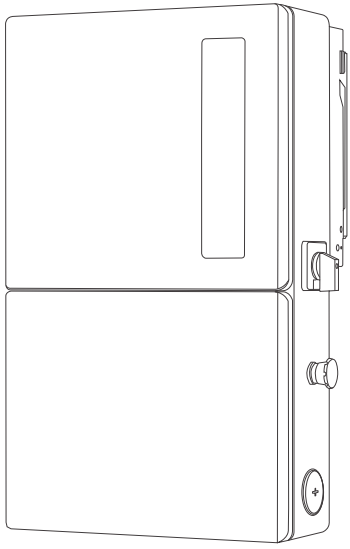
Jackery

GVI-HR-(3K8/5K/7K6/10K/11K4)-USG



USER MANUAL

Jackery HomePower

High-Voltage Hybrid Inverter

Contact us:
hello@jackery.com
1-888-502-2236 (US)

Version: JAK-UM-V1.0

Congratulations on your new HomePower Energy System. Please read this manual carefully before using the product, particularly the relevant precautions to ensure proper use. Keep this manual accessible for frequent reference.

In compliance with laws and regulations, the right to final interpretation of this document and all related documents of this product resides with the Company.

Please note that no further notifications will be given in case of any update, revision, or termination.

CUSTOMER SERVICE

Lifetime technical support

hello@jackery.com

CONTACT US

For any inquiries or comments concerning our products, please send an email to hello@jackery.com, and we will respond to you as soon as possible. If there is any quality-related issue with the product, you may request a replacement or refund by submitting a request form at www.jackery.com/support/.

CONTENTS

1. IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS - This manual contains important instructions that shall be followed during installation and maintenance of Jackery HomePower Hybrid Inverter.

1.1 Symbols in This Document

The symbols in the following table are used throughout this manual to indicate important safety information. Follow the instructions accompanying each symbol to ensure safe operations.

Symbol	Meaning
DANGER	**DANGER** indicates a hazardous situation that, if not avoided, will result in death or serious injury.
WARNING	**WARNING** indicates a hazardous situation that, if not avoided, could result in death or serious injury.
CAUTION	**CAUTION** indicates a hazardous situation that, if not avoided, could result in minor or moderate injury, or equipment damage.
NOTE	**NOTE** indicates supplements the important information or operation tips in the text. **NOTE** is used to address information not related to personal injury, equipment damage, and environmental deterioration.
nec	Systems using this product shall be designed and built in accordance with the NEC local electrical codes &standards.

1.2 Symbols on Product

Symbol	Meaning	Symbol	Meaning
	Risk of electric shock		Read operator's manual carefully before performing any operation on the devices.
	Hot Surface. To reduce the risk of burns, do not touch.		Components of the product can be recycled.
5Min	Do not remove the cover until 5 minutes after disconnecting all sources of supply.		
	SunSpec Certified		
C US 607384	Compliant with CA Rule 21 & HECO Rule 14H Certified to UL 1741 SA and UL 1741 SB Certified to UL Std. No. 1741-Second Edition & CSA-C22.2 No.107.1-16		

1.3 General Safety Precautions

⚠WARNING

Read this manual before installing, operating, and maintaining HomePower inverter. Failure to do so or to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, or death, or can damage the system, potentially rendering it inoperable.

⚠WARNING

Only devices that meets SELV (EN 69050) standards are permitted to be connected to the RS485 and USB interfaces.

⚠WARNING

Do not ground the PV array's positive (+) or negative (-) terminals, as this may cause serious damage to the inverter.

⚠WARNING

Electrical installations should comply with local and national electrical safety regulations.

⚠WARNING

To reduce the risk of fire, over-current protective devices (OCPD) must be installed for all circuits connected to the inverter.

The DC OCPD must be installed according to local regulations. All conductors for photovoltaic (PV) source and output circuits must be equipped with isolators that meet the standards set forth in NEC Article 690, Part II.

⚠WARNING

Every Jackery single-phase inverter feature an integrated DC disconnect switch.

⚠WARNING

Operations must be performed by a licensed electrician or an individual authorized by Jackery.

⚠WARNING

The installer must wear personal protective equipment (PPE) throughout the entire installation process in case of any potential electrical hazards.

⚠WARNING

Do not connect the AC Backup port of the inverter to the grid.

⚠WARNING

Before installing and configuring the inverter, please consult the user manual for the battery.

⚠WARNING

RISK OF FIRE. Do NOT install the inverter in locations where flammable materials or explosive gases are present.

⚠CAUTION

RISK OF ELECTRIC SHOCK. Do not remove the cover. No user-serviceable parts inside. Refer servicing to qualified service personnel.

⚠CAUTION

The PV conductors carry a high DC voltage when the PV modules are illuminated by sunlight.

⚠CAUTION

The unit contains capacitors that remain charged to a potentially lethal voltage until live components, such as the grid, battery and PV supply have been disconnected. Hazardous voltage will present for up to 5 minutes after the power supply has been de-energized.

⚠CAUTION

RISK OF BURNS. The inverter's surface temperature can reach as high as 75°C (167°F). Do NOT touch the inverter's surface while it is in operation. Additionally, ensure that the inverter is installed away from direct sunlight.

⚠CAUTION

PV modules paired with an inverter must possess an IEC 61730 class A certification.

1.4 Disposal Instructions

This symbol indicates that the product shall not be disposed of as household waste, and should be delivered to a designated collection facility for recycling.
Proper disposal and recycling can help protect the environment. For more information about the disposal and recycling of this product, contact your local community, disposal service, or dealer.

1.5 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.

Modifications to this product not authorized by Jackery could void the FCC approval and negate your authority to operate the product.

NOTE:

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 Jackery's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If the equipment causes interference to radio or television reception, which can be determined by turning the equipment off and on, users are encouraged to try to correct the interference by using one or more of the following measures:

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

1.6 Protection Circuitry and Controls

To comply with applicable codes and standards, the Jackery single-phase inverter series features protective circuitry and controls. This includes an Arc Fault Circuit Interrupter (AFCI) and Anti-Islanding protection.

Arc Fault Circuit Interrupter AFCI

The 2011 edition of the National Electrical Code® (NEC), Section 690.11, regulates that all PV systems connected to a building must include a mechanism for detecting and interrupting series electric arcs in the PV wiring and array. Any electric arc with a power level of 300W or higher must be interrupted by the AFCI within the time frame established by UL 1699B. If five arc faults detected within 24 hours, the AFCI will initiate a shutdown. In such cases, the inverter will need to be manually reset. Once the fault source has been addressed, the inverter can be restarted and allowed to resume normal operation.

Anti-Islanding Protection

Anti-Islanding refers to a situation in which the inverter stops generating power when the grid is absent. Specialized circuitry and firmware have been developed to assess the presence of the grid by modifying the inverter's output frequency. In a 60Hz resonant system where the inverter is somewhat disconnected from the grid, the inverter's programming can identify whether a resonant condition exists or if the grid is genuinely present. Additionally, it can distinguish between inverters operating in parallel and the grid itself.

