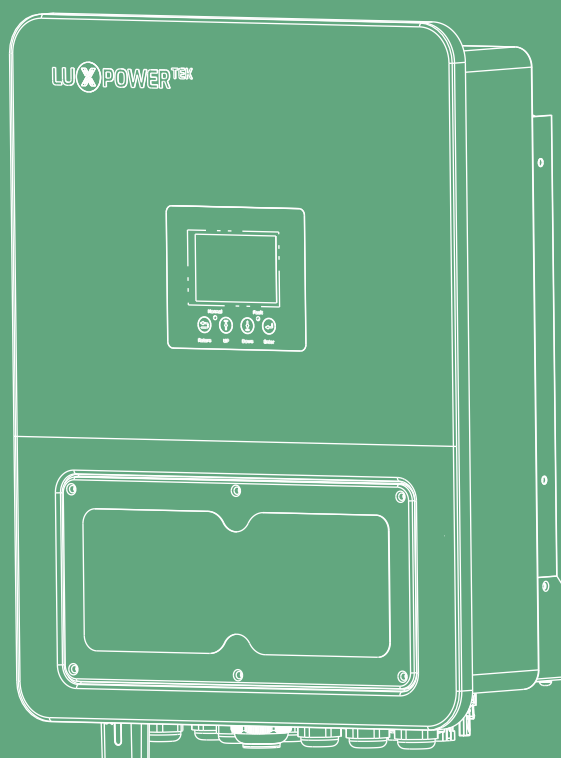


Hybrid Inverter User Manual

GEN3-LB-EU 6-8K



LUXPOWER^{TEK}

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Revision History

Version	Date	Description
UM-GEN04001E01	2026.02.05	First official release.

Information on this Manual

Validity

This manual is valid for the following devices: GEN3-LB-EU 6K, GEN3-LB-EU 8K.

Scope

This manual provides comprehensive product information and step-by-step installation instructions for the GEN3-LB-EU 6-8K series hybrid inverter (hereinafter referred to as “the inverter”). The product is developed and manufactured by Shenzhen LuxpowerTek Technology Co., Ltd. (hereinafter referred to as “LuxpowerTek”).

Before using this product, please read this manual carefully and keep it for future reference.

Target Group

This manual is intended for both professionals and end users. Professionals and end users should possess the following knowledge and skills:

- Understanding of the operating principles of this device.
- Training in installation and electrical safety.
- Experience in installing and commissioning electrical equipment and systems.
- Familiarity with applicable local standards and regulations.

1. Safety Instruction

1.1 Safety Statements

This inverter is designed in compliance with international safety standards. Before installation, operation, or maintenance, please read this manual thoroughly and follow all safety warnings. Installation and operation must comply with local laws and industry standards. The safety information provided in this manual serves as supplementary guidance and does not replace local regulatory requirements.

Failure to use this equipment under the prescribed conditions may result in personal injury, equipment damage, or property loss. Such incidents are not covered under the warranty.

1.2 Symbol Conventions

The following symbols used in this document have the following meanings:

 DANGER	 WARNING	 CAUTION	 NOTICE
Indicates an extremely hazardous situation. Failure to observe this warning may result in serious injury or death.	Indicates a potentially hazardous situation. Failure to observe this warning may result in serious injury or death.	Indicates a situation that may cause minor or moderate personal injury if proper precautions are not taken.	Indicates a potentially hazardous condition that may result in equipment damage or property loss if ignored.

The symbols present on the nameplate of the HYBRID inverter convey the following meanings:

	Surface Temperature Warning. The inverter may produce heat while in operation. Avoid touching.
	High Voltage Warning. The inverter contains high internal voltage, presenting a life-threatening hazard.
	Electric Shock Warning.
	High Voltage Warning. Before performing any operations, ensure that the residual voltage within the inverter is discharged for a duration of 5 minutes.
	Please adhere to the documents attached.

1.3 Important Safety Notifications

There are many safety issues need to be carefully notified before, during and after the installation, and also in future operation and maintenance. The following are important safety notifications for the operator, owner and user of this product under normal conditions of use.

DANGER

Dangers of High Voltages and Large Current

- Beware of high PV voltage. Please turn-off the DC switch of PV Panel output before and during the installation to avoid electric shock.
- Beware of high grid voltage. Please turn-off the AC switch of grid connection before and during the installation to avoid electric shock.
- Beware of large current of the battery output. Please turn-off the battery module before and during the installation to avoid electric shock.
- Do not open the inverter when it's working to avoid electric shock and damages from live voltage and current from the system.
- Do not operate the inverter when it's working, only the LCD and buttons can be touched in limited cases by qualified personnel, other parts of the inverter can be touched when the inverter is under a safe state (e.g. fully shut-down).
- Do not connect or disconnect any connections (PV, battery, grid, communication etc.) of the inverter when it's working.
- Make sure the inverter is well grounding, an operator should make sure himself is good protected by reasonable and professional insulation measurements (e.g. personal protective equipment (PPE)).
- Inspect relevant existing wiring on-site of the installation is in good condition before installation, operation or maintenance.
- Inspect the connections are good between inverter and PV, battery and grid during installation to prevent damages or injuries caused by bad connections.

 DANGER

- Before performing maintenance, turn off the AC circuit breaker on the grid side first, then turn off the battery breaker, and finally switch off the PV DC breaker. Confirm that all indicator lights are off.
- After power-down, wait at least 5 minutes and use proper testing equipment to confirm that internal voltage has dropped to zero before beginning maintenance with protective gear.
- Even after shutdown, the inverter may still be hot to the touch. Allow sufficient cooling time, and always wear insulated gloves when handling the unit.

 WARNING**Avoid Misoperation and Inappropriate Usage**

- All the work of this product (system design, installation, operation, setting, configuration and maintenance must be carried out by qualified personnel as required.
- All connections must be in accordance with local and national regulations and standards.
- The inverter and system can inter-connected with the utility grid only if the utility grid permits it.
- All the warning labels or nameplates on the inverter must be clearly visible and must not be removed, covered or pasted.
- The installation should consider the safety of future users when choosing the right position and location as specified in this manual.
- Please keep the children away from touching or misusing the inverter and relevant systems.
- Beware of burning hurt, the inverter and some parts of the system could be hot when working, please do not touch the inverter surface or most of the parts when they are working. During inverter working states, only the LCD and buttons could be touched.

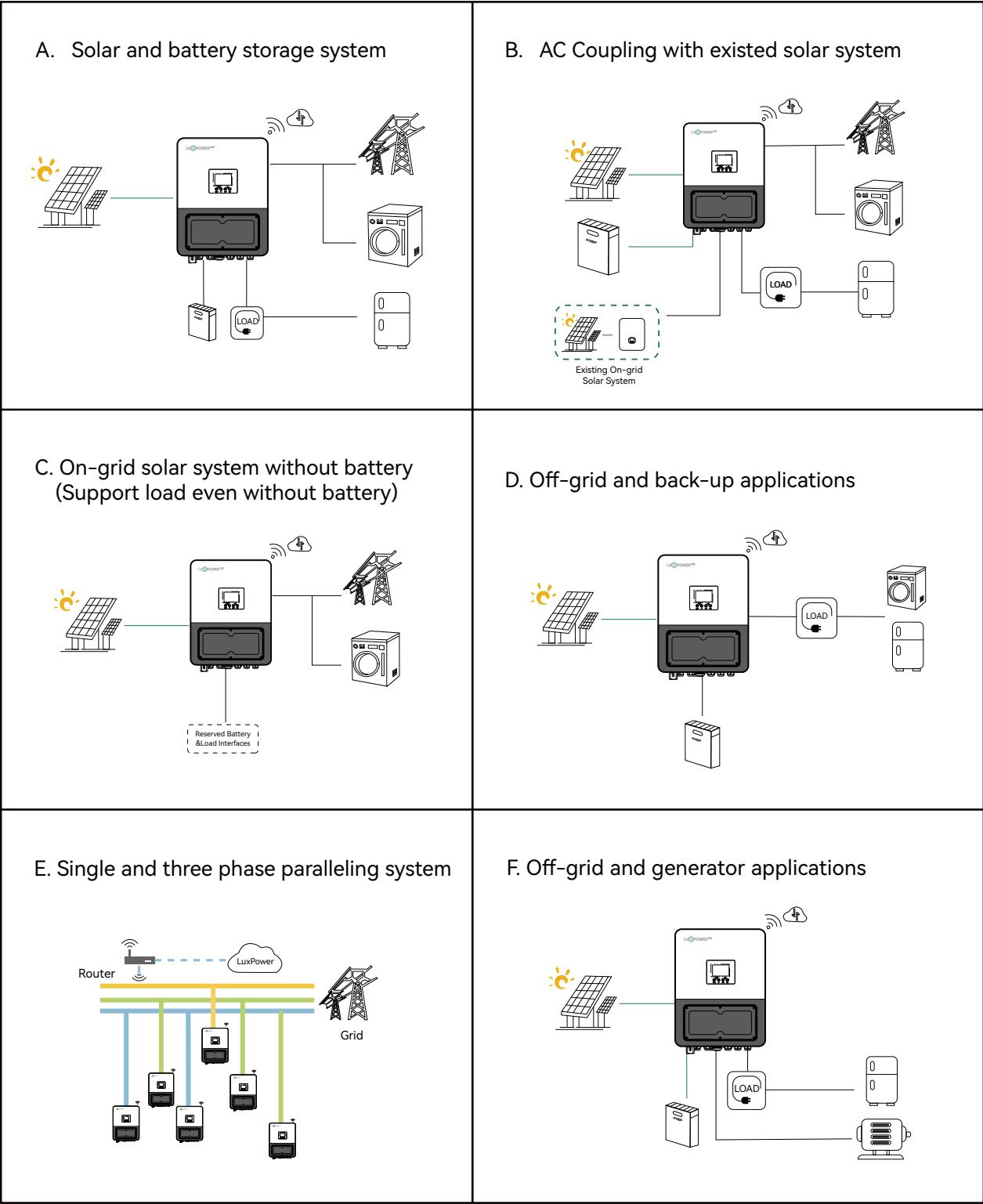
 NOTICE**Avoid Misoperation and Inappropriate Usage**

- Please carefully read this manual before any work is carried out on this inverter, the installation, please keep this manual carefully stored and easy to access at any time.
- The qualified personnel should have had training in the installation and commissioning of the electrical system as well as dealing with hazards, also they should have the knowledge of the manual and other related documents. As the installer or operator they are required to be familiar with local regulations and directives.

2. Brief Introduction

2.1 System Solution

This product and relevant system is suitable for following system applications (system diagram):

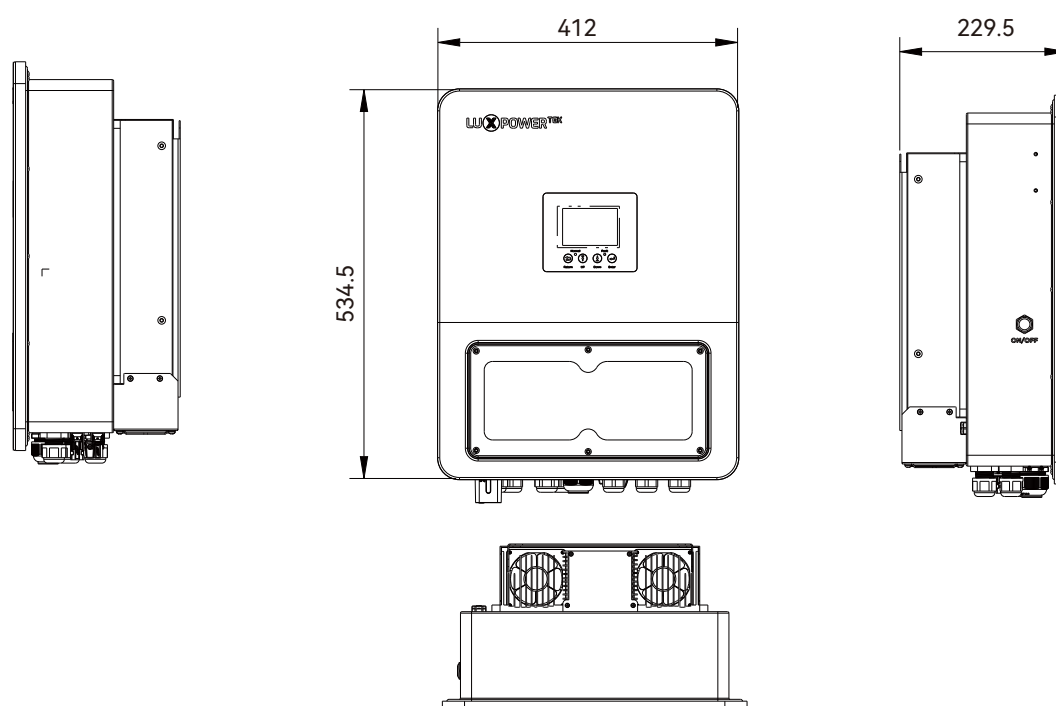


2.2 Product Features

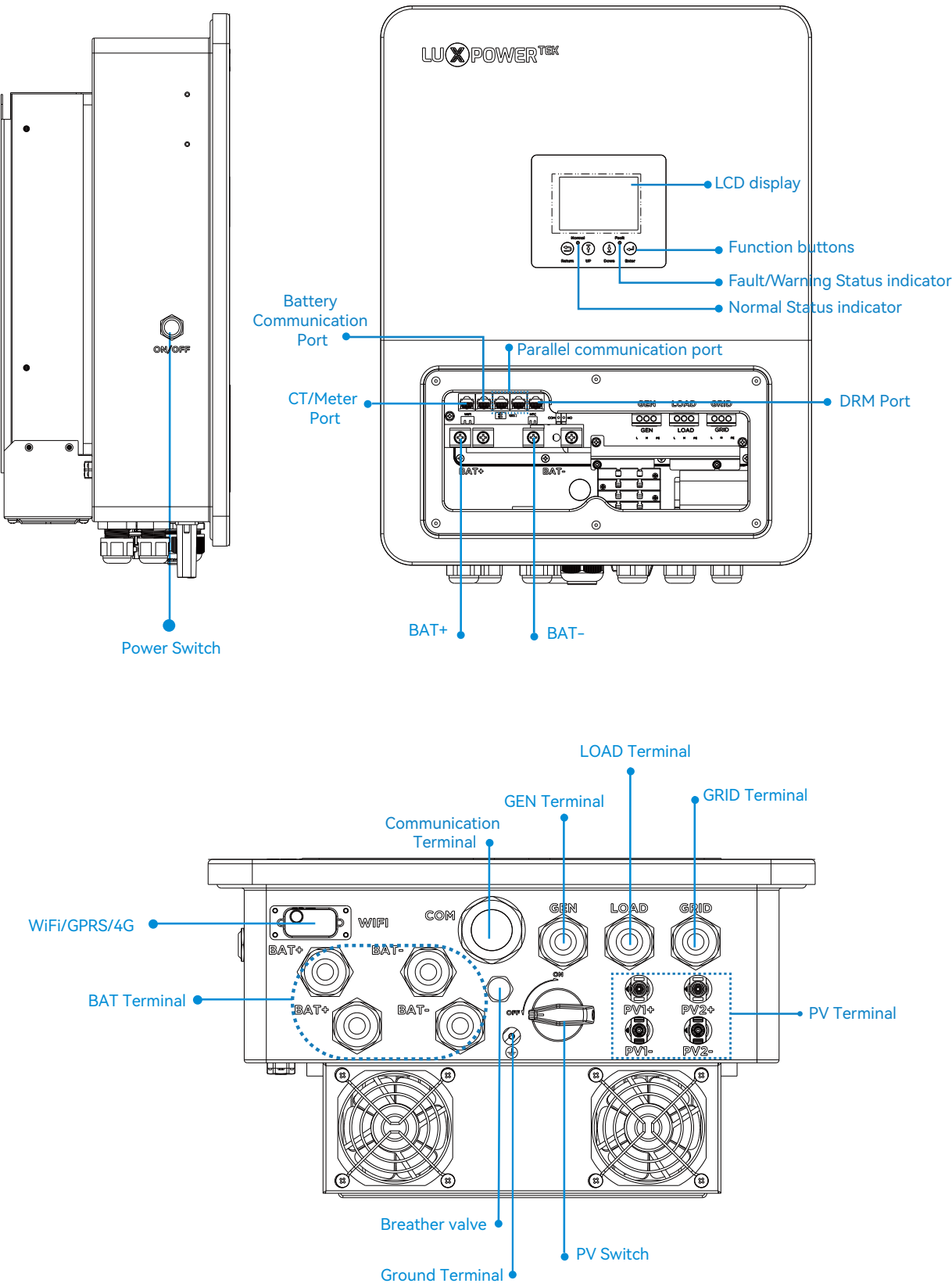
- **Multi-functional High-frequency Pure Sine Wave On-grid Inverter:** Output power from 6 kW to 8 kW, meeting the needs of medium to large residential energy storage systems.
- **Next-generation optimized internal structure:** The overall structure has been comprehensively upgraded with an optimized layout, significantly improving ease of transportation, installation, and maintenance.
- **IP66 Weatherproof Design:** Durable outdoor-ready enclosure ensures reliable performance in harsh environments, including dust, rain, and high humidity.
- **Versatile Applications:** Suitable for on-grid systems, off-grid systems, backup power supply, and self-consumption scenarios.
- **Dual MPPT Design:** Supports up to 12 kW PV input with 2 independent MPPTs for enhanced energy generation efficiency.
- **Power Factor 0.6~1.0:** Ensures high-efficiency output.
- **Flexible Battery Configuration:** Supports operation with or without batteries.
- **Dedicated Generator Port:** Enables remote start/stop control of generators.
- **Hybrid Power Supply:** PV and grid power can simultaneously supply the loads.
- **Scalable Parallel Operation:** Supports up to 16 inverters in parallel for flexible capacity expansion.
- **Smart Battery Management:** Compatible with mainstream lithium battery BMS via CAN/RS485 communication.
- **Remote Monitoring & Upgrade:** Supports remote monitoring and firmware upgrade via the dedicated WiFi communication dongle, with access through the free mobile APP (iOS/Android).
- **Newly upgraded touch color display:** An intuitive and clear user interface enables real-time monitoring of operating status and allows quick and convenient inverter configuration.

2.3 Product Dimensions

The overall dimensions of the inverter are shown in the figure below (unit: mm):

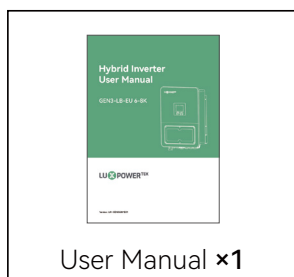
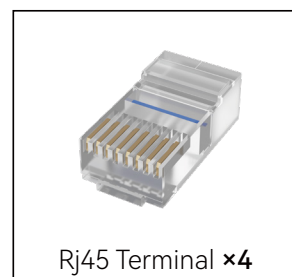
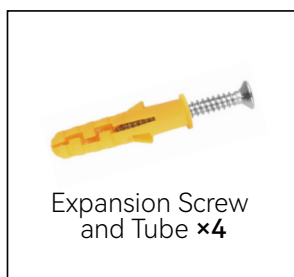
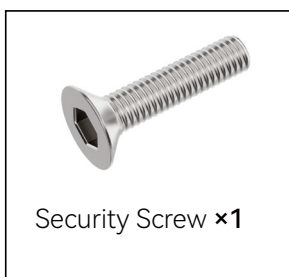
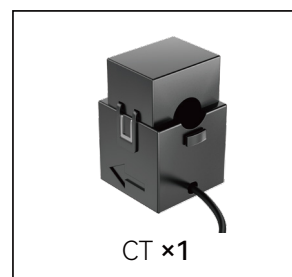
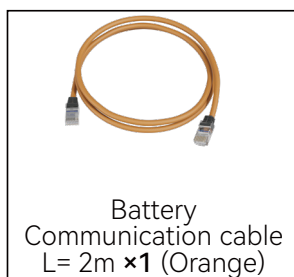
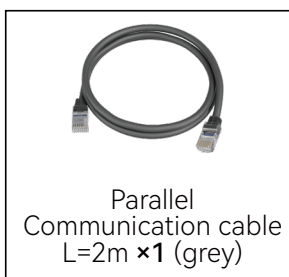
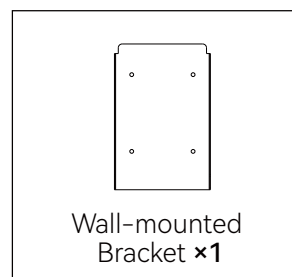
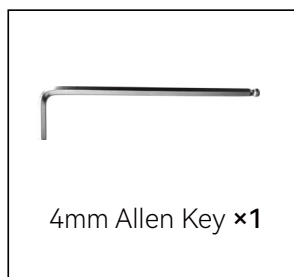


2.4 Interface of the Inverter



2.5 Packing List

When the packaging is unpacked, the inner components should match those listed in the list below.



3. Handling and Storage

3.1 Handling

Improper handling may cause personal injury!

