8.2. Technical Specifications

PV Input Data		
Technical Data	RIV4850HI-SPS	RIV4880HI-SPS
MAX. DC Input Power	7.5kW	12kW
NO. MPPT Tracker	4	
MPPT Range	120 V ~ 500 V	
MAX. DC Input Voltage	500 V	
Input Current (Single Panel)	15A Max, 14A MPPT	
MAX. Short Circuit Current	22A	
Battery Input Data		
Nominal Voltage (Vdc)	48 V	
MAX. Charge/Discharge Current	120 A / 120 A	190 A / 190 A
Battery Voltage Range	40 V ~ 60 V	
Battery Type	Lithium	
Charge Strategy for Li-Ion Battery	Self-adaption to BMS	
AC Output Data (On-Grid)		
Nominal Output Power to Grid	5KVA	8KVA
MAX. Apparent Power Output to Grid	5.5KVA	8.8KVA
Output Voltage Range	110 V ~ 120 V / 220 V ~ 240 V split phase	

Output Frequency	50Hz / 60Hz (45Hz ~ 54.9Hz / 55Hz ~ 65Hz)	
Nominal AC Current Output to Grid	20.8A	33.3A
MAX. AC Current Output to Grid	22.9A	36.7A
Output Power Factor	0.8leading…0.8lagging	
OutPut THDI	< 3%	
AC Output Data (Back-Up)		
Nominal. Apparent Power Output	5KVA	8KVA
MAX. Apparent Power Output	5.5KVA	8.8KVA
Nominal Output Voltage L-N/L1-L2	120 V / 240 V	
Nominal Output Frequency	60Hz	
Output THDU	< 3%	
Efficiency		
Max Inverter Efficiency	97.6%	
CEC Inverter Efficiency	97%	
Protection		
Grounding detection	Yes	
Arc Fault Protection	Yes	
Island Protection	Yes	
Battery reverse Polarity	Yes	
Insulation Resistor Detection	Yes	
Residual Current Monitoring Unit	Yes	
Output Over Current Protection	Yes	
Back-up Output Short Protection	Yes	
Terminal temperature detection	Yes	
Output Over Voltage Protection	Yes	
Output Under Voltage Protection	Yes	
General Data		
Output Conduit	25.4 mm	
PV Input Conduit	25.4 mm	
BAT Input Conduit	34.5 mm	
Operating Temperature Range	-13°F ~ 140°F / -25°C ~ 60°C	
Relative Humidity	0% ~ 95%	
Operating Altitude	0 m ~ 4000 m	
Ingress Protection	IP65 / NEMA 3R	
Weight	41 Kg	

Size (Width*Height*Depth)	18.11 in × 29.92 in × 8.86 in / 460 mm × 760 mm × 225 mm
Cooling	Forced-air cooling
Noise emission	< 38dB
Display	LCD
Communication With BMS/Meter/ EMS	RS485 and CAN
Supported communication interface	RS485, Wi-Fi and 4G (optional)
Self-consumption at night	< 2.5W (with battery enabling < 5W)
Safety	UL1741SA all options, UL1699B, CSA 22.2
EMC	FCC Part 15 Class B
Grid connection standards	IEEE 1547, IEEE 2030.5, Hawaii Rule 14H, Rule 21 Phase I, II, III

9. Maintenance

9.1. Inspection

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

- Check the appearance of the inverter to make sure it is clean and dry.
- Ensure the inverter is installed in a clean, dry and ventilated area.
- Ensure there is no damage or wear on the cables.
- Ensure the LCD and all LEDs are operating normally.
- Ensure there is no corrosion, insulation damage, or discoloration marks of overheating or burning on all connectors or contacts.
- Ensure the funs run normally and the ventilation holes are not blocked.

Risk of electric shock! Make sure that all power is turned off and wait for at least five minutes before touching the terminals on the inverter.

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

9.2. Cleaning

Follow the steps below to clean the inverter regularly.

- Power off all supplies, and wait for at least five minutes before performing any other operations.
- Disconnect all connectors that are connected to the inverter.
- Wipe the inverter housing and connector contacts with a dry cloth or non-metallic brush. If it is still dirty, you can use mild household cleaners.
- Dry the inverter with a clean cloth and keep the area around the inverter and dry.
- Make sure the inverter is completely dry before reconnecting it to a solar panels, a battery, a generator, and the grid.
- Ensure the funs run normally and the ventilation holes are not blocked.

9.3. Storage

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

- Power off all supplies, and wait for at least five minutes before performing any other operations.
- Disconnect all connectors that are connected to the inverter.
- By applying dielectric grease to each connector contact, the dielectric grease repels moisture and protects the connector contacts from corrosion.
- Store the inverter in a well-ventilated, dry and clean environment with a temperature between -13°F ~ 104°F (-25°C ~ 60°C).

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.

Fire

1. Power off all supplies, and wait for at least five minutes before performing any other operations.
2. Disconnect all connectors from the inverter.
3. Put out the fire with a fire extinguisher. Acceptable fire extinguishers include water, CO_2, and ABC.

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

Flooding

1. If the inverter is submerged in water, stay away from the water.
2. Disconnect all the supplies from the inverter, and wait for 5 minutes before performing any other operations.
3. Disconnect all connectors from the inverter.

Smell

1. Disconnect all the supplies from the inverter, and wait for 5 minutes before performing any other operations.
2. Ventilate the room.
3. Disconnect all connectors from the inverter.
4. Check whether there is burning on the inverter and cables.

Noise

1. Disconnect all the supplies from the inverter, and wait for 5 minutes before performing any other operations.
2. Disconnect all connectors from the inverter.
3. Make sure no foreign objects are stuck in the fan of the inverter or the ring terminal.

The normal noise value of the inverter is less than 38 dB during operation.

Renogy Support

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

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

contentservice@renogy.com

FCC

FCC Statement

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

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

FCC ID: GZEM2208004744PVV

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

(1) Orient or relocate the receiving antenna.

(2) Increase the separation between the equipment and receiver.

(3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

(4) Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement

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

Renogy Empowered

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

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

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

Live Sustainably with Renogy

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


Save 170 pounds of coal from being burned


Save 300 pounds of CO_2 from being released into the atmosphere


Save 105 gallons of water from being consumed

Renogy Power PLUS

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