2. PRODUCT INTRODUCTION

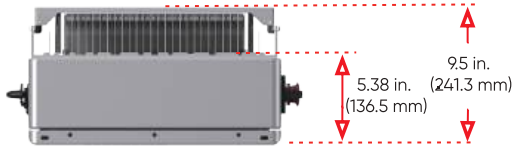
2.1 Inverter Description

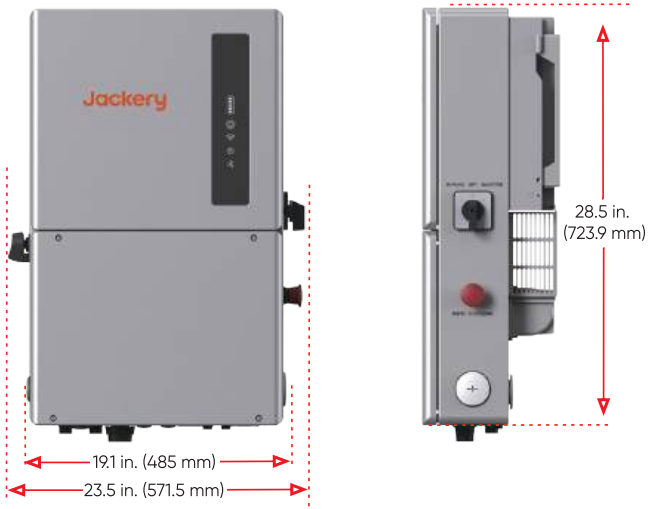
The Jackery HomePower Hybrid Series is specifically created for home use. The inverter is compatible with high-voltage lithium-ion batteries, optimizing self-consumption and ensuring backup power during grid outages or when PV energy is insufficient to meet demand.

This inverter is capable of functioning in both on-grid and off-grid settings.

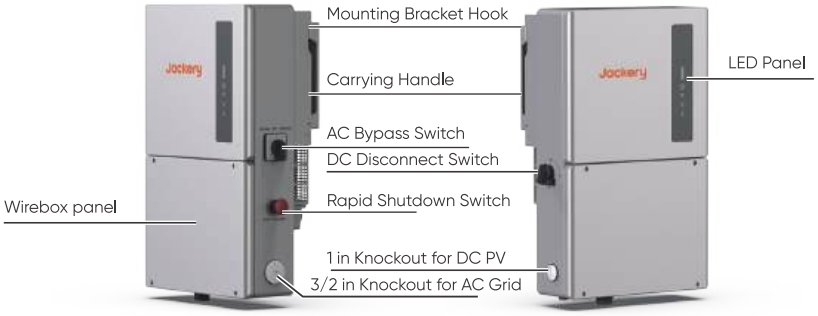
The HomePower hybrid series includes inverter models of 3.8 kW, 5 kW, 7.6 kW, 10 kW, and 11.4 kW. The 3.8-5 kW models utilize a similar yet distinct hardware platform compared to the 7.6-11.4 kW models. Additionally, the inverter features an integrated rapid shutdown transmitter.

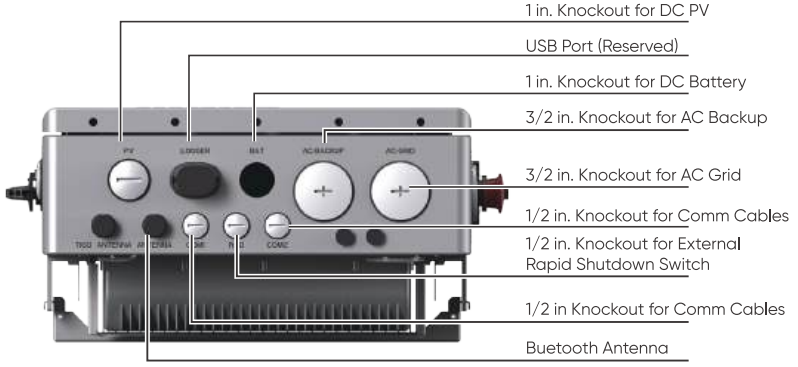
2.2 Dimensions



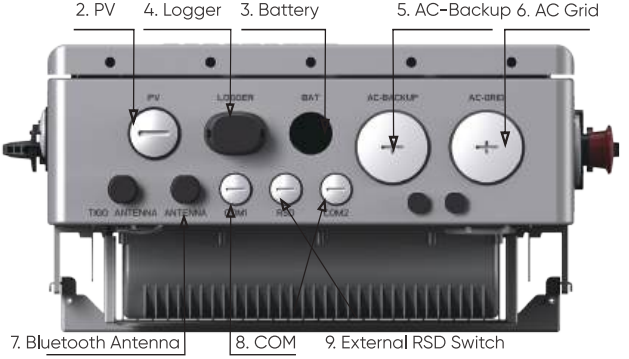


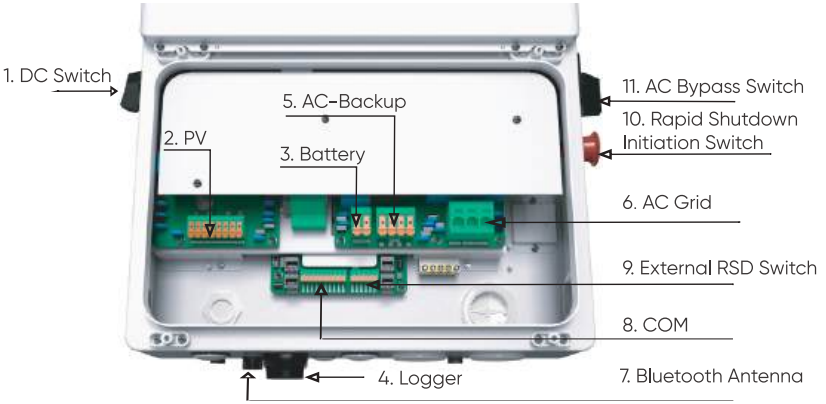
2.3 Components





2.4 Wire Box and Connection Points



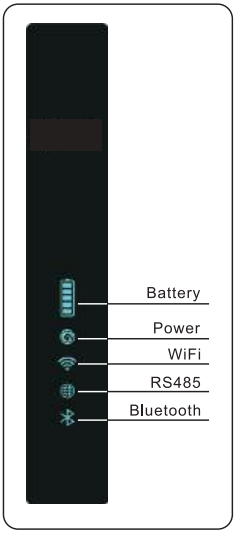


No.	Name	Description
1	DC switch	DC disconnect switch for the inverter
2	PV	To connect the conduit and PV conductors
3	Battery	To connect the conduit for battery conductors
4	Data Unit Port	Reserved
5	AC-Backup	To connect the conduit for AC conductors to backup loads panels
6	AC-Grid	To connect the conduit for AC conductors to the main service panel
7	Bluetooth Antenna	To extend the range of the inverter Bluetooth signal (for system commissioning)
8	COM1 /COM2	To connect and route RS485 and CAN communication cables
9	External RSD	To connect an external RSD Switch for the inverter
10	Rapid shutdown switch	To deactivate the internal transmitter that triggers rapid shutdown at the module level
11	AC Bypass switch	To enable the inverter to transfer power directly from the grid (main service panel) to the backup loads in the event of an inverter failure

2.5 LED Indicators

The GVI-HR-(3k8-11k4)-USA1 series Inverter features five indicator lights: Battery, Power, Wi-Fi, RS485, and Bluetooth. These lights display the operational status of the inverter.

The inverter generates a Bluetooth signal that allows the smartphone to connect and access the inverter interface page. This is the method used for commissioning and making adjustments to the settings.