- Before handling, carefully check the symbols and markings on the inverter packaging and follow the indicated direction.
- When handling manually, wear protective gloves to avoid injury.
- The inverter is heavy; at least two people are required for manual handling, and the lifting capacity must be confirmed beforehand.
- Move the inverter to its designated installation location before unpacking or installation.
- Do not place the inverter directly on a hard surface, as this may damage its metal casing. Place a protective pad such as foam or sponge underneath.
- Always hold the inverter by its designated handles during transport. Do not lift or carry the inverter by its terminals.
- Do not place heavy objects on top of the inverter under any circumstances.

3.2 Storage

If the inverter is not to be used immediately, it should be kept inside its original packaging and stored in a well-ventilated, dry environment.

- The inverter and all its accessories must remain in their original packaging until installation.
- Storage temperature: -40°C to 65°C ; relative humidity: 0–95%.
- Packages must be stored upright and may be stacked up to seven (7) layers high.
- Do not expose the inverter or its packaging directly to sunlight, rain, or high humidity.
- Keep the inverter away from corrosive, dusty, or chemically reactive environments.



4. Installation

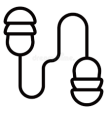
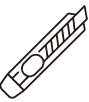
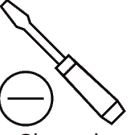
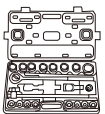
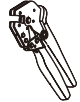
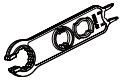
4.1 Precautions

 Do not install the inverter in the following environments:

- Under direct sunlight.
- Areas where flammable or explosive materials are stored.
- Potentially explosive atmospheres.
- Locations directly exposed to cold air outlets.
- Near television antennas or antenna cables.
- At altitudes above 2000 m.
- Areas subject to rainfall or humidity greater than 95%.
- Installation within 1 km of coastal areas with high salt spray is not recommended, as it may affect the product's reliability and service life.

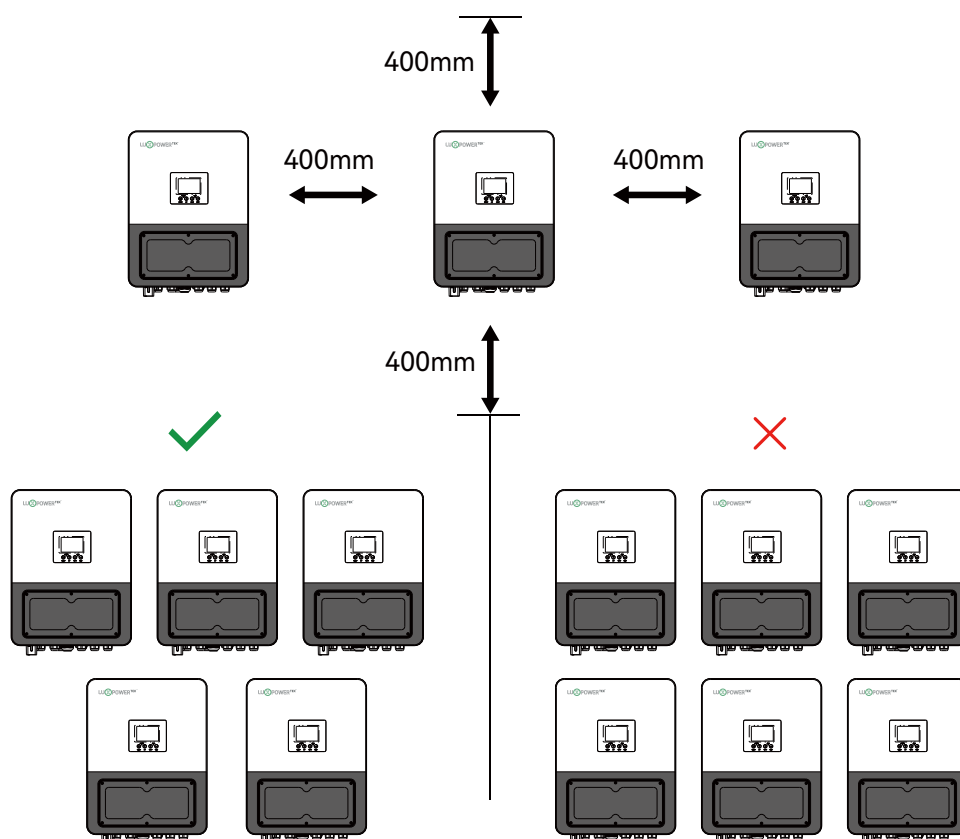
4.2 Installation Tools

Recommended tools for installation:

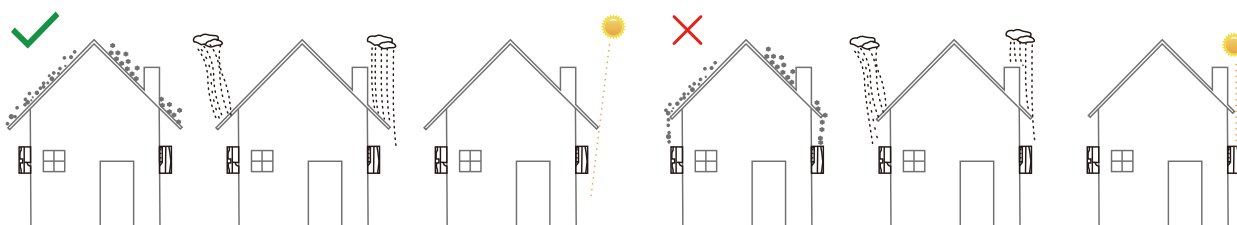
				
Protective goggles	Anti-dust mask	Earplugs	Work shoes	Work gloves
				
Percussion drill	Utility knife	Marker	Slotted screwdriver	Cross screwdriver
				
Pliers	Socket wrenches set	Rubber hammer	Wire cutter	Level
				
Anti-static wrist strap	Wire stripper	Heat gun	Hydraulic pliers	Allen Key
				
Crimping tool 4-6 mm ²	Solar connector wrench	Multimeter ≥1100 VDC	RJ45 crimping plier	Cleaner

4.3 Location Selection and Installation

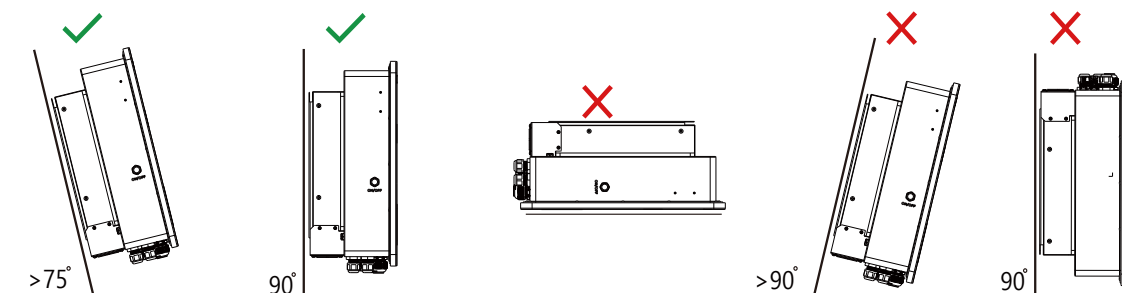
- The wall for mounting should be strong enough to bear the weight of inverter.
- Please maintain the minimum clearances below for adequate heat dissipation.



- Never install the inverter in a place with direct sunlight, rain or snow. Please refer to below figure and select a well shaded place or install a shed to protect the inverter from direct sunlight, rain and snow etc. PROTECT the LCD screen from excessive UV exposure.

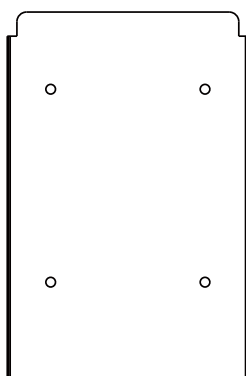


d). The inverter should be installed upright on a vertical surface.

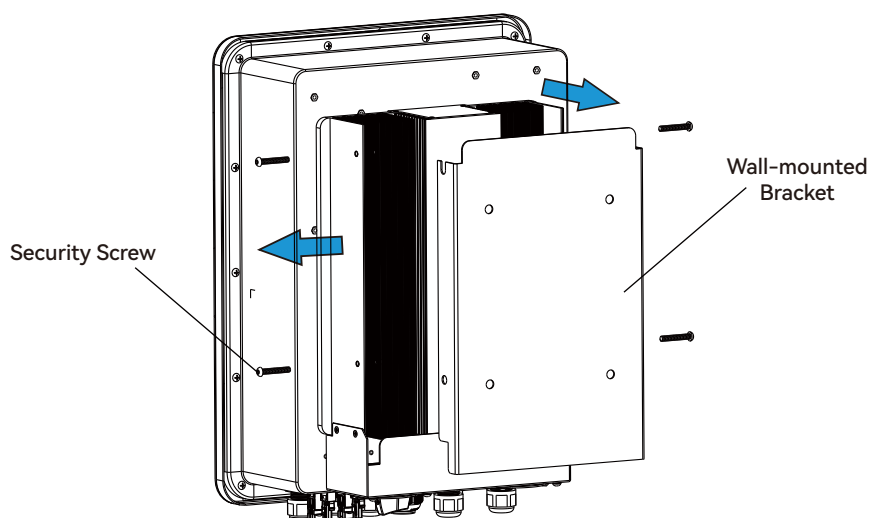


4.4 Installing the Inverter

This inverter is designed for wall-mounted installation. It must be installed on a vertical and solid surface, such as a wooden stud wall, brick wall, or concrete wall. Due to the weight of the inverter, it is recommended that at least two people work together during installation.

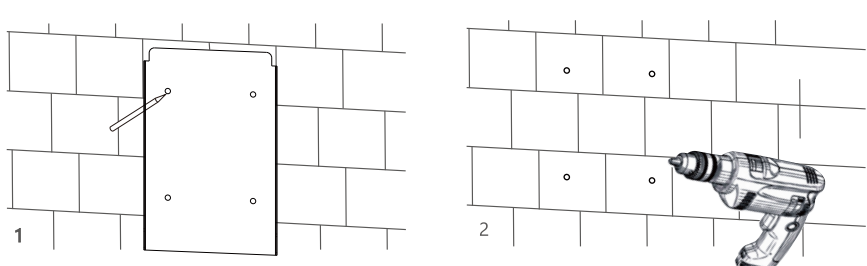


The mounting steps are as below: (Use brick wall as example)

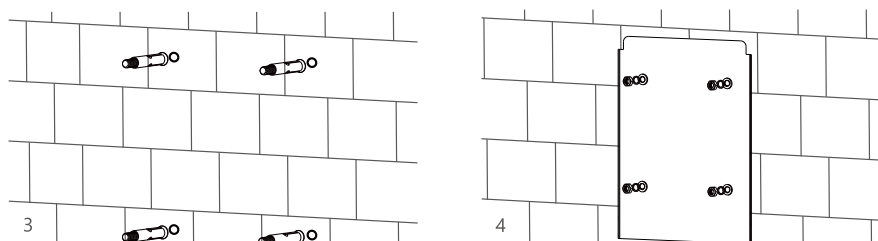


Please remove the wall-mount bracket from the back of the inverter before installation.

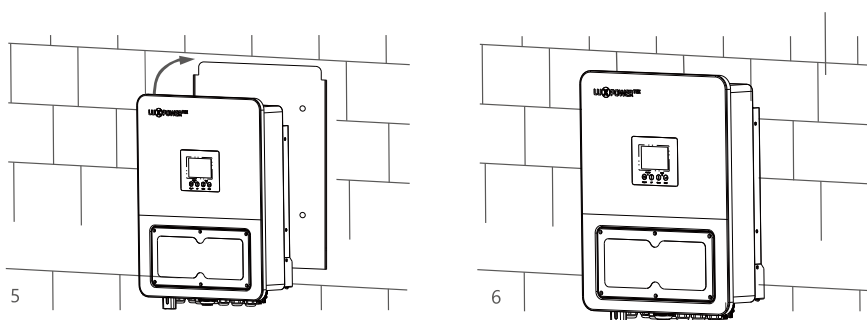
Step 1. Mark the positions of drill holes with the mounting bracket, then drill 4 holes of 8mm (5/16inch) diameter and make sure the depth of the holes is deeper than 50mm(2inch).



Step 2. Install and tighten the expansion bolts into the holes. Then use the corresponding nuts and washers (packaged together with the expansion bolts) to install and fix the wall-mounting bracket on the wall.



Step 3. Hang the inverter onto the wall-mounting bracket and lock the inverter on the wall using one Hex socket countersunk screw screw onto the right side of the heatsink.



For installation on wood studs

Fasten the mounting bracket on the studs with 4 wood screws, then hang the inverter onto the bracket and lock the inverter on the wall with 2 self-tapping screws. Please note that the wood screws and self-tapping screws are not provided with the inverter. Installers need to prepare the screws before installation.

5. Electrical Connection

5.1 Precautions

During electrical operations, personnel with expertise must wear appropriate protective equipment.

DANGER

- Caution: High voltage is present within the inverter!
- Warning: Photovoltaic strings exposed to sunlight can generate hazardous voltages.
- Before completing any electrical connection, make sure the PV Switch, System Switch, and AC Breaker are all disconnected
- Before conducting electrical connections, ensure that all cables are de-energized.

WARNING

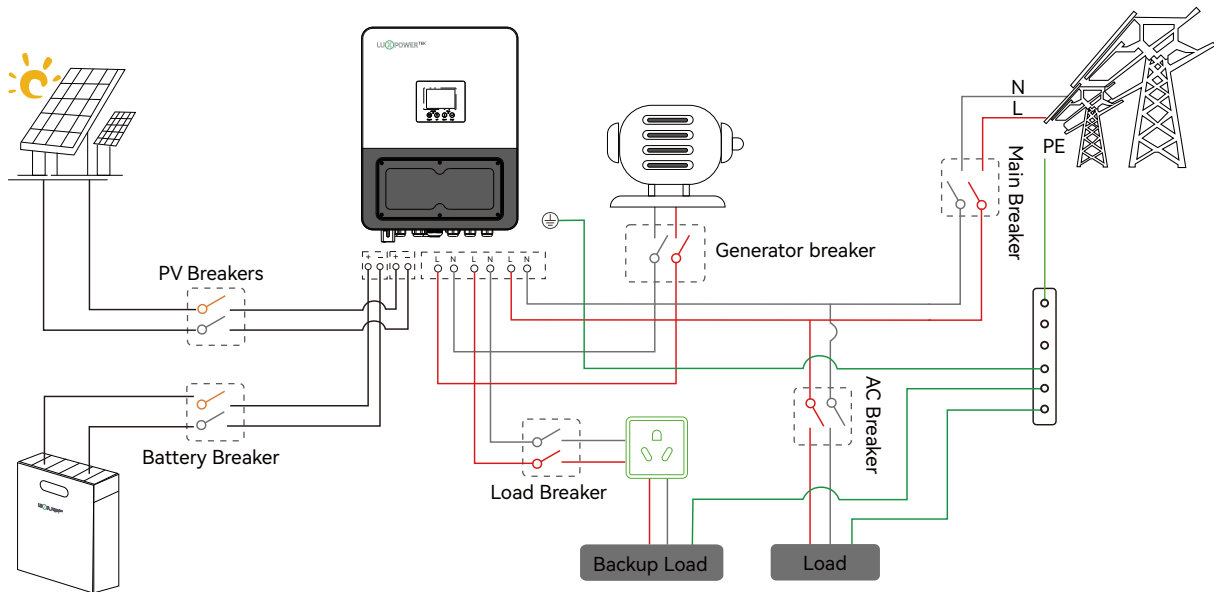
- Improper wiring operations may cause equipment damage or personal injury.
- All wiring operations must be performed independently by qualified technicians.
- Throughout the electrical connection process, use insulated tools and wear PPE.
- Cables used in the PV power system must be securely connected, in good condition, properly insulated, and meet the specified ratings.
- Strictly follow the connection instructions provided in this manual or other relevant documents.
- Any inverter damage caused by incorrect wiring is not covered under warranty.

CAUTION

- The wiring process must comply with the safety instructions of the PV modules.
- All electrical installations must conform to the national or regional electrical standards of the installation site.

5.2 Connection Overview

The system connection diagram is as below:



NOTICE

1. Max. AC input is 52.7A

2. About the "Load" terminal on the Inverter

In our inverter system, there is a port labeled "Load," which is specifically used to connect essential loads. On the inverter's LCD screen, this terminal is labeled as "EPS," indicating Emergency Power Supply.

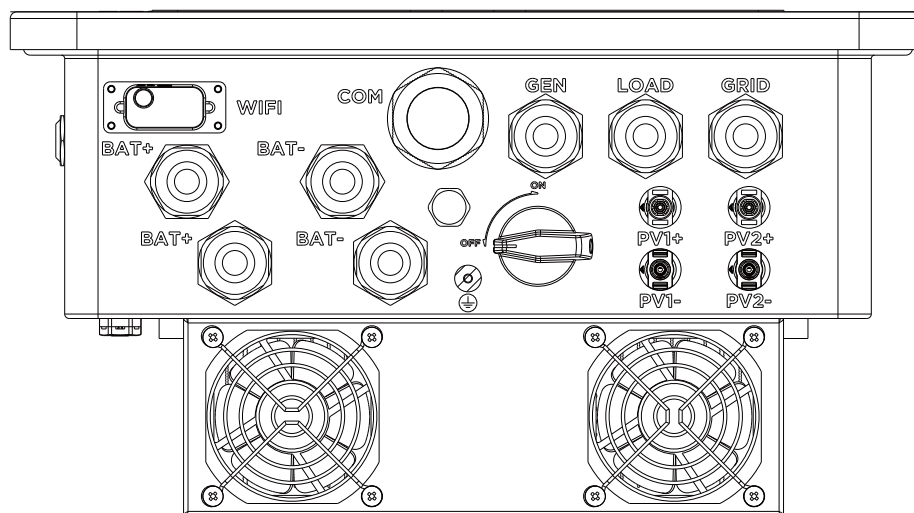
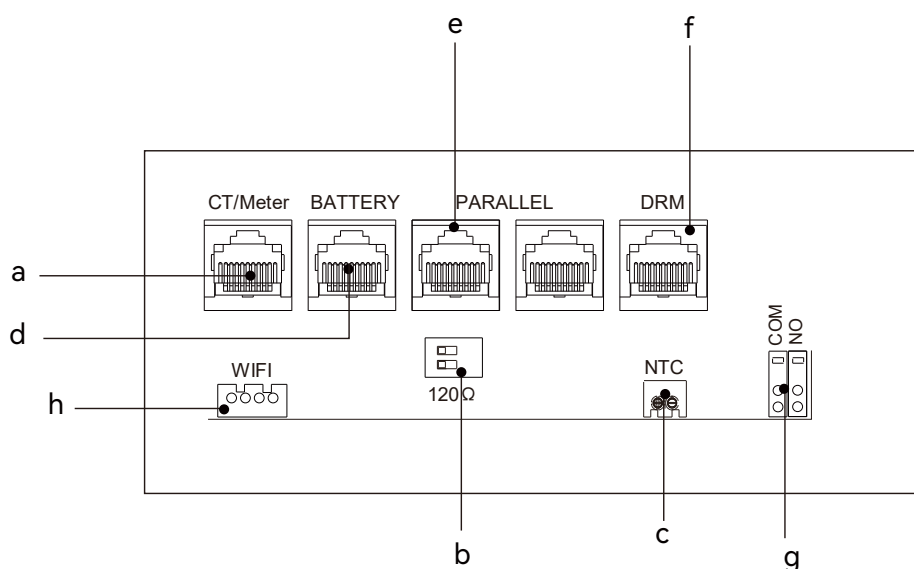
In some sections of our manual, this terminal is also referred to as "Backup Load."

Regardless of the term used, these all refer to the same port, which functions to ensure that, in the event of a power outage, the connected critical loads can continue to be powered by solar panels or the storage battery, thereby maintaining the operation of essential devices.

5.3 Recommended Breakers

Inverter model	GEN3-LB-EU 6-8K
PV Breakers (2Px2)	600V/25A
Battery Breaker (2P)	100V/250A
Main Breaker (2P)	63A/230Vac
Load Breaker (2P)	63A/230Vac
Generator breaker	63A/230V

5.4 Terminal Overview



a	For detailed interface definitions of CT&METER 485 and INV 485, please refer to section 5.9.
b	CAN Matching resistance: Set DIP switch when use inverters in parallel
c	Connection for temperature sensor of lead-acid battery
d	Battery communication port (CAN&RS485) please check Chapter 5.5.2 for Pin definition
e	Parallel communication port. Please check Chapter 5.11 for Parallel connection
f	DRM port: is used for demand response control
g	GEN (NO&COM) : Connection for generator auto-start function
h	Wifi/GPRS/4G/WLAN dongle connection

5.5 Battery Connection

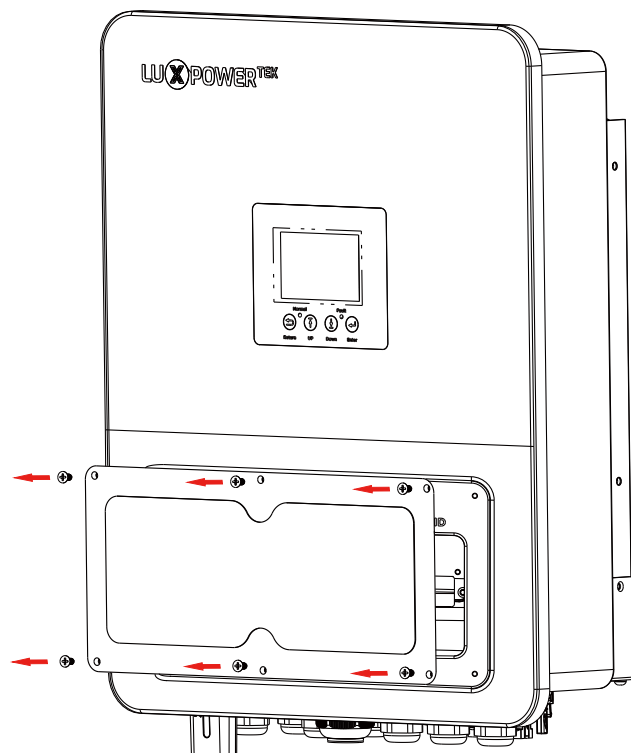
Wiring instructions

Note: For the final installation, circuit breakers complying with IEC 60947-1 and IEC 60947-2 standards must be equipped and installed together with the device.