Indicator	Status	Description
Battery	Blue Flashing every 3s	Battery discharging.
	Blue Flashing every 1.5s	Battery charging.
	Blue Solid ON	Idle.
	OFF	No Battery or not working.
Power	Blue Solid ON	Normally Operating.
	Yellow Solid ON	Warning.
	Red Solid ON or flashing every 3s	Alarm.
	OFF	No Battery or not working.
Wi-Fi	Blue Solid ON	COM Port is using.
	OFF	COM Port is not used.
RS485	Blue Solid ON	RS485 Port is using.
	OFF	RS485 Port is not used.
Bluetooth	Blue Solid ON	Bluetooth Port is using.
	OFF	Bluetooth Port is not used.

Alarm State

When the inverter triggers an alarm, the Power indicator will turn red and start to flash. It is recommended to connect to the inverter using the Bluetooth tool to identify the alarm code.

NOTE

The Battery, Wi-Fi, RS485, and Bluetooth indicators will automatically deactivate after 1 minute. The Power indicator will stay lit but at a reduced brightness. A brief press of the Power indicator will reactivate all the indicators.

NOTE

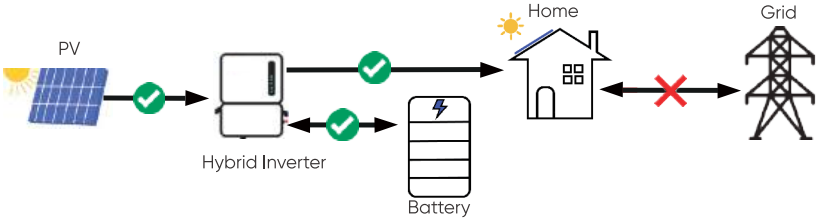
To reset the Bluetooth connection passwords, hold the Power button for 5 seconds. If the reset is successful, the Power button will flash blue at 0.5-second intervals for 3 seconds. If the reset fails, the Power button will flash yellow at 0.5-second intervals for 3 seconds.

If the reset is unsuccessful, contact the after-sales engineer for help with resetting the password.

3. OPERATING MODES

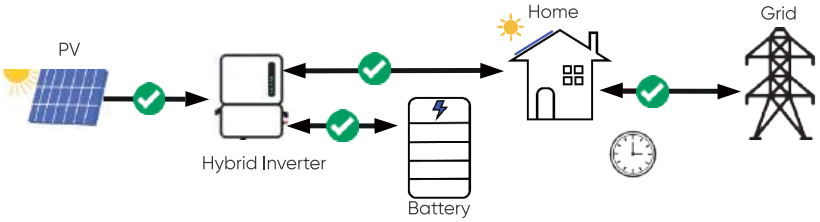
3.1 Energy Storage

The HomePower hybrid can supply AC power to household appliances using PV and battery energy during a grid outage, a feature referred to as power backup. Each HomePower hybrid model's power backup capacity matches its on-grid power output. For instance, the 11.4K model can deliver up to 11.4K of continuous backup power.

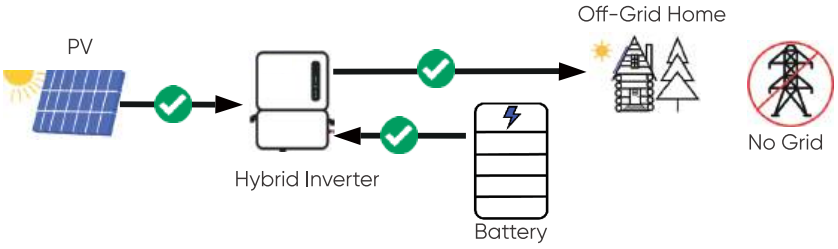


When the main goal of the energy storage system is to capture and store as much PV power as possible for later use to reduce reliance on grid electricity, this process is referred to as energy arbitrage.

Time-of-use, self-consumption, and peak-shaving are all forms of energy arbitrage. Generally, the battery operates on a daily cycle, charging with photovoltaic energy and discharging to meet household energy demand.



The HomePower hybrid can function in a completely remote setup where there is no grid available, referred to as off-grid. This mode is quite similar to backup mode, as the inverter provides AC power to the loads using only PV and battery energy. However, backup mode is exclusive to grid-connected systems. The inverter cannot supply off-grid or backup power using only PV; a battery is essential.



3.1.1 Power Backup

This inverter can supply AC power to home loads using PV and battery power during a grid outage. When it detects a loss of grid power, the inverter automatically disconnects from the grid by opening the relay. It maintains the relay for the backup load closed, enabling it to provide AC power to home loads as long as power is available. To comply with anti-islanding regulations, the backup loads must be situated in a load center that is electrically isolated from the utility connection point. The inverter will reconnect to the grid automatically once it detects that grid power has been restored.

The inverter's backup output can manage unbalanced loads, supporting a load power range of 0 to 0.5 times the rated output power for each phase. It is recommended to evenly distribute loads across the two phases during installation. If a single-phase load surpasses 50% of the rated power, an overload alarm will activate, causing the inverter to shut down.

Partial-home backup systems should only support light loads. This approach helps prevent rapid battery depletion, enabling the PV power generated to meet the load demand effectively.

Light loads encompass items such as lights, televisions, computers, routers, and most devices that can be plugged into an electrical outlet.

Whole-home backup systems are capable of supporting all household loads, including those that require significant power.

It is essential to ensure that there is sufficient PV power, battery capacity, and/or generator output to satisfy the significant current requirements of heavy loads. It is recommended to size the system larger than the owner's actual needs.

NOTE

To meet low voltage ride-through requirements, please turn off IG follow. Disabling IG follow will prevent the inverter from facilitating smooth transitions between on-grid and off-grid modes.

Tool-local configuration - connect via Bluetooth - choose the inverter - Advanced settings - Special Functions Setting 1 - Ig follow.

NOTE

During remote upgrades of the DSP program, the inverter will cease outputting. If the datalogger is linked to the Jackery Home through Wi-Fi, it is recommended to connect the router on the grid side to facilitate seamless signal communication during remote maintenance.

It is essential to consult with the homeowner to understand their reasons for installing a battery. Additionally, it's important to assess their power consumption, the energy generated by the PV system, the available storage capacity, and which loads should be supported during a power outage (grid failure). If the homeowner desires backup for nearly all appliances, this falls under whole-home backup. Conversely, if they prefer to back up only a few essential items like the refrigerator, lights, and outlets, this is classified as partial-home backup.

For a whole-home backup system, the average daily power consumption should not exceed the average daily power generated by the PV system over the course of a year. If it does, it is

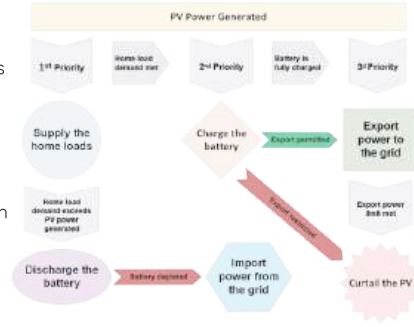
recommended to either increase the PV capacity or implement load control measures (load shedding).

3.1.2 Energy Arbitrage

The HomePower hybrid inverter features several programmable operating modes, allowing system performance to be customized to meet the unique requirements of each owner. The power backup function can be activated or deactivated separately from the energy arbitrage modes. There are three energy arbitrage operating modes available with the inverter: (1) Self-Consumption, (2) Peak-Shaving, and (3) Feed-in-Priority.

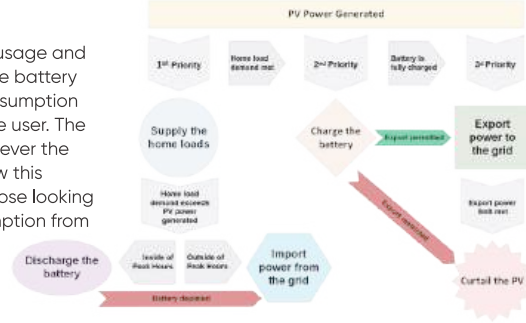
Self-Consumption

The default setting for this inverter is Self-Consumption. In this mode, the system prioritizes supplying power to home loads first. Any surplus PV energy is then stored in the battery. If the battery reaches full capacity, any additional power can be exported, provided the system is set up to permit this. Self-consumption is ideal for individuals seeking to reduce their reliance on the grid and achieve maximum self-sufficiency. To ensure optimal performance in this mode, sufficient PV and storage capacity should be installed.



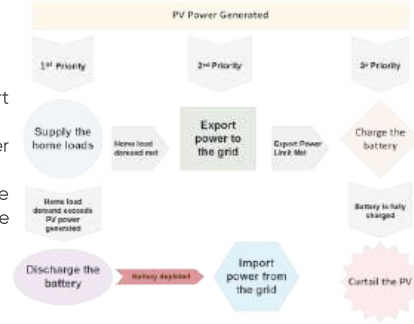
Peak-Shaving

Peak-shaving mode restricts grid usage and battery discharge. In this mode, the battery discharges only when the grid consumption exceeds a specific value set by the user. The battery will stop discharging whenever the power drawn from the grid is below this threshold. This mode is ideal for those looking to stabilize their electricity consumption from the grid while reducing electricity costs.



Feed-in-Priority

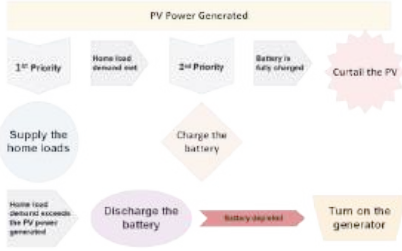
This mode can be considered as export priority mode. The system prioritizes supplying home loads with PV power before attempting to export any excess PV power, up to a predetermined limit. Once this limit is reached, the surplus power will be directed to charge the battery. If the battery is fully charged, the PV generation will be curtailed. This mode is ideal for users who receive the same rate for exported power or have a significantly higher ratio of PV power generated compared to their power consumption.

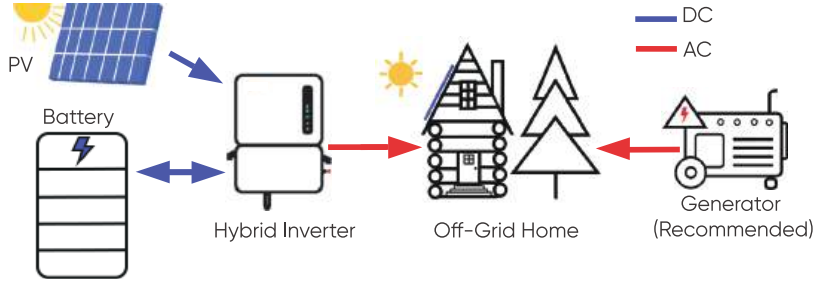


3.1.3 Off-Grid

There is a specific mode designed for off-grid remote systems that are completely disconnected from the electrical grid, like a cabin in the woods. This mode should not be confused with backup mode, which is applicable only to grid-connected systems.

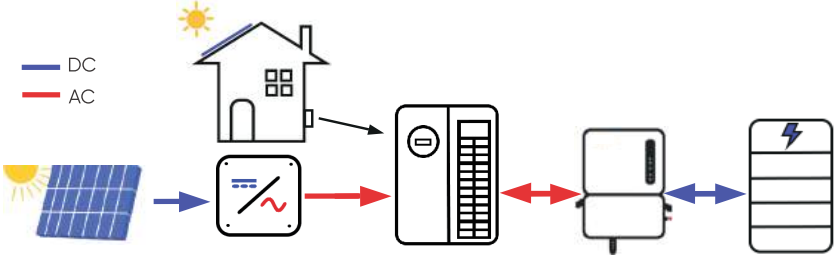
The Off-Grid mode operates under the same principles as the Self-Consumption mode. However, it lacks export power control, and a generator is typically utilized instead of the grid to support the PV system and batteries. When the generator is activated, PV generation is briefly halted to prevent backfeeding into the generator. The inverter will then draw power from the generator to supply loads and recharge the battery.





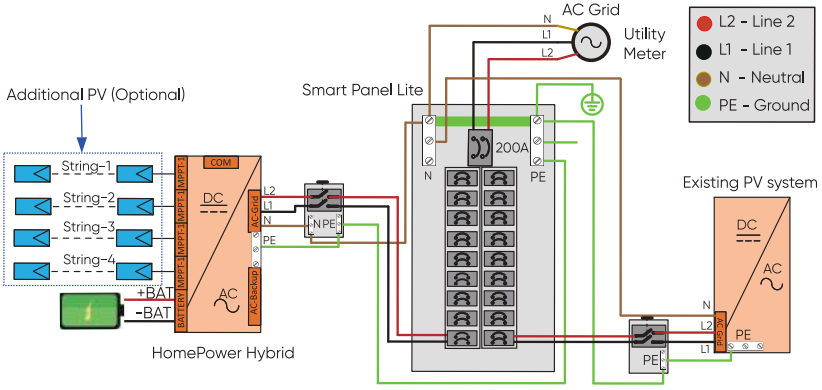
3.1.4 AC-Coupling

The HomePower hybrid can be integrated with a home in two ways: AC-coupled or DC-coupled. AC-coupling means that the battery system is linked to the AC side of the setup. Typically, the battery and inverter are connected in parallel with the current PV system. In this arrangement, the battery charges using PV power that is converted from DC to AC and then back to DC. When using the HomePower hybrid in an AC-coupled configuration, the option to add new solar panels is available, depending on the user's requirement. The hybrid inverter simply needs to be installed with a compatible high-voltage battery and connected in parallel to the home load center alongside the existing PV system.