NOTICE

Before Wiring

- All wiring work must be carried out by qualified professionals to avoid the risk of electric shock.
- Using proper AC input cables is critical for system safety and efficient operation. To reduce the risk of injury, please use the cable specifications recommended in this manual.
- Before performing any wiring operations, remove the bottom cover of the inverter (by loosening the 6 screws shown in the diagram).
- Ensure the inverter is completely powered off before removing the cover.
- Double-check the polarity of all DC cables during wiring.
- Strictly follow the recommended cable sizes and specifications. Incorrect wiring may cause overheating or fire hazards.
- Ensure that all terminals are tightened according to the recommended torque. Loose connections may result in malfunction or damage.



5.5.1 Battery Power Cable Connection

NOTICE

- The cable insulation rating should not be lower than 90 °C.
- Keep the cable length as short as possible to reduce voltage drop.
- The wiring sequence should be: connect the positive (+) terminal first, then the negative (–) terminal. Polarity must be strictly observed during wiring.
- All terminals must be tightened according to the recommended torque to avoid overheating caused by poor contact.
- Use extreme caution when working with metal tools around batteries. Dropped tools may cause sparks, short circuits, or even explosions.
- Put the built-in battery breaker in the off position before connecting or disconnecting batteries.

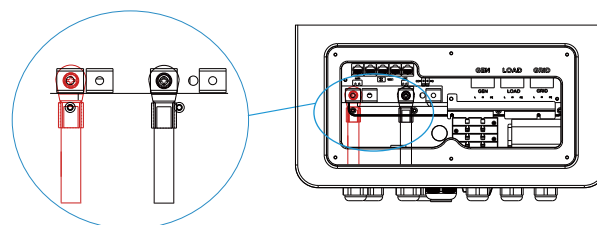
Cable Requirement:

Model	Cable Size	Minimum Voltage	Torque for cable connection	OT ring
6K/8K	1-2AWG(35-50 mm ²)	600V	20(N·m)	RNB38-6

Recommended OT terminal: M6(Min.), M8(Max.)

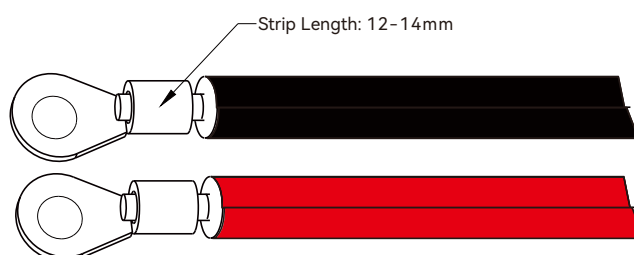
NOTICE

For the GEN3-LB-EU 8K model, two battery cables (1-2 AWG) must be connected to both the positive and negative terminals.



Wiring Procedures:

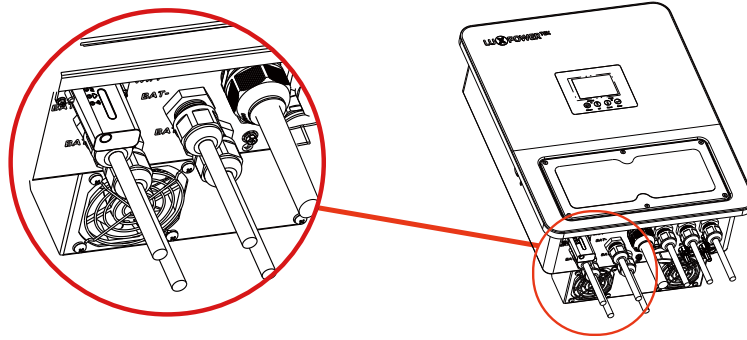
Step 1: Open the wiring compartment cover. Strip 0.47–0.55 inch (12–14 mm) of insulation from the cable ends and crimp cable lugs onto the ends of the cables.



Step 2: Route the battery cables with crimped terminals through the cable gland and into the wiring compartment. Connect the positive cable to BAT+ and the negative cable to BAT-.

Step 3: Fasten the OT terminals of the battery's positive and negative cables to the corresponding lugs according to the polarity markings.

Step 4: Ensure the cable gland is tightened securely to achieve proper waterproof sealing.



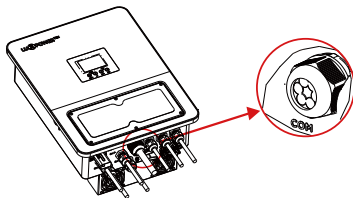
5.5.2 Battery Communication Cable Connection

When using lithium-ion batteries, a correct battery communication cable must be used to connect the battery to the inverter. If the lithium battery cannot communicate with the inverter, please select the “Lead-acid” battery type in the system settings.

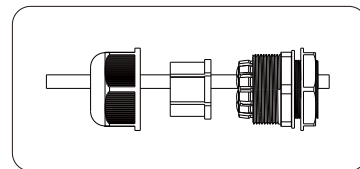
The battery communication port on the inverter uses an RJ45 socket. The communication cable must be made according to the RJ45 pinout provided by the inverter and matched with the correct pinout of the battery’s communication port. The inverter supports both CAN and RS485 communication protocols.

Operating Procedures:

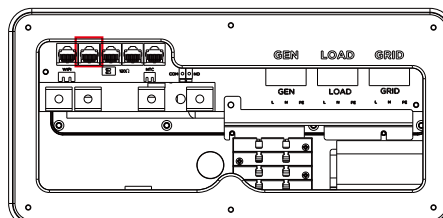
Step 1: Loosen the COM gland nut on the inverter casing, and remove the sealing plug from the cable gland as required. Do not remove the sealing plug from any unused cable entry ports.



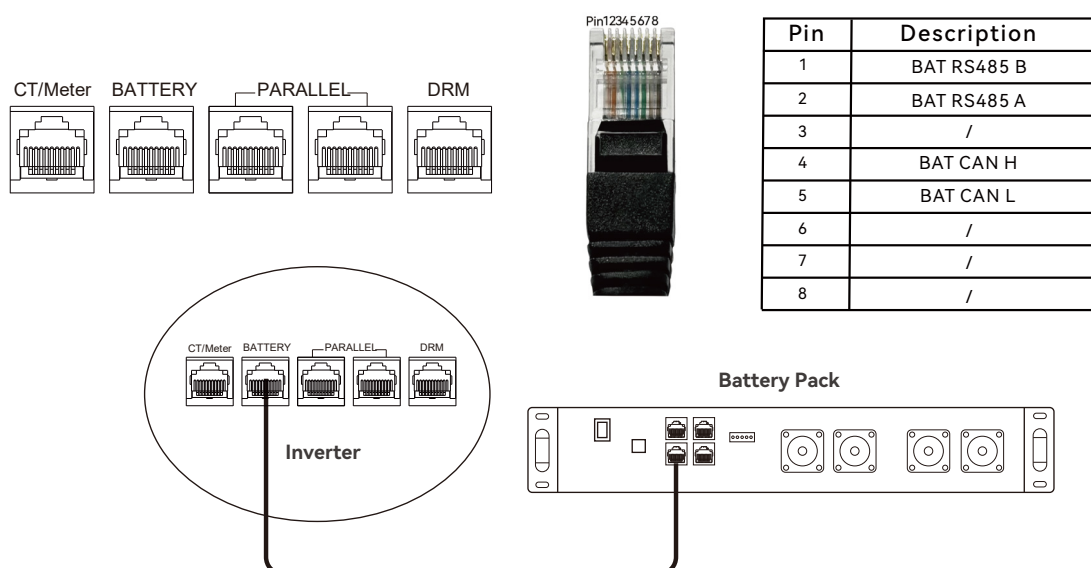
Step 2: Pass the battery communication cable sequentially through the gland nut, cable gland, and connector housing.



Step 3: Insert the RJ45 connector into the inverter’s internal battery communication port. Finally, tighten the gland nut to ensure a firm and sealed connection.



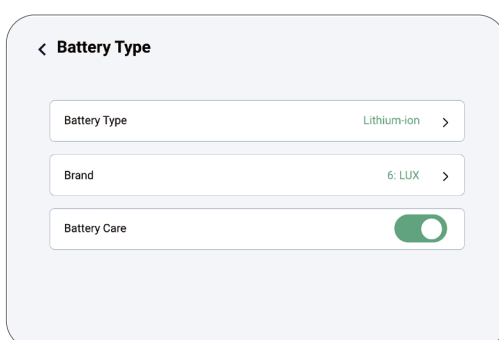
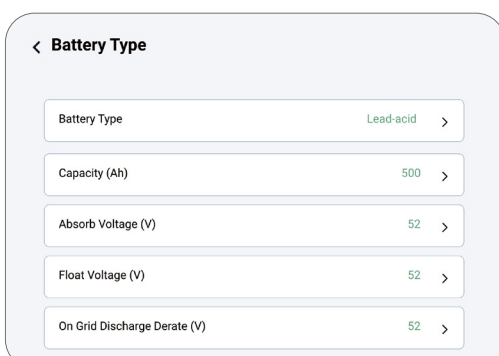
Step 4: If the manufacturer does not provide a dedicated communication cable, crimp the cable yourself according to the PIN definition.



Step 5: Configure the battery type via the LCD: Go to “Battery Basic”→“Battery Type” → Select “Lithium-ion”. In the menu, choose the correct battery brand/model (refer to the Luxpower battery compatibility list).

If using a Luxpower battery, select lithium type for option 6: Luxpower; for Hina battery, select lithium type option 1: Hina Battery.

After battery power cable and communication cable connection, users need to enter Battery Setup and choose battery type and brand on the inverter LCD.



NOTICE

For Li-ion battery

1. Please make sure the lithium-ion battery to be used is compatible with our inverters. Please contact your distributor for updated battery compatible list.
2. If you are using multiple battery modules with the inverter, the inverter communication cable must be connected to the master battery. Please check with your battery supplier for battery master and slave settings.

For Lead-acid battery

1. The temperature sensor for lead-acid battery is optional. If you need it, please contact distributor for purchasing.
2. There are three stages for lead-acid battery charging. For charging/discharge related parameters, “Settings”→“Battery Setup”→“Battery basic” (this page will appear only when set to lead-acid battery).

5.6 Ground Cable Connection

To ensure electrical safety and proper system grounding, please follow the steps below to install the ground cable to the inverter chassis.

NOTICE

- When using multiple inverters in parallel, all chassis ground cables must be connected to the same grounding point to avoid potential voltage differences.
 - The chassis ground does not replace the PE cable of the AC output. Both connections must be made separately.
 - If local standards require equipotential bonding, use a dedicated grounding busbar to connect PV module frames, racks, and other components accordingly.
- ⚠ Proper grounding of the equipment is mandatory. Operation without grounding is strictly prohibited.
- ⚠ **WARNING:** Improper grounding may cause electric shock hazards or equipment malfunction. Always comply with local electrical codes and standards.

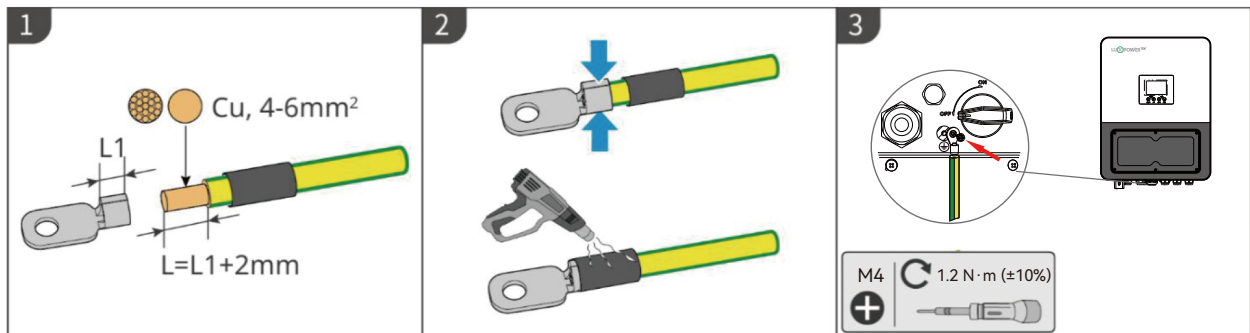
Name	Cable	Cable Size (mm ²)	OT Terminal	Torque (N·m)
Ground cable	Single-core copper wire (solid or stranded)	6 mm ²	M4	2.0 N·m

Installation Procedures

Step 1: Strip the grounding wire, insert it into the OT terminal, and use a crimping tool to secure it firmly.

Step 2: Use a torque wrench to fasten the OT terminal to the inverter grounding port with a recommended torque of 1.2 N·m (±10%).

Step 3: Verify that all grounding terminals are firmly secured and that wires are not loose.



5.7 AC Cable Connection

⚠ CAUTION

- The AC terminals are divided into IN (input) and OUT (output). Do not connect them incorrectly. (**Input port:** Grid and GEN; **Output port:** Load)
- Ensure that L1, L2, and N are wired with the correct polarity. Reversed wiring may cause a short circuit, especially during parallel operation.
- Before performing AC input/output wiring, make sure the AC power is completely disconnected to avoid the risk of electric shock.
- Use a multimeter to verify that the AC voltage is 0 Vac before proceeding.
- Before connecting the inverter to the grid, approval must be obtained from the local utility company in accordance with national and regional grid-connection regulations.

⚠ The Load Port must not be connected to any type of transformer:

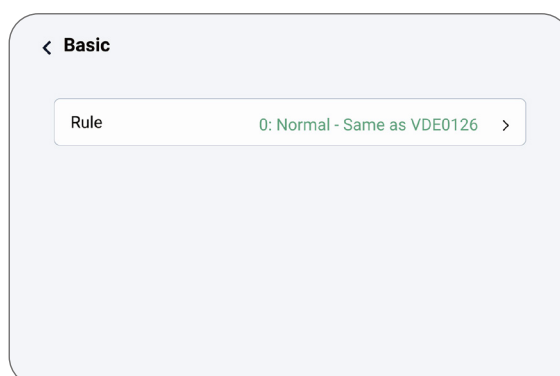
- Connecting a transformer may cause abnormal operation of the inverter's internal circuits, potentially leading to overload, damage, or safety hazards.
- Only connect household appliances or loads within the rated power.
- For extended applications, strictly follow the official installation guidelines and consult technical support.

5.7.1 Recommended Cable

Terminal	Cable Size (mm ²)	Minimum Voltage
GRID	8-6 AWG(9-14mm ²)	600V
LOAD/GEN	10AWG(4-6mm ²)	600V

5.7.2 Grid Regulation Selection

Our inverters are compliant with on-grid regulations in several areas, including standards such as NRS 097, G99, G100, and more. Select the rule that corresponds to your location in Advanced setting.

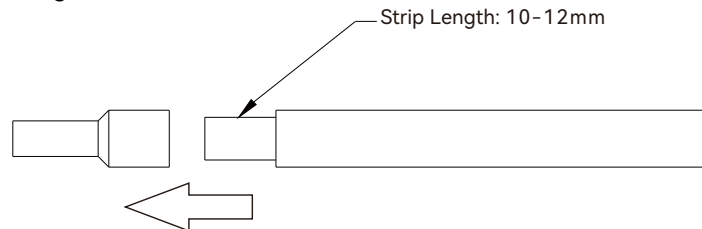


5.7.3 GRID & LOAD Wiring

Wiring Procedures

Step 1: Before wiring, make sure that all AC breakers or isolators are turned off.

Step 2: Strip approximately 0.39–0.47 inch (10–12 mm) of insulation from the end of each cable and crimp tubular cable lugs.



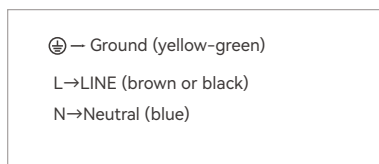
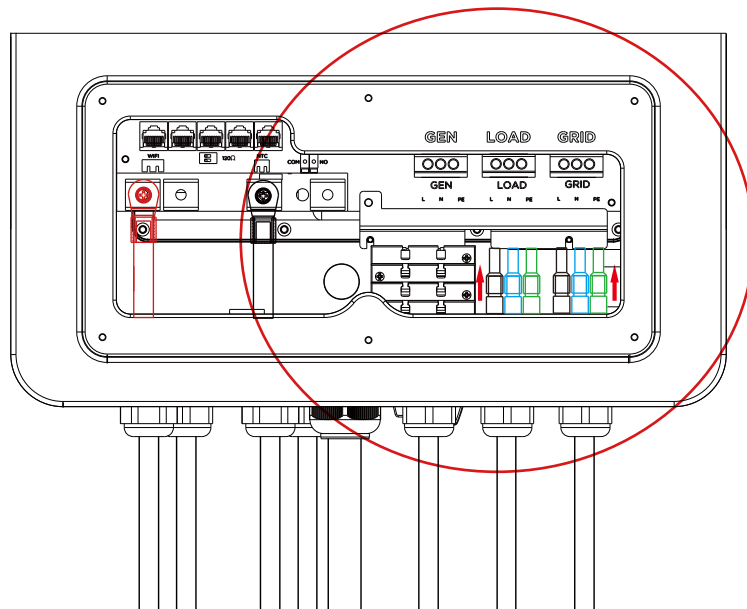
Step 3: Open the wiring compartment and loosen the cable gland. Route the cables through the openings of the cable gland.

Step 4: Refer to the labels inside the wiring compartment and connect the cables to the correct terminals accordingly.

Step 5: Tighten the screws above the terminals to ensure the cables are securely connected.

Step 6: Tighten the cable gland to ensure proper waterproof sealing.

***Note:** Do not remove the rubber plugs from any unused cable gland openings, as this may compromise the waterproof performance.

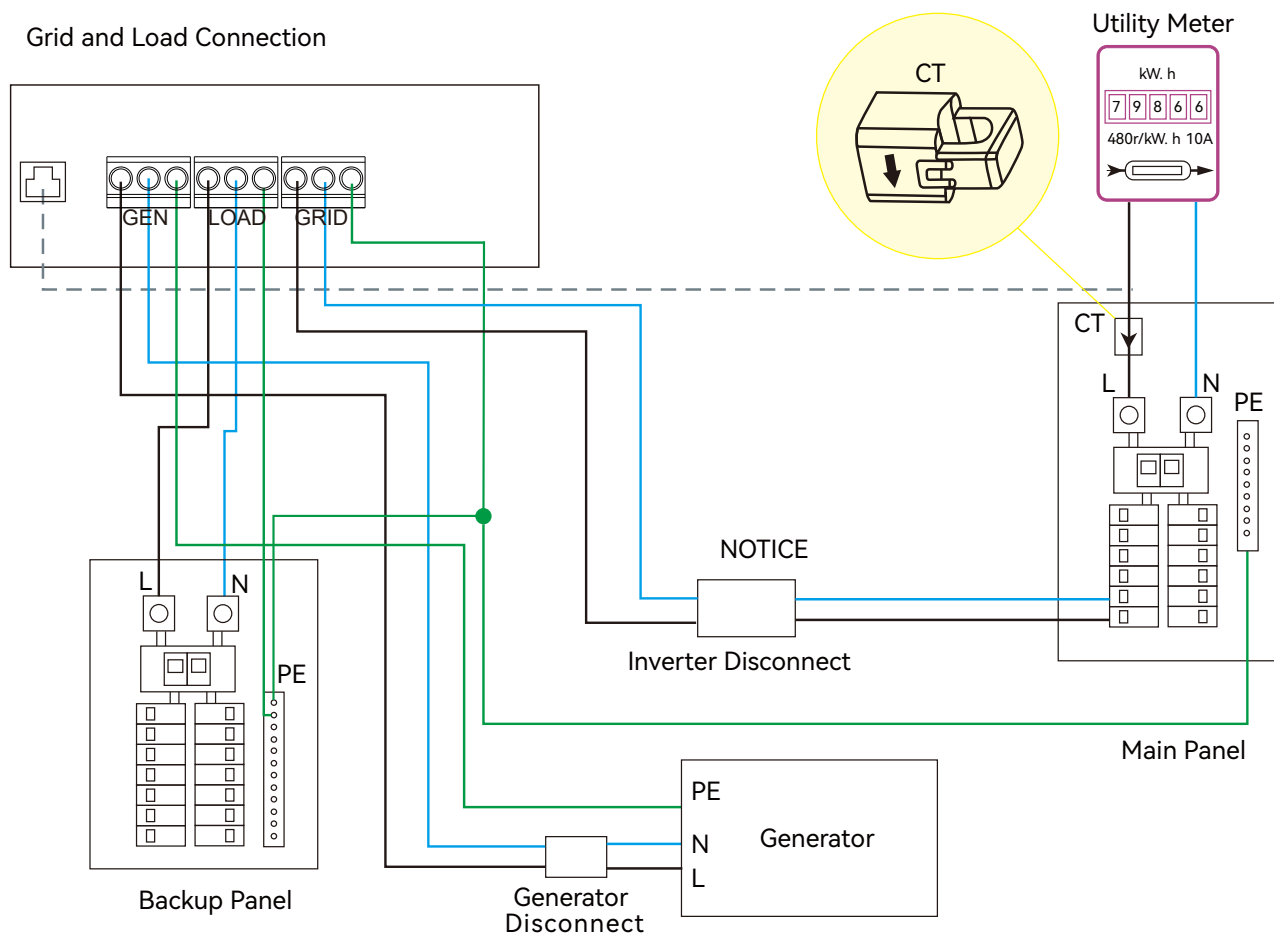


NOTICE

The inverter features residual current detection and protection functions. If the inverter must be equipped with an AC circuit breaker with residual current detection capability, an AC circuit breaker with a rated residual current greater than 300mA must be selected.