AC-Coupling for Energy Arbitrage (No Power Backup)

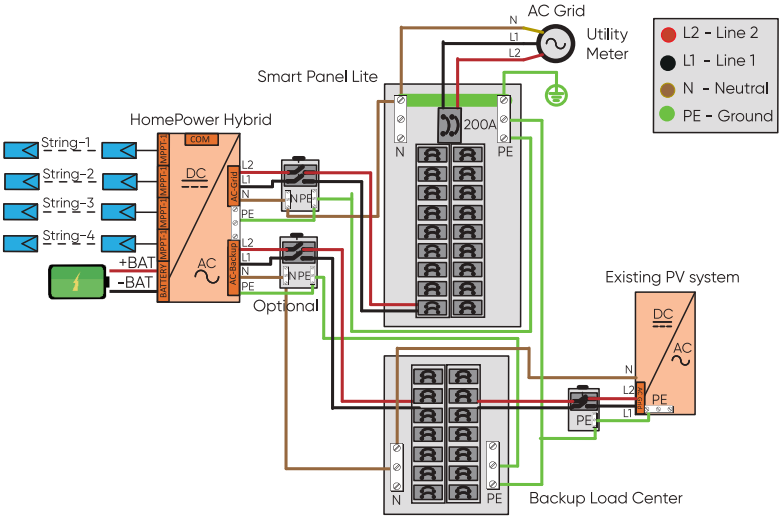
An inverter paired with a compatible battery system can be set up in a home, regardless of whether there is an existing PV system. The system can be configured to use AC power from the PV for battery charge during the day, and during peak hours or when PV output is insufficient, the battery will discharge to meet the load demand, thereby minimizing reliance on utility power. In this scenario, the power backup and PV functionalities of the inverter will not be utilized. Additional solar panels can be installed at the home and connected to the HomePower hybrid inverter, but this is not necessary for this AC-coupled application.



AC-Coupling for Power Backup & Energy Arbitrage

The HomePower hybrid can supply backup power when connected via AC coupling. However, it is necessary to install an additional load center and connect it to the backup ports of the HomePower hybrid. Subsequently, some loads must be transferred from the current main load center to the backup load center. It's important to note that the backup ports of the HomePower hybrid cannot be connected to the main service panel, as doing so would breach the anti-islanding requirement.

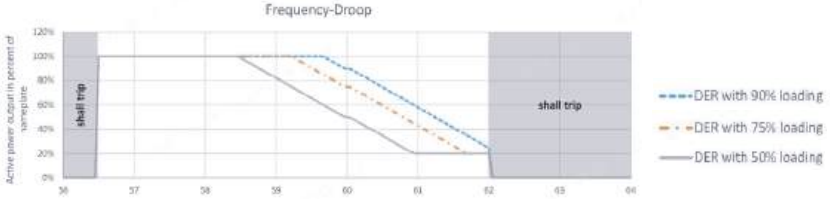
For further information, please refer to the following diagram. In this setup, the system will engage in energy arbitrage and provide backup power in the event of a grid power outage.



Frequency-Watt Shifting

An additional PV system can be connected in parallel on the backup side using AC coupling. In the event of a grid failure, the HomePower hybrid will function as the grid, allowing the AC-coupled PV system to continue operating. If the available PV power surpasses the power consumption in backup mode, the HomePower hybrid will adjust the AC frequency slightly to deactivate the AC-coupled PV system. This process is known as frequency-watt shifting.

The inverter employs frequency-watt shifting to adjust the output power of AC-coupled PV systems. This adjustment is guided by the frequency derating (droop) curve established in the IEEE 1547-2018 standard. Additionally, the AC-coupled PV system is required to facilitate frequency-watt shifting in accordance with IEEE 1547-2018. If the AC-coupled PV system is unable or unwilling to support this feature, it will automatically shut down when the HomePower hybrid alters the frequency.

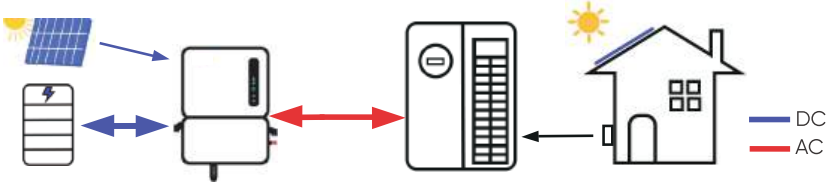


NOTE

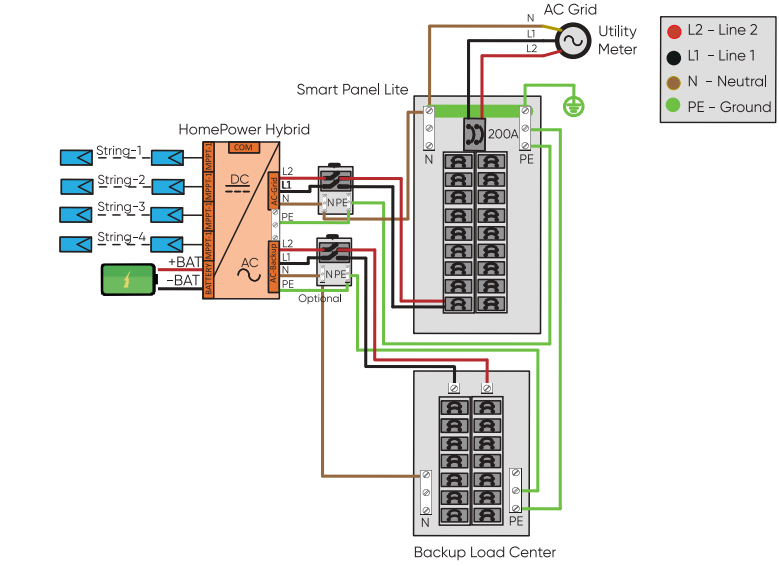
In an AC coupling system, the PV inverter's maximum output power must be lower than that of the energy storage inverter. If this condition is not met, the energy generated by the PV inverter during an off-grid mode could affect the energy storage inverter, potentially leading to a malfunction of the energy storage system. At present, the AC coupling feature is only available for individual hybrid systems.

3.1.5 DC Coupling

DC-coupling is the preferred setup for this inverter, as it enables the inverter to operate at its full potential, thereby optimizing the efficiency of PV-to-battery charging. In a DC-coupled system, the PV is connected to the inverter alongside the battery. The inverter charges the battery directly with DC power from the PV. Generally, DC-coupling is implemented when additional PV is being integrated or when a new system is being installed with energy storage.



DC Coupling can facilitate whole-home and partial-home backup solutions. Depending on the battery model, the HomePower hybrid system can connect with 10 to 150 kWh of stored energy for power backup or energy arbitrage. It is recommended to assess the average PV power available and the typical power consumption to gauge how long the battery will last during a grid outage. The discharge power of the battery can be restricted to allow for a slower drain. If the demand for backup power surpasses the available supply, the inverter will show an alarm code and temporarily shut down for a few minutes.



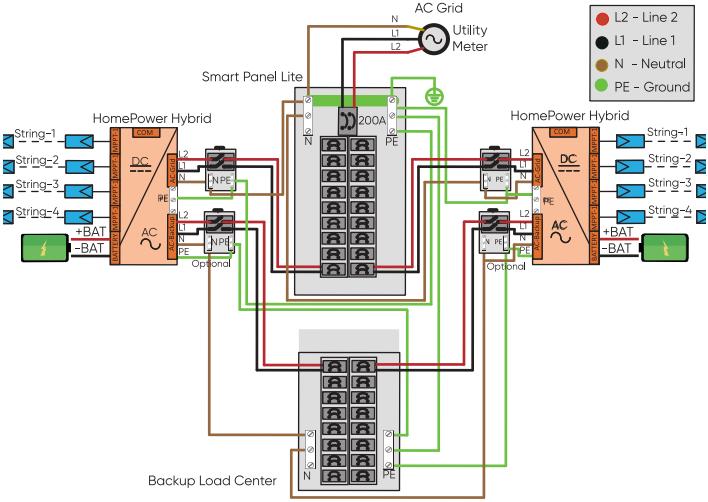
WARNING

Installations that do not adhere to the wiring method specified in the wiring box will invalidate the product warranty, and any damages resulting from incorrect wiring will not be covered.

Whole-Home Power Backup

To achieve whole-home power backup, the system needs to be set up to support all home loads during a grid outage. It's essential to assess the maximum continuous current required to satisfy the energy demands of the entire home. Installing two HomePower hybrid inverters in parallel, along with solar panels and batteries, can enhance the continuous backup power capacity. While this configuration may suffice for whole-home backup, individual household requirements can vary, and it may not be adequate for every situation.

A generator can be incorporated to provide additional power, and an AC-coupled PV system can also be utilized. It is essential for all home load breakers to be situated in a load center that is electrically isolated from the grid side of the system. This may require moving the breakers to a new load center.



Upgrading an Existing PV System for Energy Storage

The HomePower hybrid inverter can be utilized to upgrade an existing PV system by adding energy storage. Initially, the old PV inverter must be removed. After that, the HomePower hybrid inverter can be installed in its place. The PV system can be connected directly to the HomePower inverter, as long as the specifications of the PV strings fall within the acceptable tolerance ranges of the HomePower hybrid inverter.

The sizing of overcurrent protection devices and load centers must comply with the NEC as well as local electrical codes and standards.

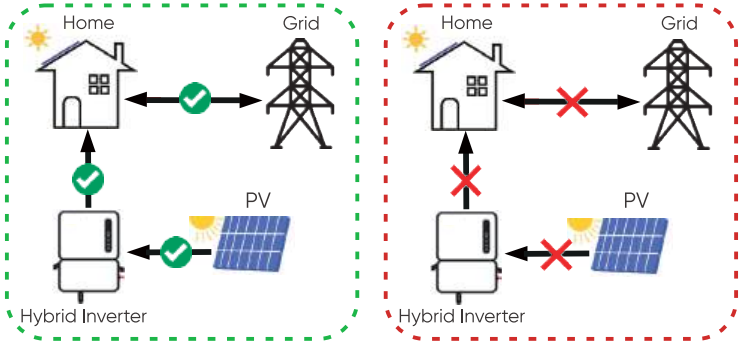
WARNING

A battery is necessary for power backup. If only solar panels are installed, the inverter will not be able to provide backup power during a grid outage. However, when paired with a battery alone, the inverter can supply backup power without any PV. This inverter can be AC-coupled to an existing system without directly connecting any PV to it. It can function as the grid to maintain the operation of the existing PV system, provided it is connected in parallel on the backup side.

3.2 PV-Only

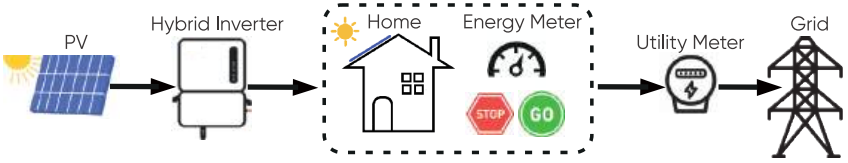
3.2.1 Grid-Tie PV String Inverter

The HomePower Hybrid inverter operates as a grid-tied PV string inverter without the need for a battery. It utilizes solar power to meet the household's energy needs while the grid is operational. The inverter includes export power control, allowing it to be configured to sell surplus energy back to the grid. In instances where the PV power is insufficient to meet the load demand, electricity will be drawn from the utility to make up the shortfall. However, if the grid goes down or is inactive, the inverter will be unable to provide any PV power to the home.



3.2.2 Export Power Control

The inverter provides the capability to control export power. During the commissioning of the system, export power control can be activated. A limitation on export power can then be established at the preferred kW value. The inverter will subsequently manage the amount of power sold back to the utility provider.



Every HomePower hybrid includes an energy meter that is installed externally to the inverter.

The energy meter employs two current transformers (CTs) to monitor the power consumption in the home. The hybrid inverter utilizes the information from this meter to decide if it needs to limit the PV power output in order to comply with the export power restrictions. Export power control can be activated regardless of whether a battery is installed or not.

Zero-Net Export

The inverter can be configured to prevent any power from being exported to the utility. However, this does not result in a complete zero export, as a small amount of power may still flow back to the utility whenever there is a fluctuation in load demand.

Nonetheless, the net import/export will be approximately zero kWh daily when set for zero export.

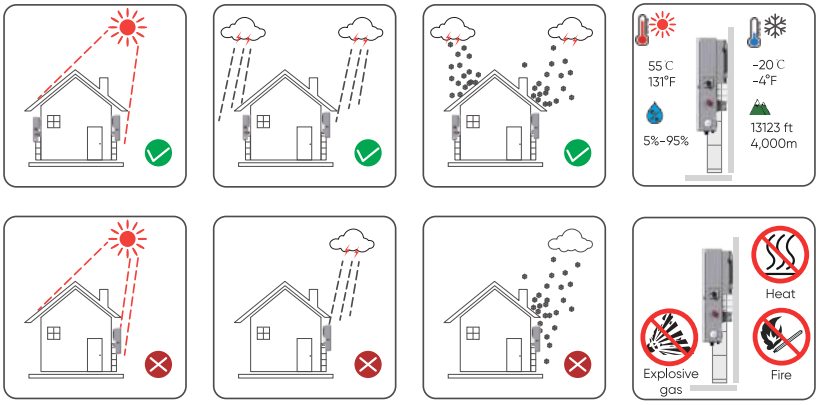
4. INSTALLING THE HYBRID INVERTER

The HomePower products have been constructed according to the applicable safety and technical guidelines. Use the products in installations that meet the following specifications only:

- Permanent installation is required.
- The electrical installation must be compliant with all local and national regulations & standards.
- The products must be installed according to the instructions stated in this manual.
- The products must be installed according to the inverter technical specifications.

4.1 Choosing a Site

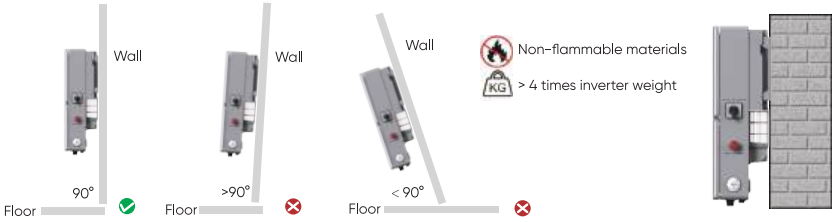
- Choose a sheltered location or construct an awning to shield the inverter from direct sunlight, rain, and snow. Direct exposure to sunlight may lead to:
  - Restriction on power output, leading to a reduction in the system's energy production.
  - Early deterioration of the electrical/electromechanical components.
  - Early deterioration of mechanical parts (gaskets) and the user interface.
- Install the inverter where the ambient temperature is within the product's operating temperature range from –13°F (-25°C) to +140°F (60°C) (59°F to 86°F recommended).
- Install the inverter vertically in a dry, well-ventilated area on a stable, level surface. Ensure that the wall or structure for installation is capable of bearing the weight of the products.
- Ensure that the inverter is out of children's reach if they are around.
- Ensure that the installation site is clean and free from excessive infrared radiation, organic solvents, and corrosive gases.
- Prevent water accumulation by positioning the system away from taps, downpipes, and sprinklers.
- Do not install the inverter in areas where people or animals are likely to be present for extended periods. The sound level produced by the inverter may be significant, depending on factors such as the surface surrounding the inverter, the overall characteristics of the room, and the quality of the electricity supply.