5.7.4 Connection Diagram

The inverter can be connected to the load side of the service disconnecting means if the busbar rating in the main panel can meet the NEC705.12(B)(3) requirements. Otherwise, a Line side connection can be made to avoid an expensive main panel upgrade.



5.8 PV Connection

The PV connection of GEN hybrid inverter is the same to traditional on-grid solar inverter (string inverter).

NOTICE

- Before connection the PV, please use the multi-meter to measure the PV array voltage to verify if PV array is working normally, if not, please fix the PV array to normally working states before connection.
- When your PV panel ambient temperature could possibly be lower than 0°C, then please check the PV array voltage up ceiling and if you are not sure please ask your system or panel provider for further assistance. As when temperature is extremely low the PV panel voltage will increase by a certain percentage.

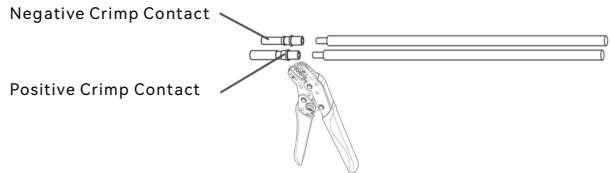
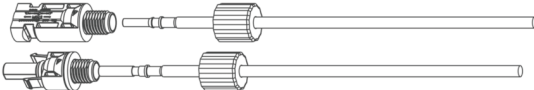
Cable Requirement:

Cross-section	Cable Diameter	Minimum Voltage
3 - 6 mm ²	2-2.6mm	600V

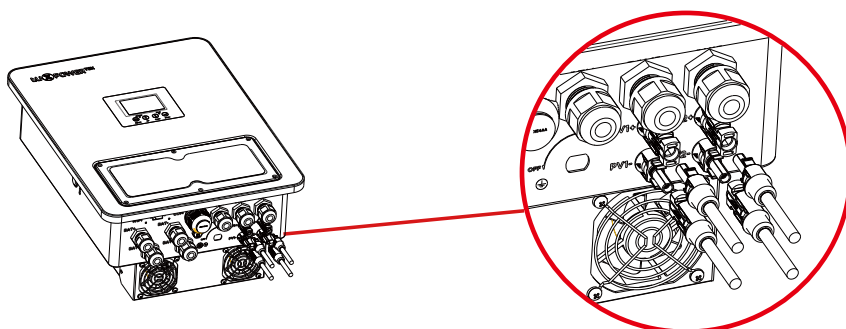
Wiring Procedures

Step 1: Turn off or disconnect the PV switch (DC switch). Then keep this switch always open during the connection.

Step 2: Assemble the PV connector.

<p>a). Strip 6~8mm insulation from the cable end.</p> 	<p>b). Assemble the cable ends to crimp contacts.</p> 
<p>c). Lead the cable through the cable gland, then insert into the corresponding insulator until it snaps into place, then tighten the cable gland.</p> 	

Step 3: When verified the PV connector is tightly, align the 2 half connector and mate them together by hands until 'click' is felt or heard.



● NOTICE

- Do not connect PV modules that may pose a leakage risk to the inverter. For example, grounded PV modules can cause inverter leakage. Ensure that the PV+ and PV- terminals of the PV array are not connected to the system grounding bar.
- It is strongly recommended to use a PV combiner box with surge protection. Without it, lightning strikes may damage the inverter.
- A dedicated DC circuit breaker (600 V / 25 A) must be installed between the PV modules and the inverter.
- Cables must be UV-resistant, double-insulated, and designed for outdoor PV applications.
- Ensure that cable voltage drop does not exceed 2%. If the cable length is too long, increase the conductor size accordingly.
- It is strongly recommended to install a DC isolator switch compliant with IEC 60947-3 or equivalent standards to enhance operational safety.

5.9 CT/Meter Connection

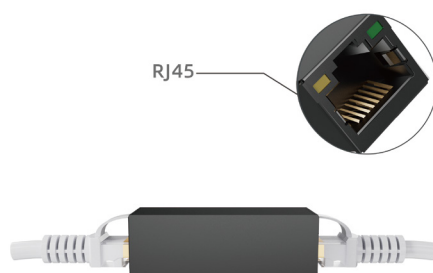
To measure the power import from and export to the grid, a CT or one meter must be installed at the service entry point in or near the main service panel. We standard supply 1 CT for one inverter.

⚠ WARNING

Before connecting any AC cables or current transformers (CTs), ensure that all AC cables are completely isolated from the AC power supply to avoid the risk of electric shock.

Installation and Wiring Requirements

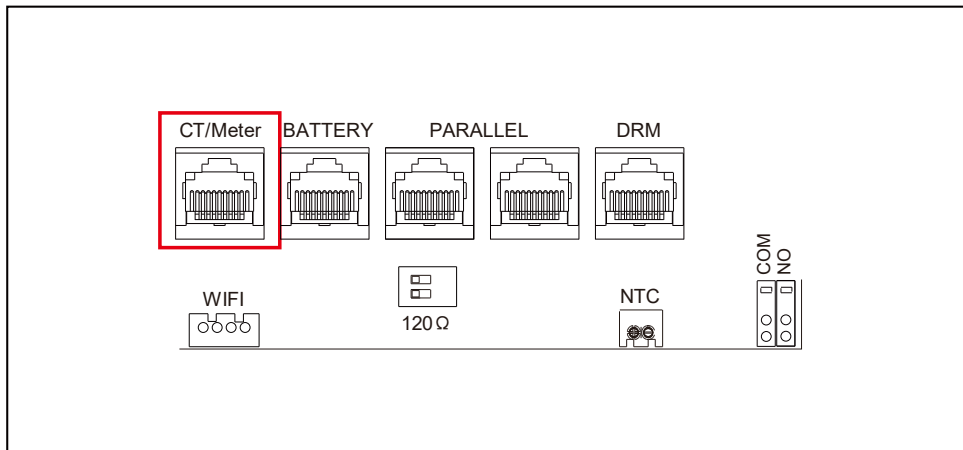
- Do not install CTs on the neutral (N) or protective earth (PE) lines.
- When installing the CT, ensure that it is correctly wired to the corresponding phase according to the labels.
- Do not install CTs on uninsulated conductors.
- After wiring, it is recommended to secure the CT clamps and cables with insulating tape or cable ties to prevent loosening or detachment.
- The CT wires can be extended with a common ethernet cable if the length is not enough. An RJ45 adapter is needed for the extension. The CT wires can be extended up to 300ft(around 100m).



5.9.1 CT Port Pin Definition

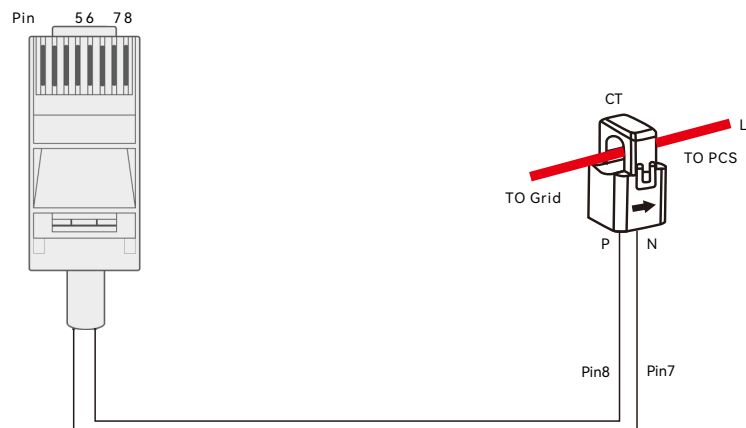
The CT interface for 1 CT connection is a RJ45 port, we have made a RJ45 plug on tose 1 CT in advance, so you can connect it to port directly.

Pin	Description
1	Meter RS485 B
2	Meter RS485 A
3	INV RS485 B
4	INV RS485 A
5	CT N
6	CT P
7	CT N
8	CT P



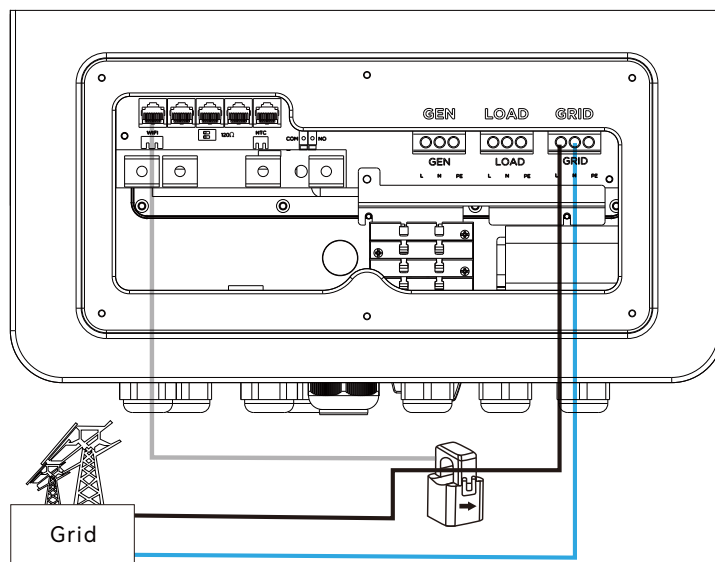
5.9.2 Installation Precautions

- The CT arrow must face toward the inverter.
- If the installation direction is incorrect, you can adjust it via LCD → Advanced Settings → CT Direction Reverse, without changing the physical wiring.
- Ensure that the CT clamp is securely fastened around the cable.



5.9.3 CT Clamp Ratio

The inverter support 3 ratios of CT clamp 1000:1, 2000:1 and 3000:1. The CT ratio of the CTs in the accessory bag is 3000:1. If you are using a 3rd party CT, please ensure the CT ratio is one of them, and select the correct CT ratio setting in the inverter monitor page or on the inverter LCD.



NOTICE

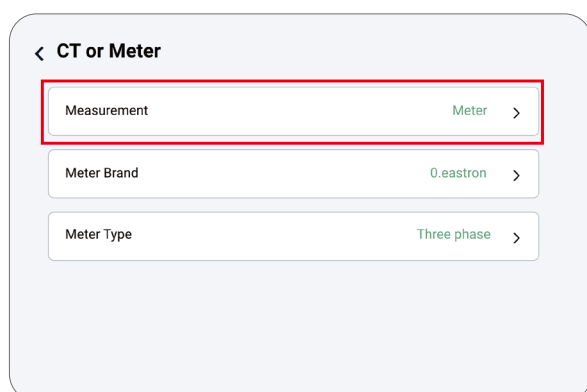
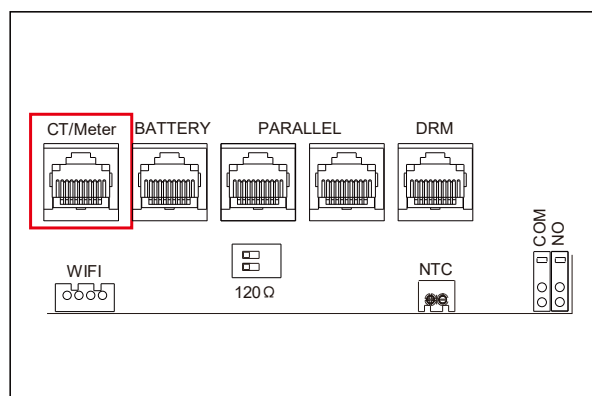
Primary Current: 100 A RMS (Turns Ratio: 1000:1)

Secondary Current: 160 mA (achieved using two 0805, 3 Ω resistors in parallel)

5.9.4 Meter Connection

Currently only EASTRON Modbus version meters can be used. If you need to use meter for import/export detection instead of CT, you need to connect it to the Meter 485A and 485B terminals on the inverter, please contact Luxpower for detailed guideline.

LCD setting: Settings -> Grid Setup -> CT or Meter.



5.9.5 Safety Standard Configuration Guidance

➤ Go to the **Settings** menu.

< Setting

Basic Setting

Battery Setting

Grid Setting

Working Mode

GEN Port Setting

EPS Output Setting

Advanced

Factory Menu

➔

< Advanced Setting

Basic

Fan

System Topology

➔

< Basic

Rule0: Normal - Same as VDE0126 >

➤ Click **Rule** settings. A pop-up will appear requiring a password. The default password is **00000**. You can change the password in the monitoring settings.

< Basic

✓

Rule

Password

00000

1234567890+/-

➤ Enter the correct password, and the LCD will pop up and prompt “password OK!”

< Basic

✓

Rule

0: Normal - Same as VDE0126 >

Password OK!

➤ By sliding up and down, select the appropriate safety standard (Supported inverter regulations are listed in the table below), and Click ✓ in the upper right corner.

< Rule

✓

0: Normal - Same as VDE0126

2: VDE0126 - Germany

3: NEWZEALAND

4: CGC - China

5: G99

6: G98

7: N4105 - Germany

➤ If the "Set OK!" pop-up window appears, the setting is complete. Once successfully set, the machine will automatically restart, and the selected safety standard will display after the restart.

< Basic

✓

Rule

0: Normal - Same as VDE0126 >

Set OK!

Safety Standard Details:

0	Default VDE0126
1	Germany VDE0126
2	Australia AS4777
3	New Zealand NZS
5	G99
6	G98
7	Germany N4105
8	Italy CE10-21
9	Europe EN50438
10	Finland EN 50438
12	Thailand PEA
13	Thailand MEA
14	Ireland EN 50438
15	Czech EN 50438
16	South Africa NRs 097-2-1
18	CEIO-21 ARET
19	En50549
22	Spain RD 1699,RD 413,RD 647, UNE 217001, NTS TYPE A
23	Belgium C10/c11

5.10 GEN Port Function

NOTICE

1. The GEN port is a multifunctional interface that can be configured for one of the following three application modes:

- a. Generator Connection
- b. Smart Load
- c. AC Coupling

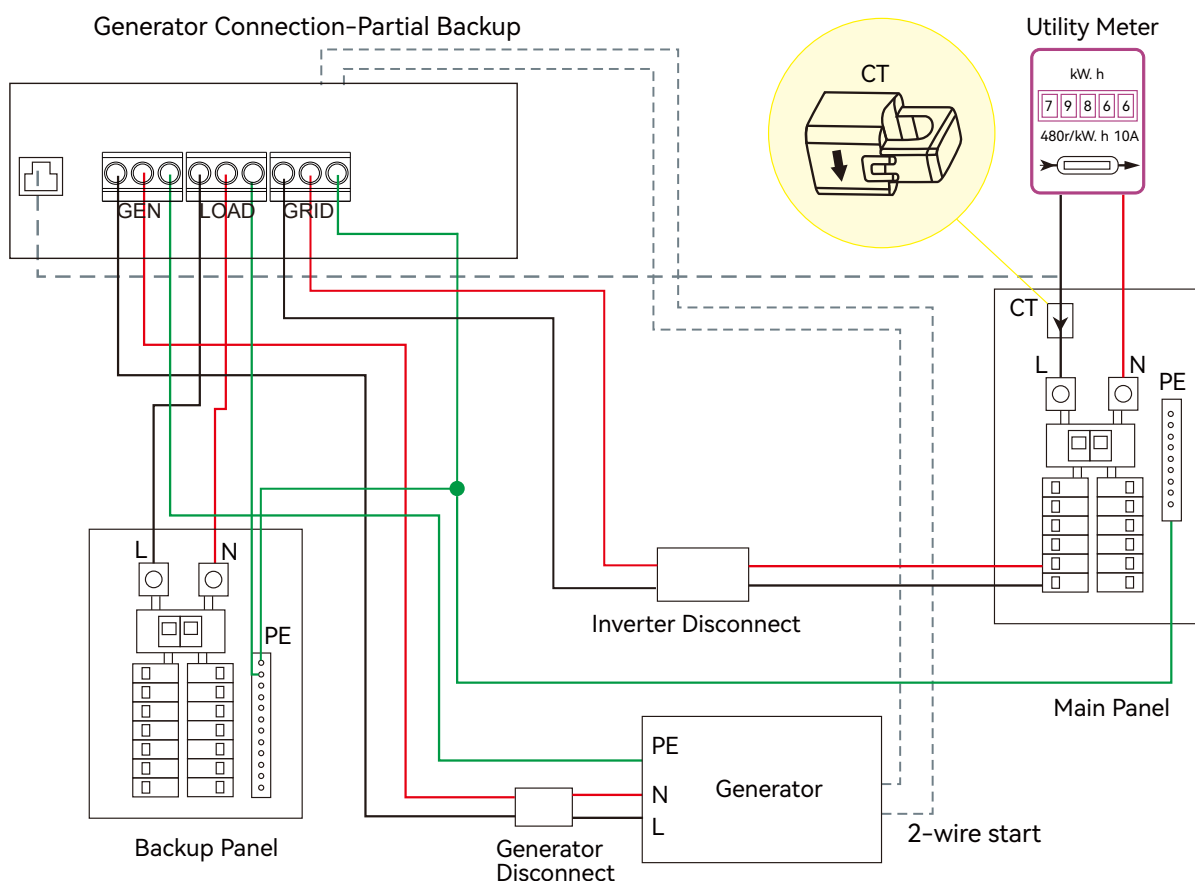
These three functions are mutually exclusive. Only one function can be selected for actual use; they cannot be used simultaneously.

2. The generator must be connected to the GEN port through a dedicated circuit breaker to ensure safe operation. It is recommended to use a circuit breaker compliant with IEC 60947-1 / IEC 60947-2 standards, with a typical rating of 50A/2P. The breaker size may be adjusted according to the rated power of the generator.

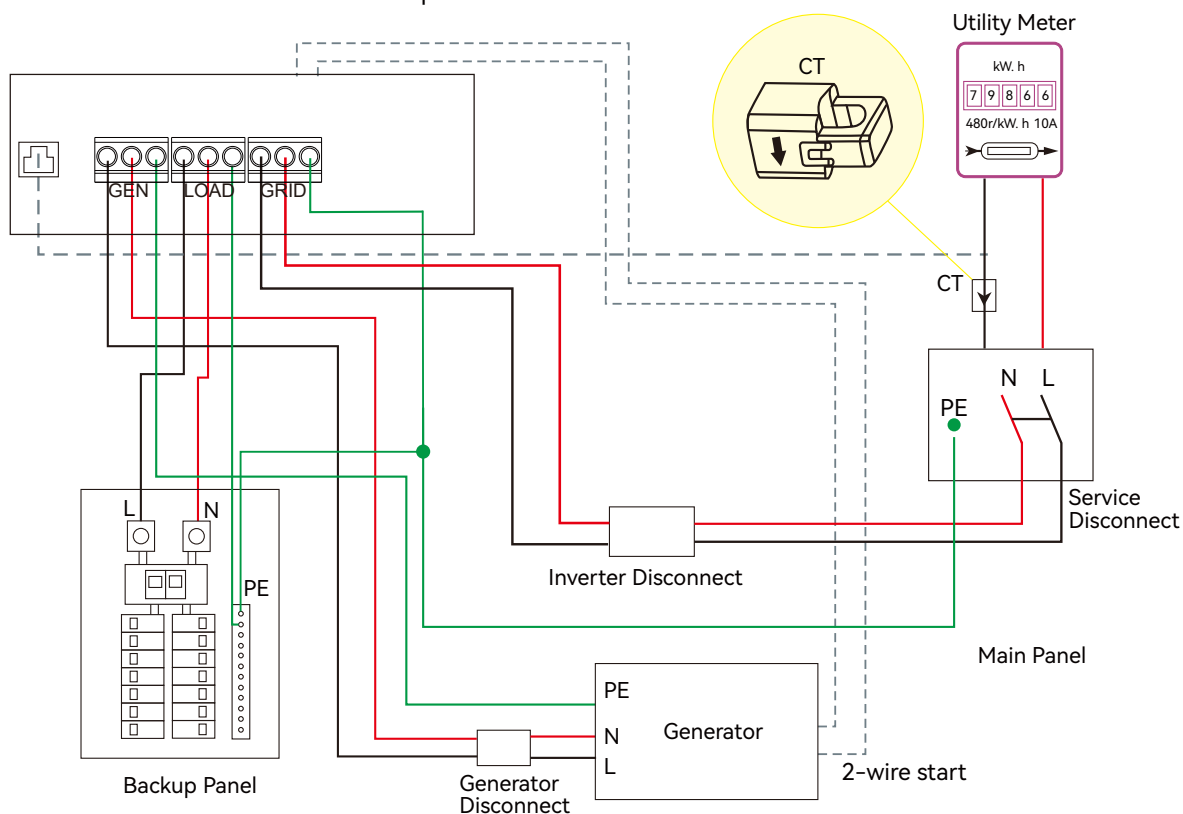
5.10.1 Generator Connection

5.10.1.1 Generator System Connection

This product supports generator connection through the GEN port for both battery charging and household load supply. In the event of a grid outage, the generator can serve as a backup power source to ensure continuous system operation. This hybrid inverter can work with generator. There are Gen ports on the inverter for generator connection.