WARNING

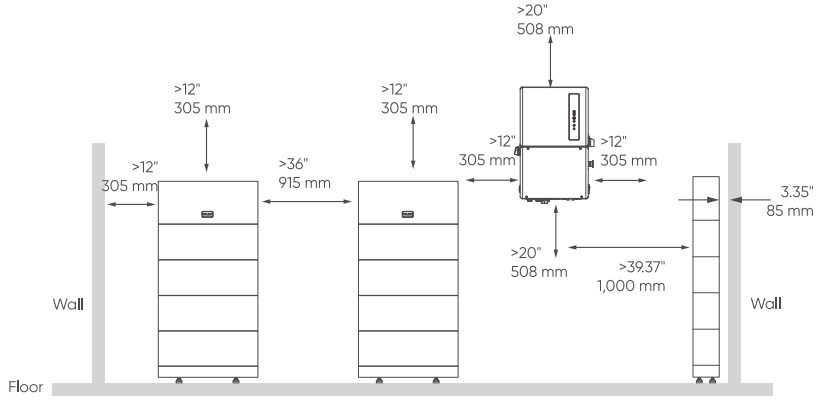
- Keep the inverter away from fire and heat sources, and avoid placing flammable items nearby. Maintain a distance of at least ten feet (three meters) from these substances.
- Do not install the inverter in environments containing flammable or explosive gases or fumes, and refrain from performing operations in such settings.
- The structure on which the inverter is installed needs to be fire-resistant.

- The inverter must be mounted vertically (90° degrees not greater or less than 90° degrees straight up).
- Install the inverter on a wall or structure that can support the weight of the unit.
- When installing the inverter on the wall, it protrudes about 9.5 inches. Be sure to consider this measurement when choosing the installation site for the inverter.



Installation Space

- When multiple inverters are installed on-site, it is essential to maintain a minimum clearance of 12 inches between each inverter and any other mounted equipment. Additionally, the bottom of the inverter must be positioned at least 20 inches above the ground, floor or any other items.
- The LED indicator on the front panel of the inverter must remain unobstructed.
- Proper ventilation is essential when installing the inverter in a confined area.



NOTE

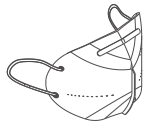
Nothing should be stored directly on top, underneath, or against the inverter.

4.2 Preparing Tools

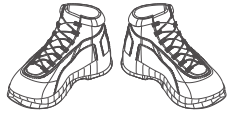
4.2.1 Personal Protective Equipment

Insulated safety gloves

Safety goggles



Respirator mask

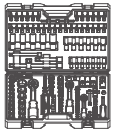


Safety boots

4.2.2 General Tools

Drill and drill bit

Cordless drill



Socket wrench set

Bubble Level

Stud finder

Tape measure

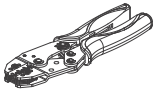
Marker pen

Multimeter

Wire strippers 12 AWG to 6 AWG

Wire strippers 20 AWG to 10 AWG

Channel Locks



Ratcheting Crimper

RJ45 Crimping Tool

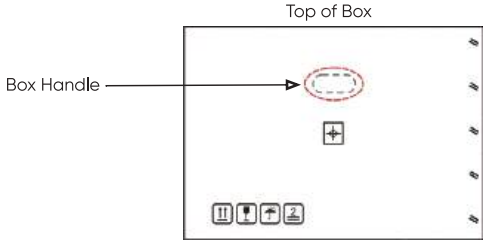
Electronic Tip slotted screwdriver

Flat-head screwdriver

4.3 Unboxing the Product

Kindly examine the following guidelines for handling the inverter:

Step 1 The red circle below indicates the cutout for the carrying handle on the inverter box. Press in the cutouts on both ends of the box to create handles for transporting the inverter.

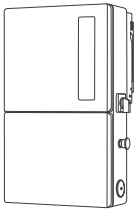


Step 2 Two individuals are needed to lift and transport the inverter while it remains in its box.

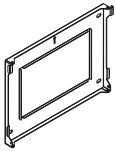
Step 3 When taking the inverter out of the box, two individuals should utilize the handles built into the heat sink.

Step 4 When placing the inverter down, do so slowly and carefully. This helps prevent damage to both the internal components and the outer casing.

Before the installation, check whether any of the following items are missing. If yes, contact your local Jackery distributor or the Jackery service team.



Inverter x1



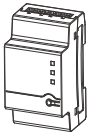
Mounting Bracket x1

Stabilizing Set Screws x4

Screw x2

Mounting screws x4

1/2 inch Cable Glands x3



External Energy Meterx1

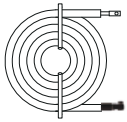
Current Transformersx2

Terminal Pins x10

Terminal Pins x4

Torqx T20 Tool x1

RJ45 connector x3



Parallel communication Cable (2m)x1

User Manual ×1

4.4 Installing the Product

NOTE

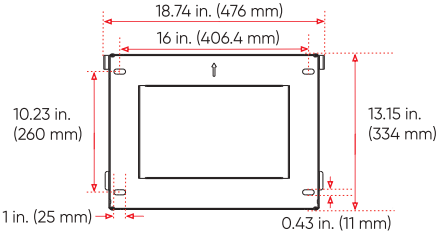
Wear appropriate personal protective equipment (such as gloves and protective footwear) when handling and installing the unit.

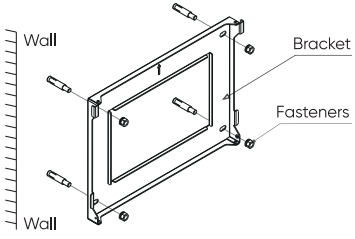
NOTE

The inverter does not come with any fasteners. You must prepare your own hardware for securing the mounting bracket to the mounting structure.

Step 1 Mount the bracket to the wall.

1. Attach the bracket to the wall and utilize a bubble level to ensure it is straight and level. The arrow located at the center of the bracket should be facing upward.
2. Use a pencil or marker to indicate the mounting holes.
3. Use a drill to create holes for the fasteners.
4. Secure the bracket to the wall.



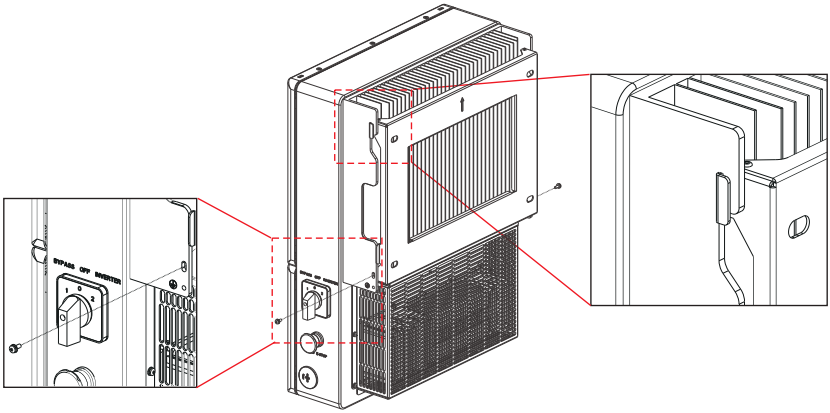


NOTE

To secure the bracket firmly to the wall, a minimum of four fasteners is required, with at least two of them needing to be anchored into a wall stud to adequately support the weight of the inverter.

Step 2 Install the inverter.

1. Lift the inverter and position the back two hooks of the heat sink so they align with the two tabs on the inverter mounting bracket.
2. Lower the inverter hooks onto the tabs of the mounting bracket and make sure the hooks are securely engaged before letting go of the inverter.
3. Install the two included set screws with the inverter for added stability.



WARNING

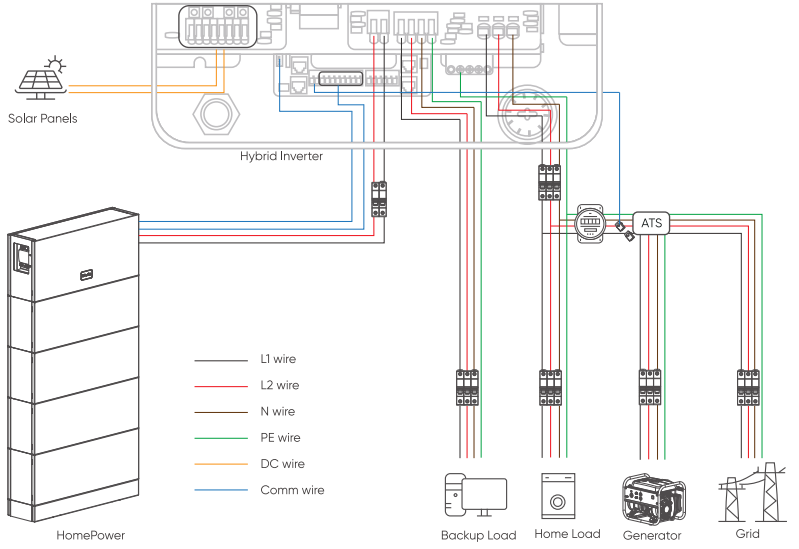
The inverter is quite heavy. To prevent any injuries, please use appropriate lifting techniques. It is recommended for two individuals to lift the inverter together.

5. ELECTRICAL CONNECTION

Cable	Purpose	Connection Points
PV Cables	Connection of the PV to the inverter	From the PV array to the DC+ and DC- terminals in the inverter
Battery Cables	Connection of battery to the inverter	From the battery (+) and (-) terminals to the BAT+ and BAT- terminals in the inverter
AC Grid Cables	AC connection of the inverter to the main service panel	From the OCPD in the main service panel to the AC-GRID L1 and L2 terminals in the inverter
AC Backup Cables	AC connection of inverter to the backup sub panel	From the OCPD in the backup loads subpanel to the AC-BACKUP L1 and L2 terminals in the inverter
Ground Cables	Grounding conductors for the system	From the ground bar in the main service panel to the ground bar in the inverter
Meter RS485 Cable	Communication between inverter and meter	From meter to the Meter_A and Meter_B terminals in the inverter
Battery CAN Cable	Communication between the inverter and the battery	From battery to the CAN-L and CAN-H terminals in the inverter

Sizing of conductors, conduits, and overcurrent protection devices must be performed in compliance with the NEC as well as local electrical codes and standards.

5.1 System Wiring Diagram

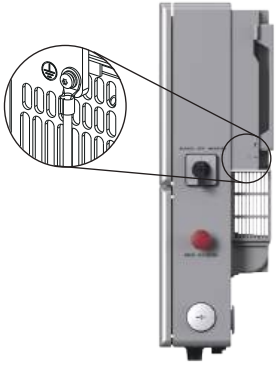


WARNING

Electrical installations should comply with local and national electrical safety regulations.

5.2 External Grounding

An optional external ground connection point can be found on the right side of the inverter. The internal ground bar is connected to the inverter chassis.



To connect the grounding terminal on the heat sink, please adhere to the following steps:

Step 1 Select grounding wires.

It is recommended to utilize copper wire for the chassis ground. Both solid conductor and stranded wire are suitable options. Please consult local code standards for appropriate wire sizing.

Step 2 Remove ½ inch of insulation from the end of the ground wire.

Step 3 Use a ratcheting crimp tool to attach a ring terminal to the ground cable.

Step 4 Attach the cable to the ground terminal screw and then secure it using a torque wrench screwdriver, tightening it to 2 N·m.

NOTE

When using multiple inverters in parallel, connect all inverters to a common ground point to prevent any voltage potential differences between their ground connections.

5.3 Wiring PV to Inverter

⚠CAUTION

Before connecting the PV strings to the inverter, please confirm the following:

- Ensure that the DC voltage of the PV strings does not surpass the maximum DC input voltage of 600V DC. Failing to adhere to this requirement will invalidate the inverter warranty.
- Ensure the polarity of the PV strings is accurate (for example, positive should connect to positive).
- Ensure that the DC switch, battery, AC backup, and AC grid overcurrent protective devices (OCPDs) are all turned off.
- Ensure that the PV resistance to ground exceeds 20 KΩ.
- Ensure that the Isc of the strings does not surpass the maximum DC input current.

The Jackery Hybrid Inverter can be connected with 4-strings of PV panels. Each PV string input is a separate MPPT.

Step 1 Use a multimeter to verify that the PV string voltages are 0V.

Step 2 Remove ½ inch of insulation from the ends of each PV cable.

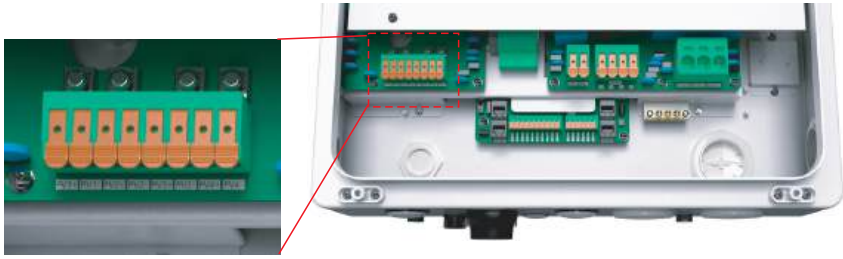
Step 3 Pull the orange lever located above the PV terminal to open the terminal gate.

Step 4 Place the end of the PV cable into the terminal that is now accessible.

Step 5 Release the orange leveler, and the terminal gate will secure the PV cable.

Step 6 Gently tug on the PV cable to verify that the connection is secure.

Step 7 If the connection seems loose, go through steps 1-5 once more, ensuring to insert the cable further into the terminal before letting go of the lever.



If the DC conductors are mistakenly connected in reverse or if the inverter is malfunctioning, do NOT switch off the DC switch. Doing so may result in a DC arc, potentially damaging the inverter or causing a fire.

The procedure for implementing corrective actions is outlined below:

Step 1 Utilize a DC clamp multimeter to measure the DC string current.

Step 2 If the current exceeds 0.5A, kindly wait for the irradiance on the PV array to decrease until the current falls below 0.5A.

Step 3 You may open the DC switch and disconnect the PV strings from the inverter once the current drops below 0.5A.

Step 4 To fully prevent any risk of failure, keep the PV strings disconnected until the reverse polarity issue is resolved.