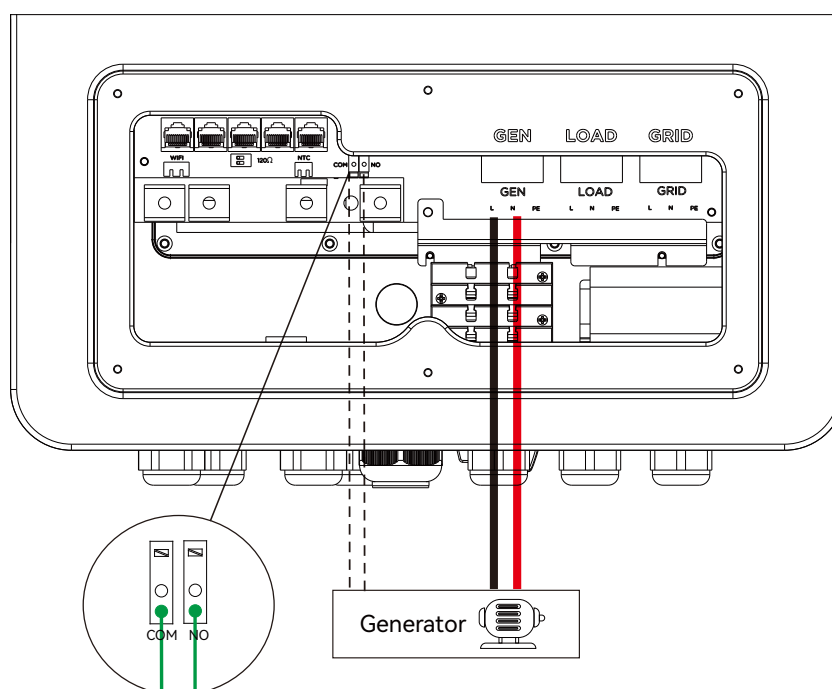
Generator Connection-Partial Backup



When the generator is started, all loads connected to the LOAD interface will be supplied by the generator.

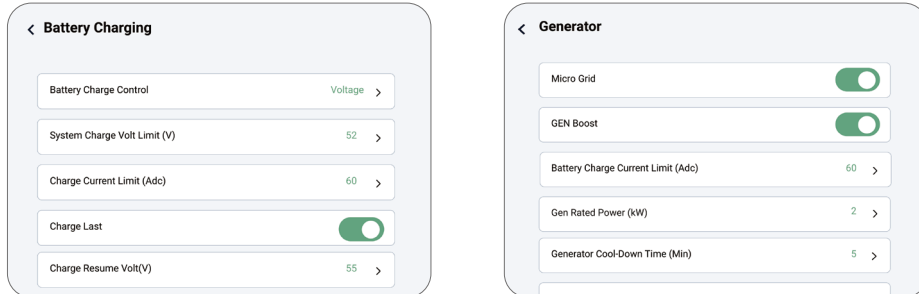
The maximum current for the generator port connector is 35A. Please ensure that the total load does not exceed 35A when starting the generator.

The generator start signal shall be connected to the COM board GEN Nominal Open (NO and COM), if users want to start generator remotely.



5.10.1.2 Generator Startup and Stop Settings

It depends on the Bat operating mode setting. The system will use either battery SOC or battery voltage to determine whether the system needs to start or stop the generator.

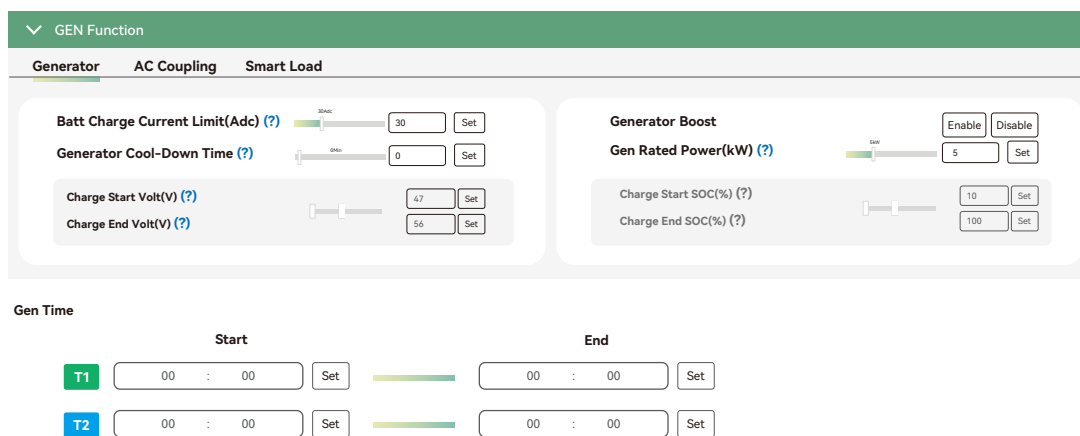


Users can configure the generator charging logic via the monitoring software or the LCD interface:

- By Voltage and Time: Recommended for lead-acid batteries.
- By SOC (State of Charge) and Time: Recommended for lithium batteries.

Configurable parameters include:

- Generator start/stop voltage or SOC
- Generator charging time 1 and charging time 2
- Maximum charging current
- Generator input power limit



Start Conditions:

The generator will start when utility fails and one of the following conditions is met:

- Battery voltage is below the configured cutoff voltage.
- BMS issues a charge request.
- Battery voltage or SOC is below the “Generator Charge Start SOC/Volt” and within the generator’s configured charging time.
- One-touch generator start command issued via monitoring platform.

Stop Conditions:

- Battery voltage or SOC exceeds the “Generator Charge End SOC/Volt”.
- Charging time exceeds the generator’s configured range.
- Charging completion setting has been reached.
- One-touch generator start: after a 20-minute exercise run, the generator will automatically shut down.

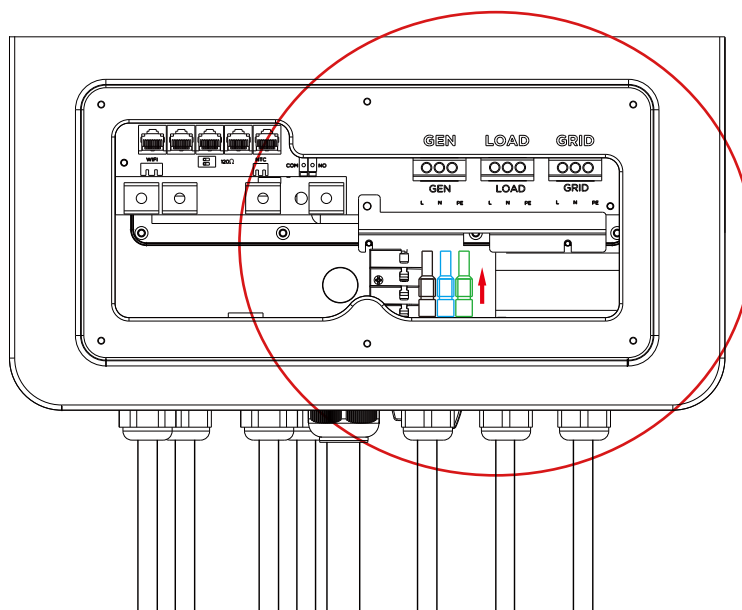
5.10.1.3 Connect Generator

Wiring Procedures

Step 1: Before performing any wiring, ensure that the inverter (and all parallel inverters, if applicable) is completely powered off, the generator supply is disconnected, and all circuit breakers are in the OFF position to prevent equipment damage.

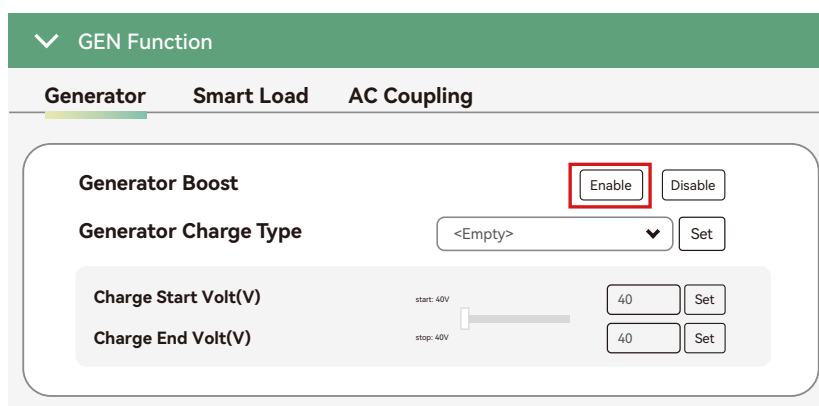
Step 2: Prepare the generator cables according to Steps 1–6 in Section 5.7.3, then connect the cables to the correct terminals accordingly.

Step 3: Verify that the wires are securely connected and cannot loosen.



5.10.1.4 Gen Boost Function

The GEN Boost function is used when the generator power is insufficient to supply the entire load. In this case, the PV system and battery jointly provide supplementary power to ensure stable operation. When enabled, the system reserves a certain power margin for the generator to avoid frequent fluctuations that could cause overload, thereby extending generator lifespan and improving reliability.



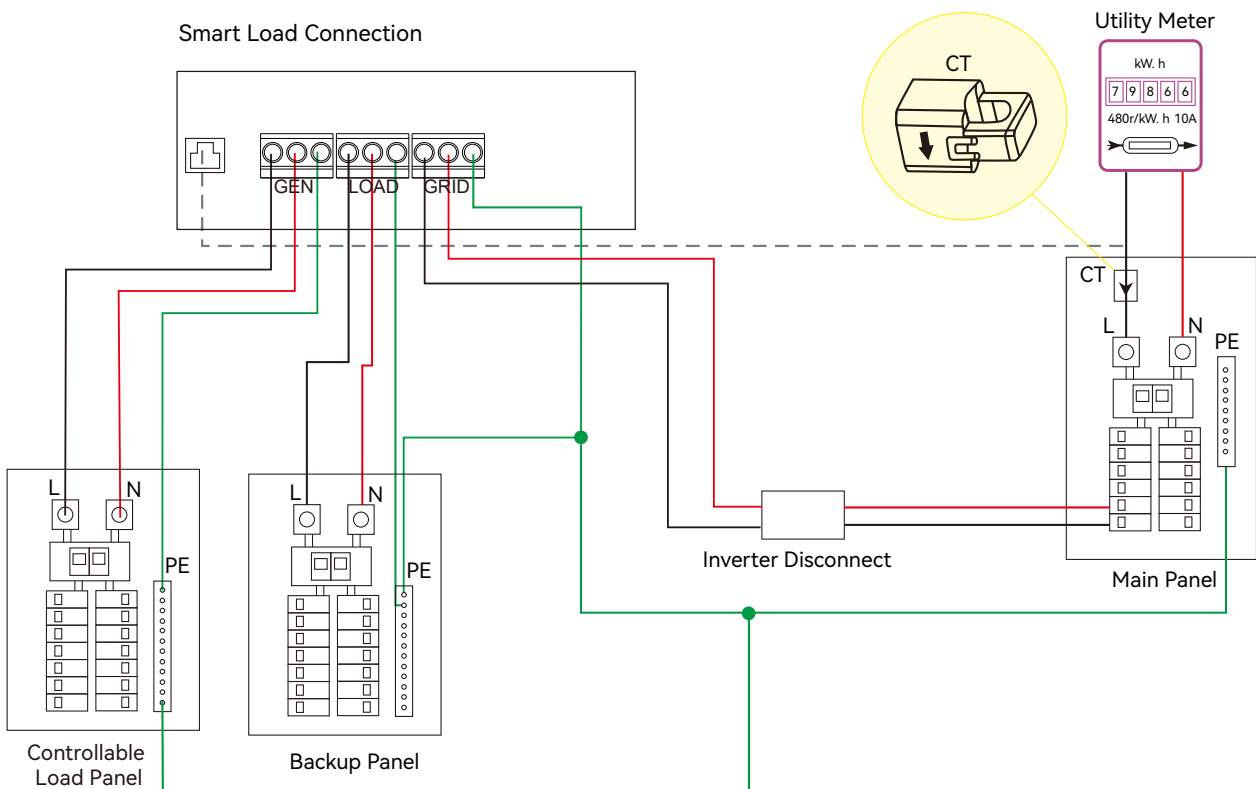
5.10.2 Smart Load

5.10.2.1 Function Overview

The Smart Load function automatically activates designated loads (such as water heaters or EV chargers) when battery energy is sufficient and PV generation is surplus. This improves the utilization of clean energy and prevents resource waste.

When battery energy is low or generation decreases, the system automatically disconnects the smart load to prioritize continuous power supply to essential household loads.

5.10.2.2 Wiring Instructions



Wiring Procedure

- 1: Ensure that both the inverter and external loads are powered off, and all circuit breakers are in the OFF position.
- 2: Identify and connect the Smart Load wiring according to the standard wiring color code:
 - a.L (Live): Brown or black
 - b.N (Neutral): Red
 - c.PE (Ground): Yellow-green
- 3: Connect the Smart Load L and N wires to the corresponding L and N terminals on the GEN port, and connect the load's PE wire to the inverter's grounding terminal.

5.10.2.3 Smart Load Settings

Enable smart load

Enable “Grid always on”: When connected to the grid, the smart load remains continuously connected.

Start PV Power: Input the PV power threshold at which you want the smart load to start. You can also input the battery's SOC or voltage to select when to start and stop.

If your home already has an existing grid-tied system, you can connect it to our Smart Load port as an AC power input, transforming your grid-tied system into an energy storage system.

5.10.2.4 Example Applications

- Automatically start a water heater when PV generation is sufficient.
- Enable EV charging after the battery is fully charged.
- Run high-power household appliances during off-peak periods using remaining energy.

5.10.3 AC Coupling

5.10.3.1 Function Overview

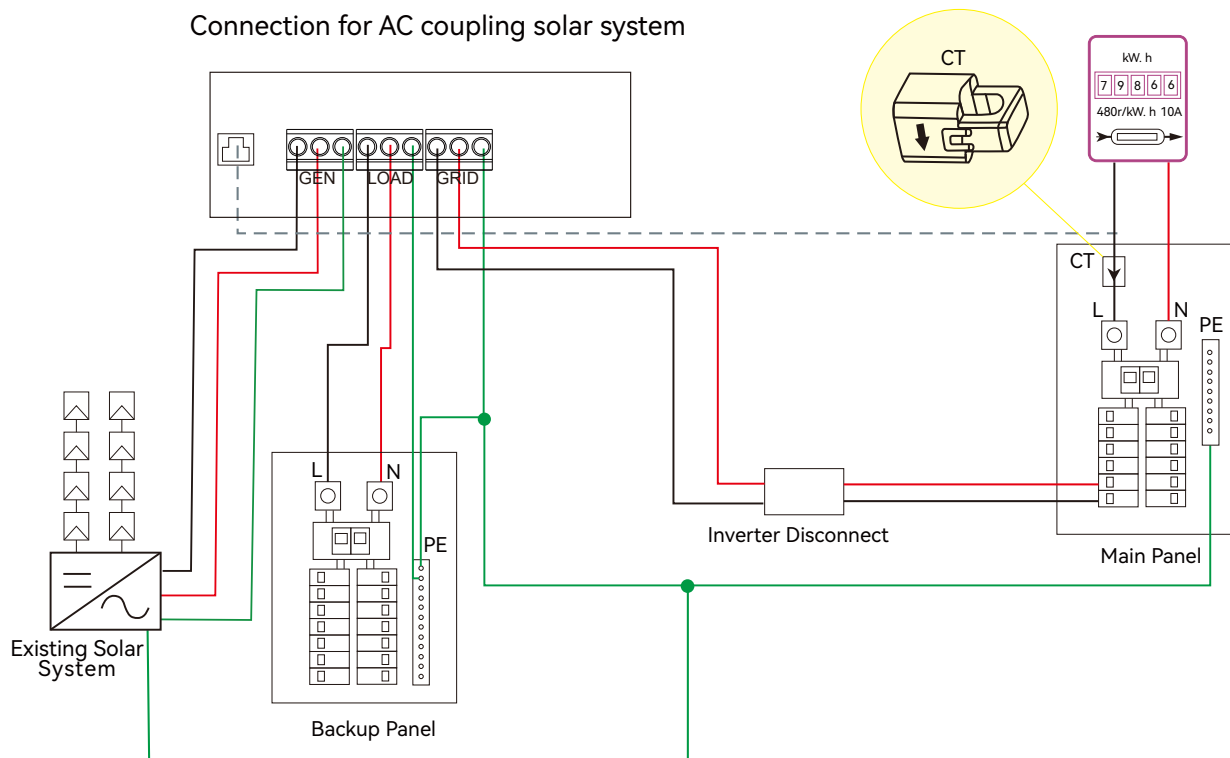
The AC Coupling function allows users to integrate an existing on-grid inverter system through the GEN interface, thereby upgrading the system into a hybrid energy storage system.

- When the utility grid is disconnected, this inverter automatically switches to off-grid mode, maintaining stable system voltage and frequency, and enables the on-grid inverter to continue generating power via the GEN interface.
 - When PV power is sufficient, the inverter prioritizes load supply and uses surplus energy to charge the battery.
 - Once the battery is fully charged, the inverter will limit the output power of the on-grid inverter.
 - When PV power is insufficient, both the battery and the on-grid inverter will supply power jointly to ensure uninterrupted operation of critical loads.
- When the utility grid is available, this inverter and the on-grid inverter operate in coordination. Solar energy can simultaneously power loads and charge the battery. When load demand is low or the battery is fully charged, excess energy can be exported to the grid, ensuring optimal energy utilization.

NOTICE

When using AC Coupling, ensure that the system has grid-connection approval and complies with local grid regulations.

5.10.3.2 Wiring Instructions



Wiring Procedure

Step 1: Ensure that the inverter, the grid-tied inverter, and the grid are all powered off, and that all breakers are in the OFF position.

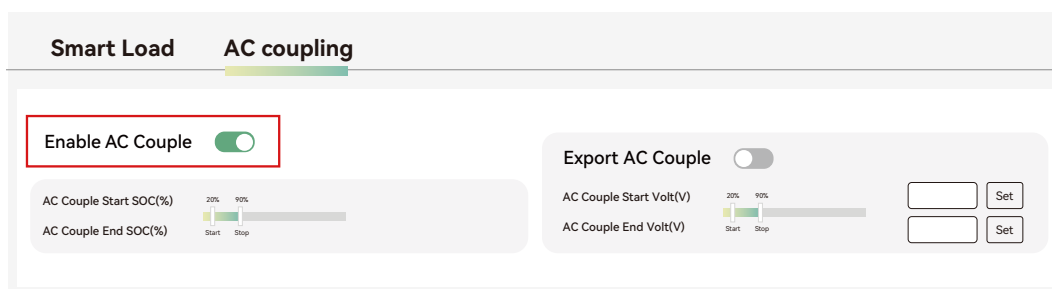
Step 2: Connect the output terminals of the grid-tied inverter (L, N, PE) to the corresponding terminals of the GEN port:

- a.L (Live): Brown or black
- b.N (Live): Red
- c.PE (Ground): Yellow-green

Step 3: It is recommended to install a dedicated circuit breaker in the AC coupling circuit to ensure safe operation.

5.10.3.3 AC Coupling Settings

Enable AC Coupling
(WEB server)



Start Condition: When the battery SOC $\geq$ the preset “AC Coupling Start Threshold”, the on-grid inverter begins operation. Its output power can be used to charge the battery or supply the load.
Stop Condition: When the battery SOC $\leq$ the preset “AC Coupling Stop Threshold”, the on-grid inverter stops operating to prevent battery over-discharge.

Users need to enable AC coupling function when they connect existing on grid system to GEN terminal.

Start SOC(%): The SOC at which the AC coupled inverters are turned on when in off-grid mode.
(50%~70% recommended)

End SOC(%): The SOC at which the AC coupled inverters are shut down when in off-grid mode.
(90% recommended)

When On-Grid and Grid Sell Back enabled, the AC coupling inverter will always be on, and it will sell any extra power back to the grid. Ensure you are allowed to sell power to your utility provider.

When Grid Sell Back is disabled, the AC-coupled inverter will stay at off mode and could not work at on-grid mode to sell power to utility grid.

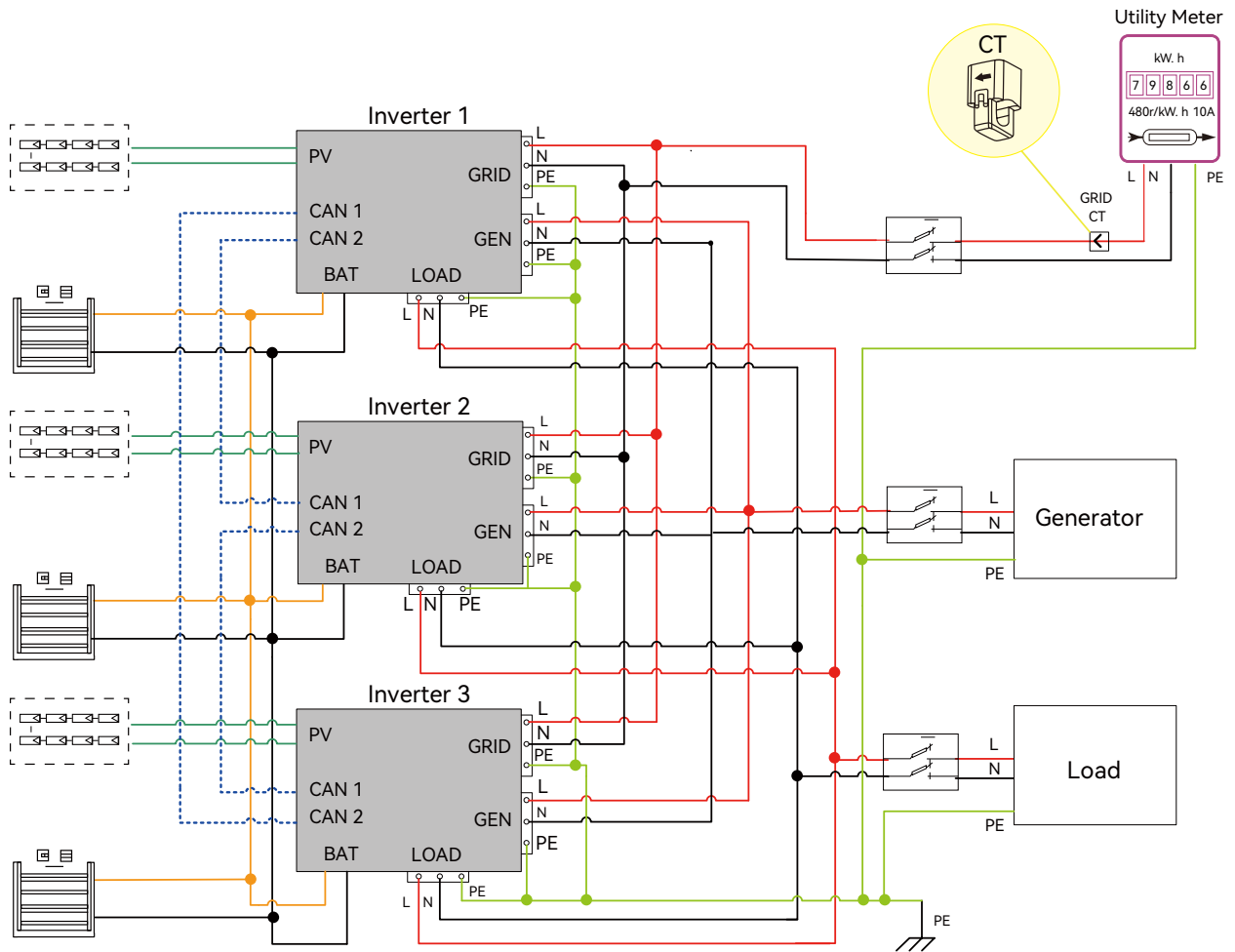
(LCD panel)



5.11 Parallel Connection

The hybrid inverter supports parallel connection to expand power and energy capacity to suit different using scenarios. Up to 10 units can be paralleled to reach a capacity of 60kW. Wiring diagram is as below. The manual bypass switch connect essential loads to LOAD panel for default. When inverters fail, users can switch the loads to utility.

5.11.1 Single-phase Parallel System



Inv1 setting

System Topology

System Type
Single Phase Parallel

Composed Phase
Phase R

Battery Shared
☐

Inv2 setting

System Topology

System Type
Single Phase Parallel

Composed Phase
Phase R

Battery Shared
☐

Inv3 setting

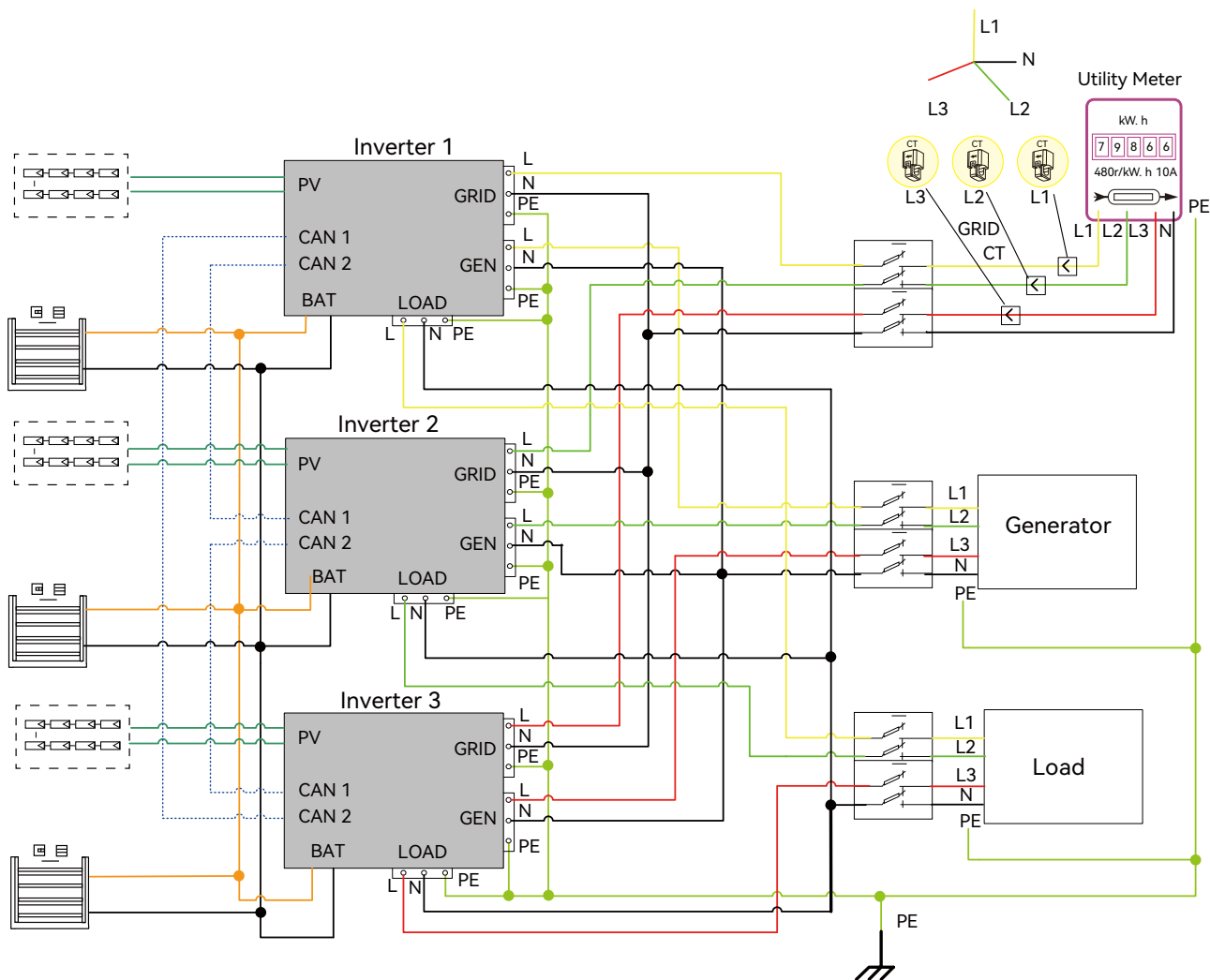
System Topology

System Type
Single Phase Parallel

Composed Phase
Phase R

Battery Shared
☐

5.11.2 Three Phase Parallel System



Inv1 setting

< System Topology

System Type Three Phase Parallel >

Composed Phase Phase R >

Battery Shared ☐

Inv2 setting

< System Topology

System Type Three Phase Parallel >

Composed Phase Phase S >

Battery Shared ☐

Inv3 setting

< System Topology

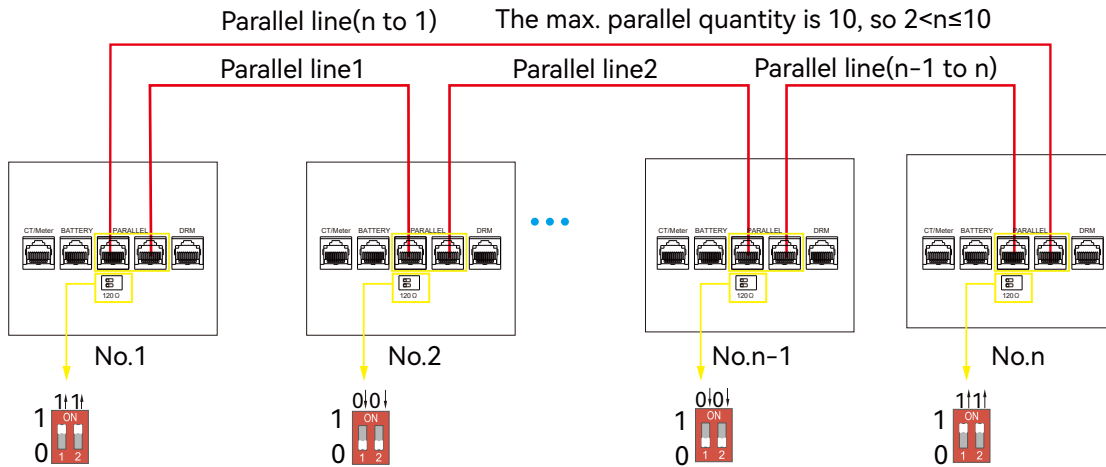
System Type Three Phase Parallel >

Composed Phase Phase T >

Battery Shared ☐

5.11.3 Dip Switch

Please put the CAN communication PIN to on status for the first and the end inverter



If the parallel cable is not enough or long enough, please make a straight pin to pin cable.

5.11.4 Monitoring Settings

1. Set up monitoring for the system, add all dongles to one station. Users can login to visit the monitoring system, Configuration-> Station-> Station Management-> Add dongle.

LUPOWERTEK

Monitor

Data

Configuration

Overview

Maintenance

★

Asia

English

shawou distributor

Stations

+ Add Station

Search by station name

✕

Dongles

Devices

Users

Operation Record

Plant name	Installer	End User	Country	Timezone	Daylight saving time	Create date	Action
1 Genesis		Aspergo install	South Africa	GMT+2	No	2019-03-14	Station Management
2 Butler Home	Elangeni	johnbutler	South Africa	GMT+2	No	2019-03-25	Station Management
3 Office			South Africa	GMT+2	No	2019-06-03	Station Management
4 Cronje Home	Broomhead	cronje	South Africa	GMT+2	No	2019-07-16	Station Management

2. If the system shares a single battery bank,enable the shared battery function otherwise disable the shared battery function.

3. Set the system as a parallel group in the monitor system.

LUPOWERTEK

Monitor

Data

Configuration

Overview

Maintenance

☆

Asia ▾

English ▾

showyou distributor ▾

Stations Overview

Device Overview

Station Name

Search by inverter SN

✕

Serial number	Status	Solar Power	Charge Power	Discharge Power	Load	Solar Yield	Battery Dischar	Feed Energy	ConsumptionEr	Station name	Parallel	Action	
1	0272011008	Normal	228 W	42 W	0 W	182 W	215.3 kWh	39.6 kWh	0 kWh	551.2 kWh	Dragonview	A-1	Parallel
2	0272011011		35 W	32 W	0 W	0 W	158.7 kWh	21.1 kWh	0 kWh	160.5 kWh	Dragonview	A-2	Parallel
3	0272011012		1 kW	129 W	0 W	1 kW	170.3 kWh	49.9 kWh	0 kWh	434.5 kWh	Dragonview	A-3	Parallel
4	0272011017		79 W	48 W	0 W	106 W	99 kWh	85.6 kWh	0 kWh	257.1 kWh	Dragonview	A-4	Parallel

Please contact your inverter supplier for more detailed guidance for paralleling system.

NOTICE

Notices for parallel system:

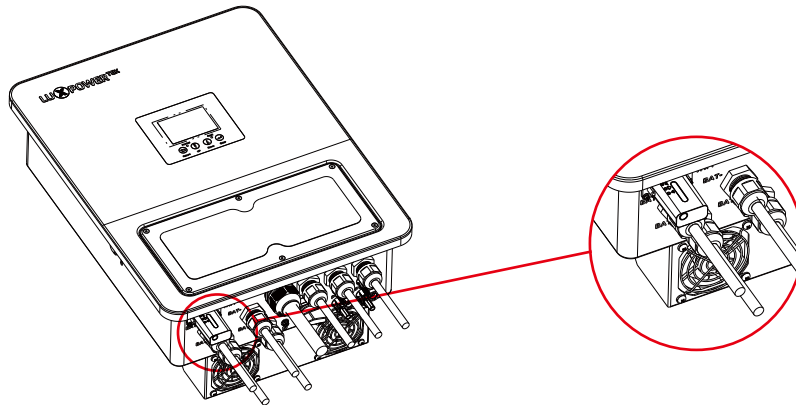
- Ensure the Generator is connected to all systems in parallel (if application).
- If you cannot divide the number of PV panels connected to each inverter, it is recommended to have more PV panels in the primary inverter.
- The values shown on the LCD of each inverter represent the inverter's contribution, not the total contribution of the system.

5.12 Monitor System Setup

5.12.1 Wifi/GPRS/4G/WLAN Dongle Connection

Users can use a WiFi/ WLAN /4G /2G dongle to monitor their inverter, and view the monitoring data on a computer or smart phone remotely.

To view data on smart phone, please download APP from the Google Play or Apple APP store, then login with the user account.



5.12.2 Setup the Monitor System

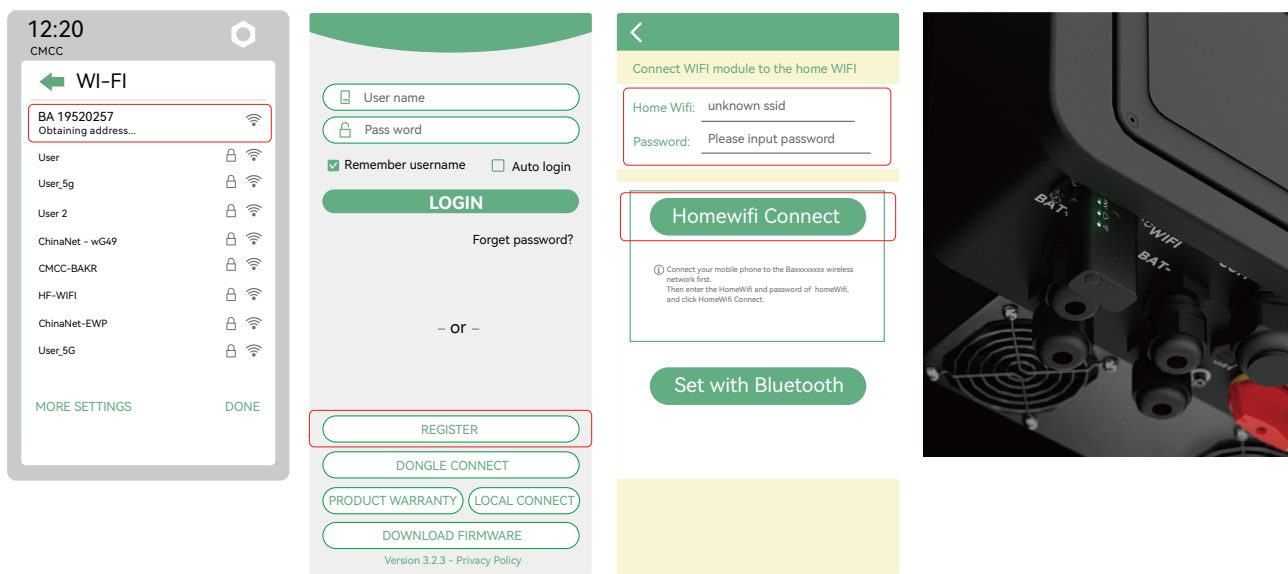
1. Sign up an account on the mobile phone APP or Website

The "customer code" is a code we assign to your distributor or installer. You can contact your supplier for their code.

2. The station and wifi dongle will be created auto when you register, if you want have more stations need to be created, you can create as below.

5.12.3 Set Homewifi Password to Dongle

1. Connect your mobile phone to the " DGxxxxxxx" wireless network where " DGxxxxxxx" is the serial number of the WiFi dongle.
2. Click the "WiFi MODULE CONNECT" button on the APP.
3. Select the home WiFi that the WiFi dongle is to be connected to, and enter the WiFi's password. And then click " HomeWifi connect". The WiFi dongle will restart and try to connect to our server automatically.
4. Check the LEDs' status on the WiFi dongle. The middle light should be solidly lit when the WiFi dongle connects to our server successfully.



5. Now you can disconnect your mobile phone from the “DGxxxxxxx” wireless network. Login on the APP with your account, you'll find the inverter information already appears. Now you'll be able to monitor and control the inverter remotely on any smart phone or computer that has an Internet connection.

Please download the following guides for setting up WiFi dongle and monitoring account at Document Reference:

1. Wifi Quick Guidance
 - Quick guidance for setting connection of WiFi module to home WiFi, you can also find a printed version in the packaging of the WiFi module.
2. Monitor system setup for Distributors and Monitor system setup for endusers Account registration, the description of each items and parameters, setting parameters
3. Monitor_UI_Introduction
 - Introduction of monitor interface

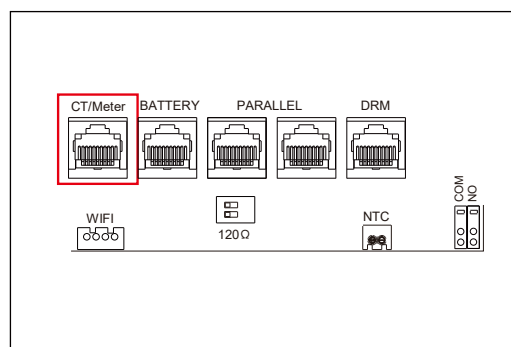
5.12.4 4G Dongle Monitoring Setup

Customer should register the account as 5.12.2 first. Make sure you have put SIM card inside 4G dongle. Plug 4G dongle in, and 5 minutes later, you will be able to see your inverter online.

5.12.5 Third Party RS485 Communication

INV485: this interface is shared with WIFI module. If WIFI module is not in use, users can use this interface to communicate with inverter. Please contact your distributor to get the protocol for third party APP development.

Pin	Description
1	Meter RS485 B
2	Meter RS485 A
3	INV RS485 B
4	INV RS485 A
5	CT N
6	CT P
7	CT N
8	CT P



6. Operation Guide

6.1. Operation Mode and Function

The inverter has different working modes and functions to meet customers' various demands. The working modes and functions are as below.

6.1.1 Self-usage Mode (Default)

In this mode, the priority order of load supply source is Solar > Battery > Grid. The priority order of solar power usage is Load > Battery > Grid.

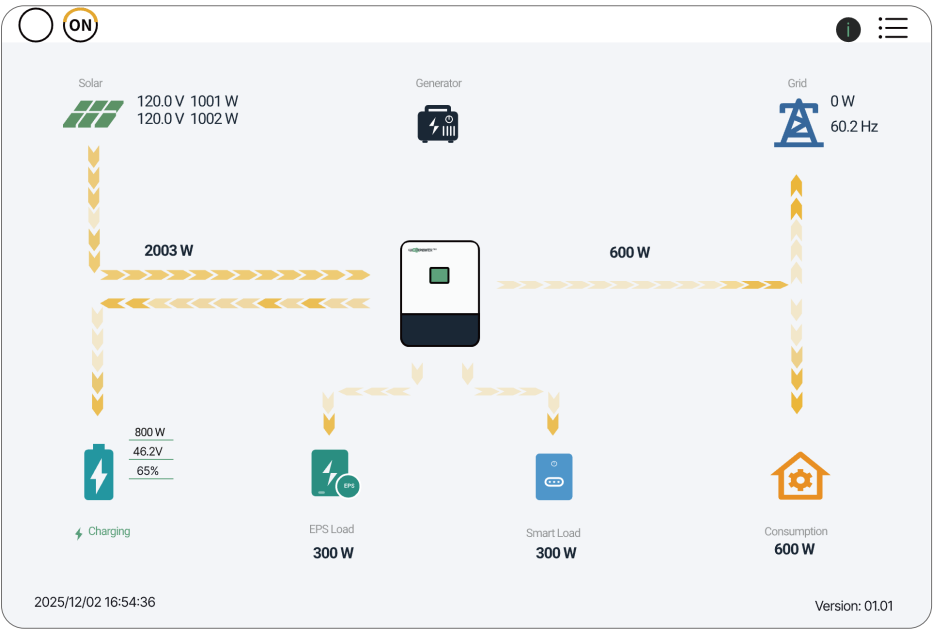
➤ Application Scenarios

Self consumption mode will increase self consumption rate of solar power and reduce the energy bill significantly

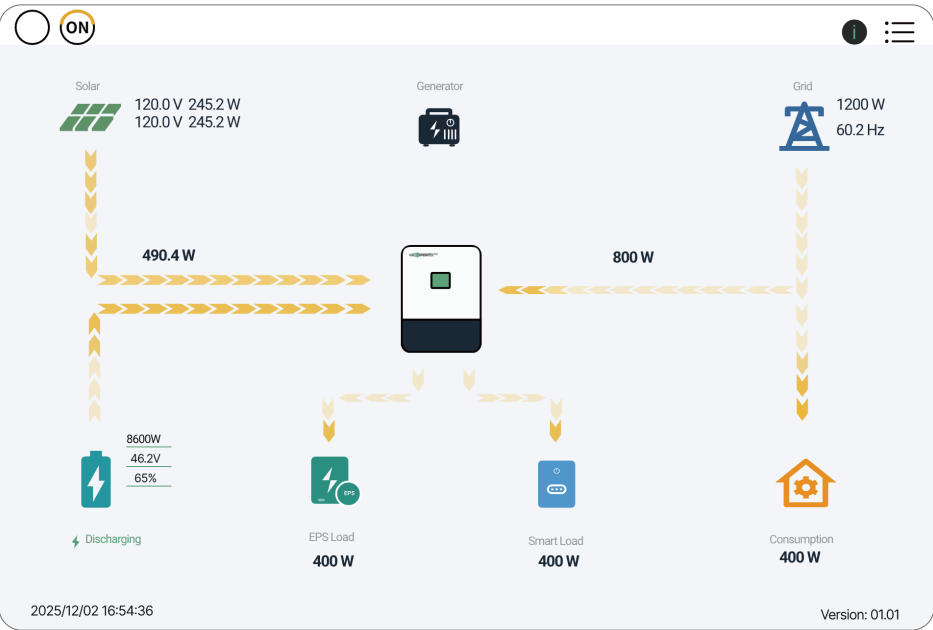
➤ Related Settings

Effective when Charge Priority, AC Charge, and Forced discharge are disabled

➤ Example



When solar power is enough, solar power will take load, then charge battery, and at last feedback into grid (when feedback function is enabled).



When solar is not enough to take load, the solar and battery will take load together. If battery is empty, grid will used to take load.

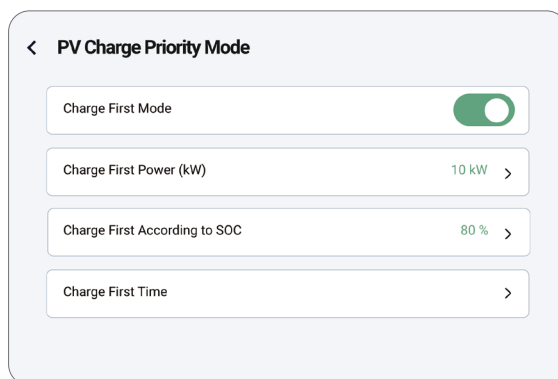
6.1.2 Charge First Mode

The priority order of solar power usage will be Battery > Load > Grid. During Charge Priority time period, load is first supplied with grid power. If there is excess solar power after battery charging, the excess solar power will take load together with grid power.

- Application Scenarios

When users want to use solar power to charge battery, grid power to supply load.

- Related Settings



- Example



Solar power will be used to charge battery first, if there is extra power, it will be used to take load.

6.1.3 AC Charge Mode

Users can charge batteries with grid power when electricity prices are cheap, and discharge battery power to supply load or export to the grid when electricity prices are high.

➤ Application Scenarios

When users have a Time of Use(TOU) rate plan.

➤ Related Settings

<
AC Charge Mode

AC Charge Mode
☒

AC Charge Power
10 kW
>

AC Charge Based On
Time
>

Start AC Charge According to SOC
80 %
>

AC Charge Time
>

6.1.4 Smart Load Function

Smart Load: This function is to make the Gen input connection point as an load connection point. If you enable it, the inverter will supply power to this load when the battery SOC and PV power is above a user setup value.

e.g. Smart load start SOC=90%, Smart load end SOC=85%, Start PV power=300W, it means: When the PV power exceeds 300w, and the battery system SOC gets to 90%, the Smart Load Port will switch on automatically to supply the load which is connected on this side. When the battery reaches SOC<85% or PV power<300w, the Smart Load Port switch off automatically.

<
Smart Load

Smart Load
☒

Grid Always On
☒

Start PV Power(kW)
2
>

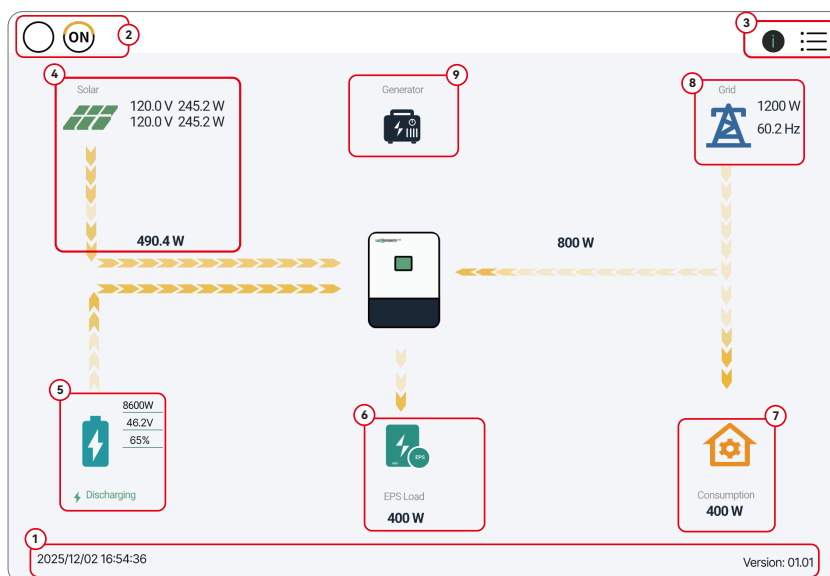
AC Couple According to Bat SOC
>

AC Couple According to Bat Volt
>

Note:

If you enable the Smart load function, it's forbidden to connect the generator at the same time, otherwise the device will be damaged!

6.2 LCD Display

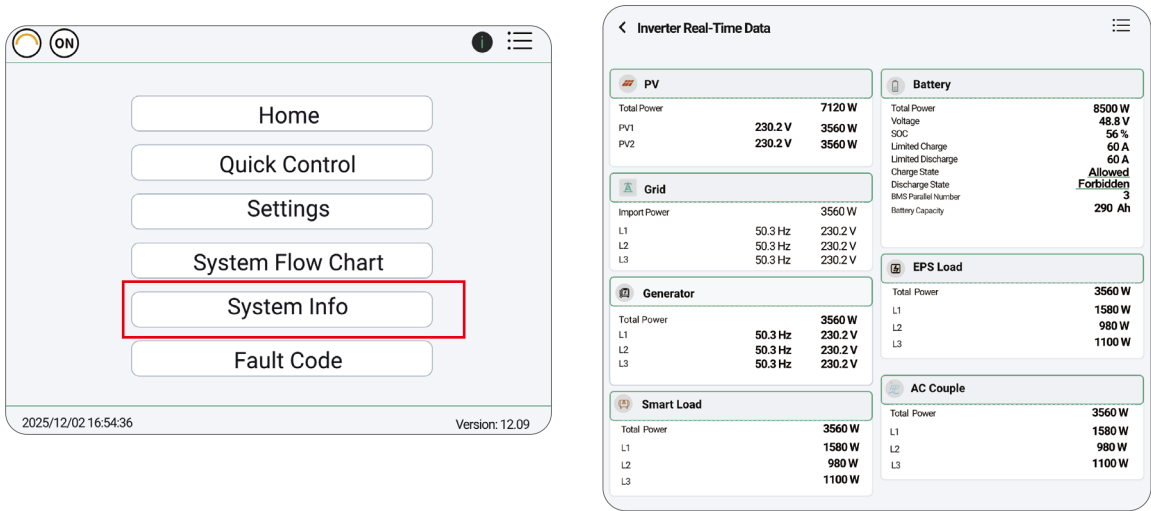


NO.	Description	Remarks
1	Generally information display area	Display the current time and date by default on the left (year/month/day/hour/minute, automatically switching) and the firmware version on the right.
2	System operating status indicator (Left)	● Gray: LCD not connected
		● Green: LCD connected and no faults detected
		● Red: Fault present in the unit
		● Yellow: Warning present in the unit
	Screen Off (Right)	On the right side of this area, users can tap this icon to turn off the screen.
3	Help & Menu	View explanations of key terms for each section of the inverter energy storage system via the icon on the left. Tap the icon on the right to enter the menu page and set system parameters.
4	Solar inverter output power	Display the data of PV voltage and power.
5	Battery information and data	Display the voltage, SOC , input and output power.
6	LOAD output information and data	This area will display LOAD voltage, frequency, power.
7	Load consumption	Display the power consumption by the loads in on grid.
8	Grid information and data	Display the grid information of voltage, frequency, input or output power.
9	Generator information and data	Display the GEN information of voltage, frequency, input or output power. In on-grid mode, the GEN function cannot be enabled, and this area displays no data.

6.2.1 Viewing Information and Alarm/Fault Record

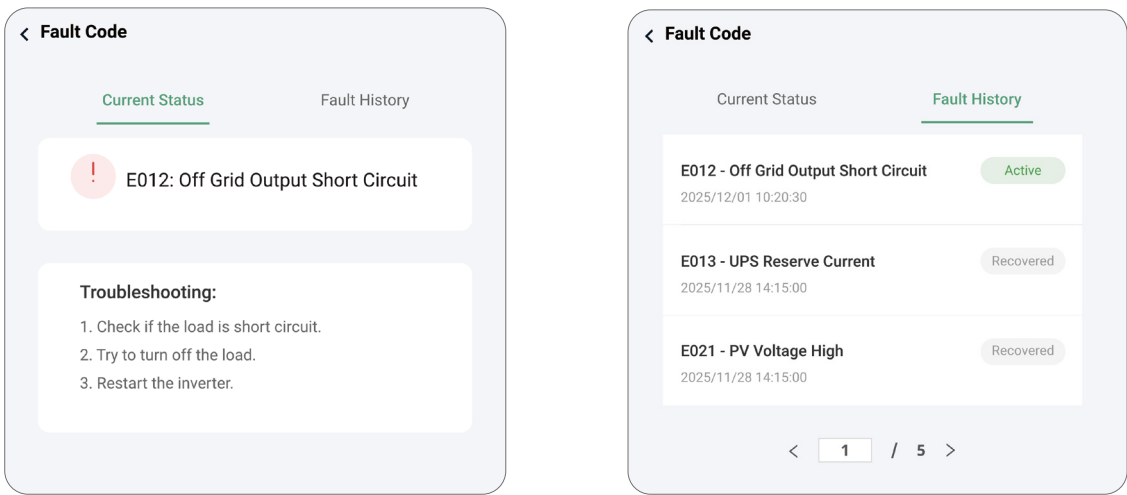
Detailed System Information

Select the System Info in the directory, and you'll be able to view detailed real-time solar information, battery information, grid information, and Load output information.



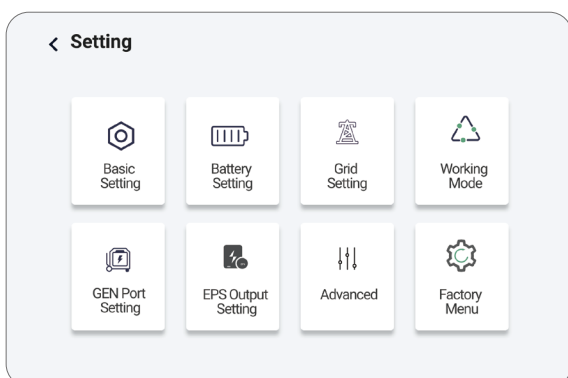
Fault/Alarm Information

Select the Fault Code in the menu, and you'll see all the current and historical fault and warning information on this page.

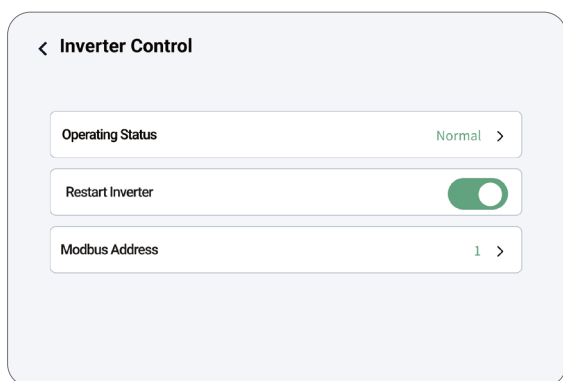


6.2.2 Setting Parameters

Select the Setting function in the menu, and you'll get into the parameter setting page of the inverter.

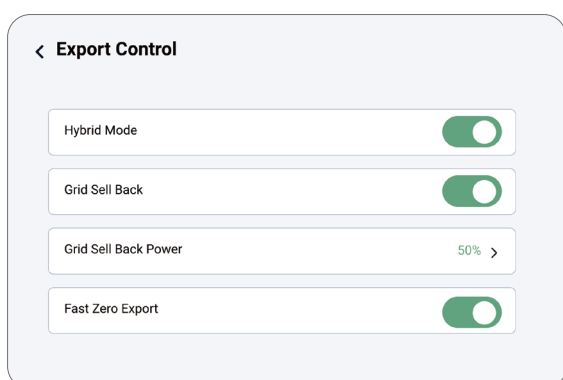


a). Basic Setup



- **Normal/Standby:** Is for users to set the inverter to normal status or to standby status. In standby status, the inverter will stop any charging or discharging operations, as well as solar-feed-in.
- **Restart Inverter:** Restart the system, please note the power maybe interrupted when restarted. You'll get into the parameter setting page of the inverter.

b). Grid Setup



- **Grid Sell Back:** Is for users to set a zero export function. If exporting solar power is not allowed, users need to disable the “Grid Sell Back” option. If users' utility meter is tripped with even a little solar export, “Fast Zero export” can be enabled. Thus the export detection and adjustment will take place every 20ms, which will effectively avoid any solar power being exported. If export is allowed, users can enable “Grid Sell Back” and set a maximum allowable export limit in “Grid Sell Back Power”.
- **Fast Zero Export:** Allows for Zero Export. Inverter will speed up the control to avoid export power, but the control speed for import will be slowed down. Should be selected as the opposite of the Grid Sell Back setting.

< CT or Meter

Measurement CT >

CT Direction Reversed ☒

CT Power Offset (W) 10 >

External CTs place 0: Grid to User >

Busbar PCS rating (A) 100 >

< Grid Connect

AC Input Mode APL >

Connect Time (S) 30 >

Reconnect Time (S) 30 >

Grid Frequency (Hz) 60 >

Grid Type 0: 240V/120V >

Grid Volt Connect Limit >

Grid Freq Connect Limit >

c). Battery Setup

< Battery Type

Battery Type Lead-acid >

Capacity (Ah) 500 >

Absorb Voltage (V) 52 >

Float Voltage (V) 52 >

On Grid Discharge Derate (V) 52 >

< Battery Charging

Battery Charge Control Voltage >

System Charge Volt Limit (V) 52 >

Charge Current Limit (Adc) 60 >

Charge Last ☒

Charge Resume Volt(V) 55 >

- **Measurement:** CT or Meter, default CT.
- **CT direction reversed:** If the CT are in a wrong direction which will cause the display to show incorrect information and features of the inverter will not function correctly, the installer can modify it by selecting it (only for direction not CT placement), there is no need to reconnect the CT and no need to go change it physically, in the order of loads-grid export--battery charging.
- **CT Power Offset:** Reduce the importing power or exporting power while working in on-grid mode.
- **Connect Time:** Set the countdown timer for on-grid.
- **Reconnect Time:** The inverter will attempt to reconnect to the grid after abnormal situations (i.e.voltage/frequency fluctuations) once this amount of time has elapsed.
- **Battery Type:** No battery, lead-acid or lithium-ion. If lead-acid battery is selected, please input correct battery capacity. If lithium-ion battery is selected, please choose the battery brand in the lithium brand drop down list.
- **Lead Acid:** When using Lead-acid battery, you need to set parameters in these programs according to the battery manufacturer's recommendation.
- **Bat Charge Control:** Users can decide to use SOC or BatV to control charge and discharge logic depending on battery type.
- **Charge last:** When users want to use solar power in the order of loads - grid export - battery charging.
- **Charge Current Limit:** Users can set the maximum charge current (machine supports a maximum of 125A).

< **Battery Discharging**

Battery Discharge Control Voltage >

Discharge Current Limit (A/c) 52 >

Start Discharge P_import (W) 60 >

Cut-off Voltage Range 42~50 >

- **Bat Discharge Control:** You can choose “SOC” or “Voltage” to control the battery discharge state.
- **Discharge Current Limit:** Users can set the maximum discharge current.
- **On-grid Cut-off(%) and Off-grid Cut-off(%) / On-grid Cut-off(V) and Off-grid Cut-off(V):** End of discharge SOC/Cut of voltage in on-grid and of grid condition respectively.

d). Working Mode

< **AC Charge Mode**

AC Charge Mode ☒

AC Charge Power 10 kW >

AC Charge Based On Time >

Start AC Charge According to SOC 80 % >

AC Charge Time >

- **AC Charge:** Utility charge configuration. If users want to use grid power to charge their battery, then they can enable “AC Charge”, set time periods when AC charging can happen, AC Charge power (KW) to limit utility charging power, and “Stop AC Charge SOC(%)” as the target SOC for utility charging. “Stop AC Volt(V)” as the target battery voltage for utility charging.

< **Forced Discharge Mode**

Forced Discharge Mode ☒

Forced Discharge Power 10 kW >

Stop Discharge According to SOC 20 % >

Forced Discharge Time >

- **Forced discharge:** Settings for battery forced discharge with in certain time period. In the preset time period, the inverter will discharge battery at the power set by “discharge power”, until battery SOC or voltage reaches “Stop discharge” value.

< **PV Charge Priority Mode**

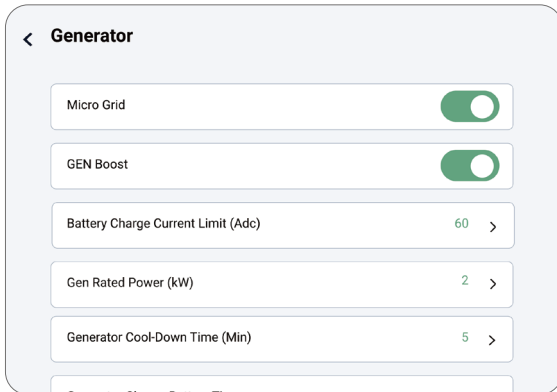
Charge First Mode ☒

Charge First Power (kW) 10 kW >

Charge First According to SOC 80 % >

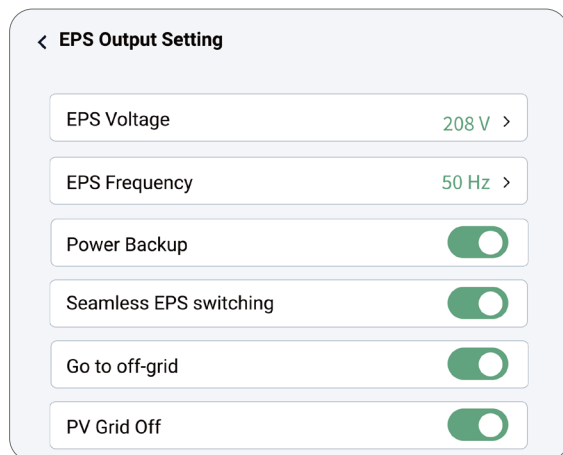
Charge First Time >

e). Gen Port Setup



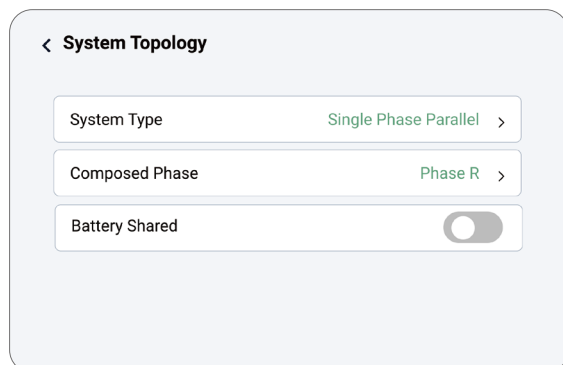
- **Bat charge current limit(A):** Set the Max. Battery charge current from the Generator. The Generator will start charging according to the charge start Volt/SOC, and stop charging when the battery voltage or SOC reaches the Charge end Volt/SOC value.
- **Gen rated power:** The battery charge power will be limited if the generator input power is greater than the set Gen rated power(kW).

f). Back up



- **Power Backup:** It is for users to set if the inverter provides backup power or not when the grid is lost. If users want the load to be seamlessly transferred to the inverter backup power, "Seamless EPS switching" must be enabled. If customers don't have a battery installed yet, but still wish to have inverter backup power with only solar panels connected, "PV Grid Of" can be enabled to use solar power to supply load when the grid fails or load-shedding happens.

g). Advanced

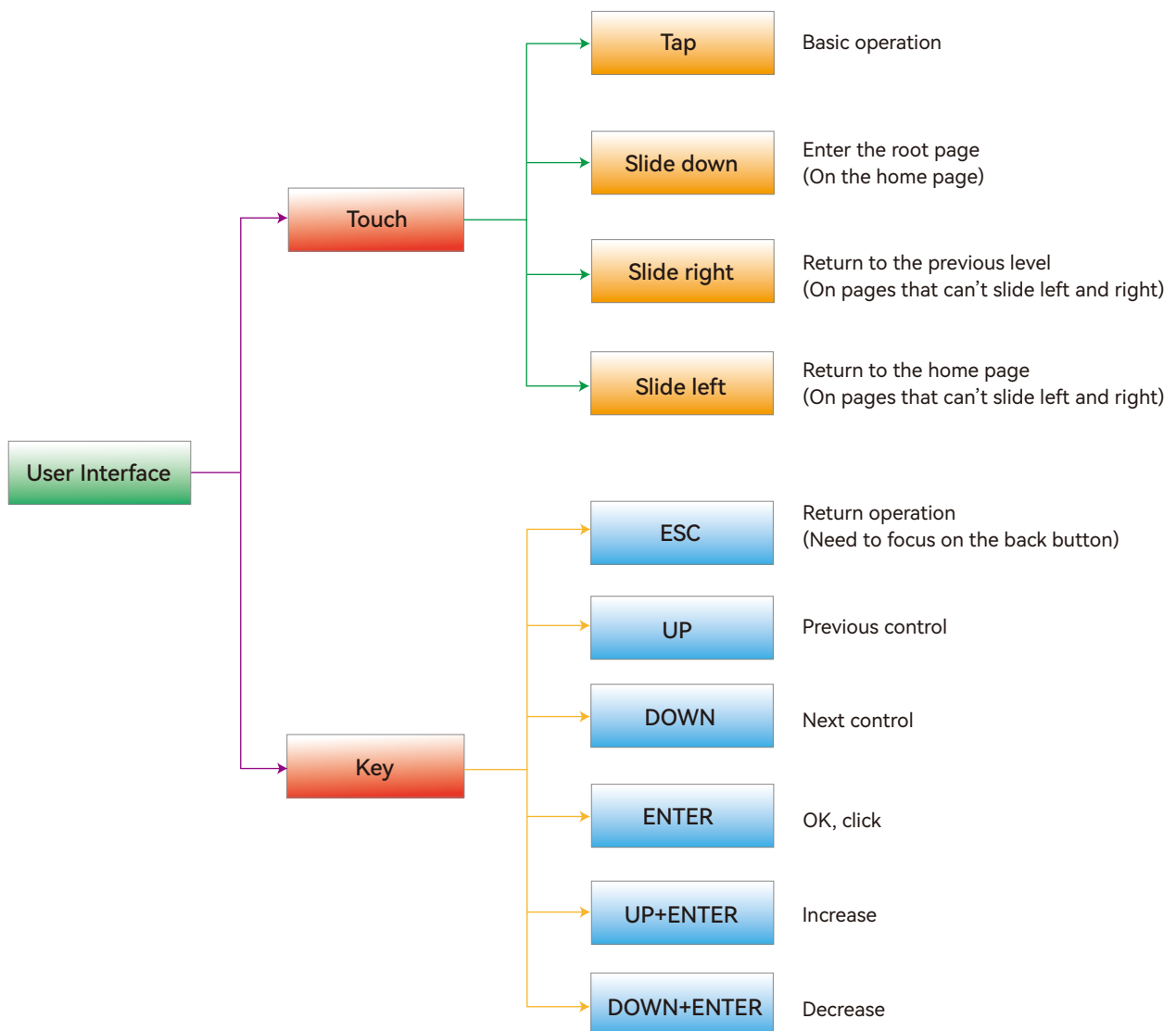


- **Set Composed Phase:** This is the phase code setting of the Load output. The system will automatically detect the phase sequence of the inverter (consistent with the phase sequence of the connected Grid mains) and display on the inverter after it is connected to the grid.
- **Set System Type:** The Role setting of the parallel system. It is set to 1 phase primary by default. In a parallel system, only one inverter is allowed to be set as Primary, and the others are all Subordinate.
- **Share Battery:** When the inverter is connected as a parallel system, all inverters need to share the battery, and set the "Share Battery" to "Enable" at the same time.

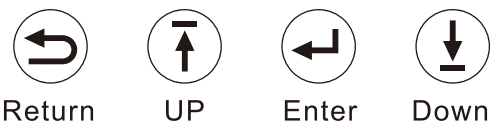
6.3 LCD Screen Settings

6.3.1 Touch operation

Operation	Description
Tap	Basic tap function.
Swipe Down	Swipe down on the home page to enter the root page.
Swipe Right	On pages that do not support horizontal scrolling, swipe right to return to the previous level.
Swipe Left	On pages that do not support horizontal scrolling, swipe left to return directly to the home page.



6.3.2 Button Operation

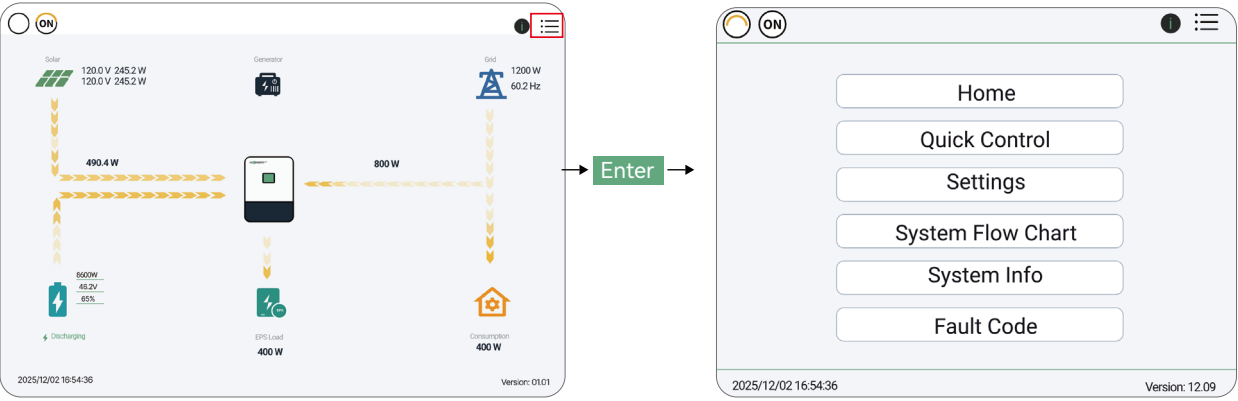


Button	Function
ESC	Exit
ENTER	Confirm, Enter menu
UP	Previous level, Increase
DOWN	Next level, Decrease
UP + ENTER	Increase (used for slider bars and similar controls)
DOWN + ENTER	Decrease (used for slider bars and similar controls)

Note: Long-pressing the UP and DOWN keys will continuously input the corresponding key signals.

6.3.2.1 General Operations

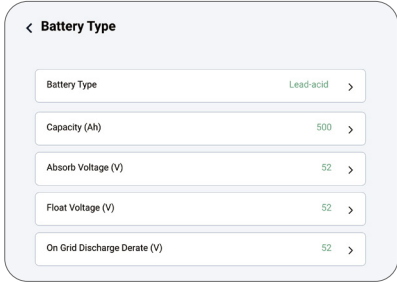
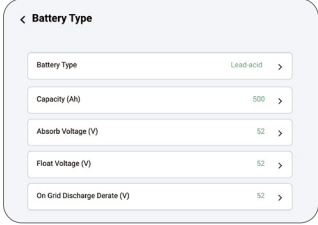
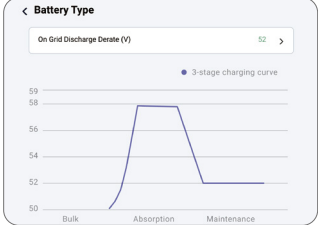
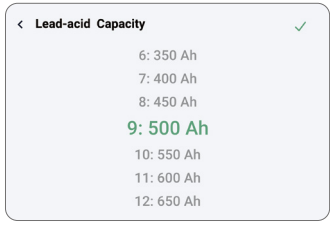
Through button control, move the cursor to this button, press ENTER on the home screen to access the menu options.



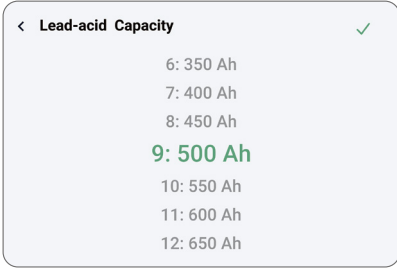
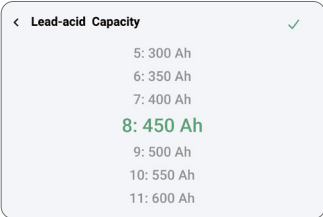
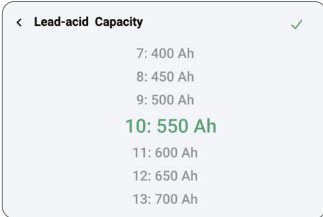
Using the UP and DOWN buttons, select the desired function, then press ENTER to enter. Press ESC to return to the previous level. The options include Home for the main page, System Info for operational data, Fault Code for fault and warning information, and Setting for configuration settings.

6.3.2.2 Setting Operation

Once in the settings interface, you can use the buttons to navigate through various configuration options.

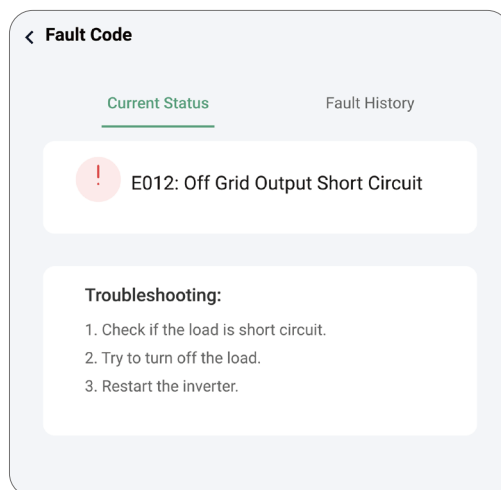
			
↓	↓	↓	↓
Esc	Up	Down	Enter
↓	↓	↓	↓
None			
	Previous option	Next option	Set the selected option

In the settings menu, press Enter to select the setting item. When using the UP or DOWN button, you need to press and hold the ENTER button at the same time to achieve the scroll wheel effect. Move the cursor to ✓ again and press ENTER to complete the setting (an "OK" animation will be displayed).

			
↓	↓	↓	↓
Esc	UP + Enter	Down + Enter	Enter
↓	↓	↓	↓
None			None
	Previous option	Next option	

6.3.3 Faults & Warnings Function

Under the Faults & Warnings Function, in the Fault Code menu, you can view real-time fault information. When fault information is refreshed, the page will update accordingly. Click on the corresponding fault, and the pop-up window will prompt a simple description of the corresponding fault.



The warning information works similarly. In the Record page, you can view historical fault and warning information.

7. Maintenance & Troubleshooting

7.1 Start and Shutdown the Inverter

7.1.1 Start the Inverter

Operating Procedures

Step 1. Make sure the inverter is properly connected to the batteries, panels, grid, etc(see system wiring diagram).

Step 2. Turn on the battery system firstly, then turn on the built-in battery breaker.

Step 3. Turn on PV DC disconnect switch, make sure the PV voltage of the strings are higher than 140V, and check if the inverter works in PV charge or PV charge back-up mode.

Step 4. Make sure step1 to step3 above work properly before turning on the grid power or generator breaker.

Step 5. Turn on the built-in load breaker before providing power to EPS load.

Step 6. Turn on the built-in grid breaker or generator breaker, check if the inverter can go to bypass mode and on-grid mode normally.

7.1.2 Shut Down the Inverter

DANGER

Do not disconnect the battery, PV and AC input power under load.

If there is emergency issue, and you have to shut down the inverter, please follow the steps as below.

WARNING

After powering off the inverter system, there may still be residual electricity and heat in the enclosure, which could cause electric shock or burns. Therefore, it is recommended to wear insulated gloves and wait for 5 minutes after powering off the inverter system before performing any operations on it.

Operating Procedures

Step 1. Turn off the Grid breaker or Generator of the inverter.

Step 2. Switch off the load breaker.

Step 3. Turn off PV breaker and then battery breaker, waiting for the LCD to go off.

7.2 Regular Maintenance

To ensure the long term and proper operation of the inverter, it is recommended that regular maintenance is carried out as described in this section.

CAUTION

- Do not touch the inverter while it is operating. Certain parts may become hot during operation and can cause burns upon contact.
- Before performing any maintenances—such as system cleaning, electrical connection inspection, or grounding verification—ensure the system is completely shut down and the inverter has fully cooled.
- If the screen or LED indicators become difficult to read due to dust, clean them gently with a soft, dry cloth.
- Do not use solvents, abrasives, or corrosive materials to clean the inverter.

• Inverter Maintenance

- a. Check the inverter every 6 months or 1 year to verify if there are damages on cables, accessories, terminals and the inverter itself.
- b. Check the inverter every 6 months to verify if the operating parameter is normal and there is no abnormal heating or noise from the inverter.
- c. Check the inverter every 6 months to confirm there is nothing that covers the inverter heat sink, if there is, shut-down the inverter and clear the heat sink.

• Battery Maintenance

Follow the manufacturer's requirements on maintenance. When you carry out these works on batteries, please make sure to fully shut-down the inverter for safety consideration.

7.3 Removing the Inverter

DANGER

Before removing the inverter, make sure all power sources are completely disconnected to avoid electric shock or short circuit.

This procedure must be performed by a qualified electrician.

Operating Procedures

Step 1: Power off the system

- Follow the steps described in 7.1 Power OFF the Inverter to ensure complete power disconnection.
- Verify that all indicator lights are off.

Step 2: Disconnect the cables

- Use a screwdriver to remove the PV connection cables.
- Carefully disconnect the battery and communication cables.
- Loosen and remove the AC input and output cables.
- Label each cable for easy reinstallation.

Step 3: Remove the inverter

- Hold the bottom of the inverter firmly with both hands, and use a Phillips screwdriver to remove the two mounting screws on the top and two on the bottom.
- Carefully lift and remove the inverter from the mounting bracket.

Step 4: Packaging and storage

- Repack the inverter using its original packaging materials if available.
- Store the device in a dry, ventilated, and dust-free environment.
- Do not place heavy objects on top of the inverter to prevent deformation or damage.

7.4 LED Displays

LED	Display	Description	Suggestion
Green LED	Solid light 	Working normally	
	Flashing 	Firmware upgrading	Wait till upgrading complete
Red LED	Solid light 	Fault, inverter stop work	Need troubleshooting

7.5 Trouble Shooting & Error List

Once there is any warning or fault occurring, users can troubleshoot according to the LED status and the warning/fault information on the LCD.

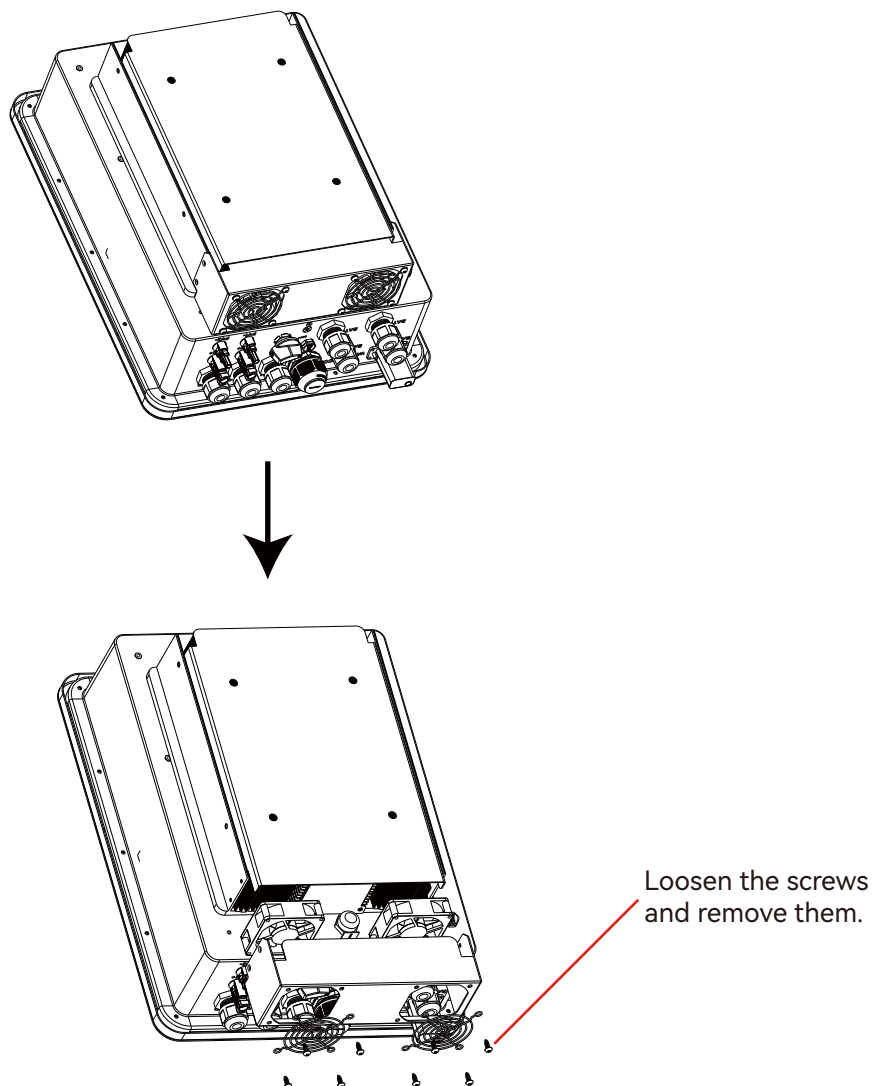
Code	Description	Trouble shooting
E000	Internal communication fault1	Restart inverter, if the error still exist, contact us (DSP&M3)
E003	CT Fail	Restart inverter, if the error still exist, contact us
E008	CAN communication error in Parallel System	Check CAN cable connection is connected to the right COM por
E009	No master in parallel system	Check parallel setting for master/Slave part, there should be one master in the system
E012	Off grid output short circuit	Check if the load is short circuit, try to turn off the load and restart inverter
E013	UPS reserve current	Restart inverter, if the error still exist, contact us
E015	Phase Error in three phase parallel system	Check if the AC connection is right for three phase system, there should one at least one inverter in each phase
E016	Relay fault	Restart inverter, if the error still exist, contact us
E017	Internal communication fault2	Restart inverter, if the error still exist, contact us (DSP&M8)
E018	Internal communication fault3	Restart inverter, if the error still exist, contact us (DSP&M3)
E019	Bus voltage high	Check if PV input voltage is higher than 480V
E020	EPS connection fault	Check if EPS and AC connection is in wrong terminal
E021	PV voltage high	Check PV input connection and if PV input voltage is higher than 480V
E022	Hard Over Curr	Restart inverter, if the error still exist, contact us
E024	PV short	Check PV connection
E025	Temperature over range	The internal temperature of inverter is too high, turn off the inverter for 10minutes, restart the inverter, if the error still exist, contact us
E026	Internal Fault	Restart inverter, if the error still exist, contact us (Bus sample)
E028	Sync signal lost in parallel system	Check CAN cable connection is connected to the right COM port
E029	Sync trigger signal lost in parallel system	
E031	Internal communication fault4	Restart inverter, if the error still exist, contact us (DSP&M8)

Code	Description	Trouble shooting
W000	Communication failure with battery	Check if you have choose the right battery brand and communication cable is right, if the warning still exist, contact us
W003	Communication failure with meter	Check communication cable, if the warning still exist, contact us
W004	Battery failure	Inverter get battery fault info from battery BMS, restart battery, if the warning still exist, contact us or battery manufacture
W008	Software mismatch	Please contact Luxpower for firmware update
W009	Fan Stuck	Check if the fan is OK
W012	Bat On Mos	Restart inverter, if the error still exist, contact us
W013	Over temperature	The temperature is a little bit high inside inverter
W015	Bat Reverse	Check the battery connection with inverter is right, if the warning still exist, contact us
W018	AC Frequency out of range	Check AC frequency is in range
W019	AC inconsistent in parallel system2	Reconnect the AC input or Restart inverter, if the error still exist, contact us
W020	PV Isolation low	Check whether the cables are damaged or exposed, whether the connectors are loose, and whether the PV modules are faulty.
W025	Battery voltage high	Check if battery voltage is in normal range
W026	Battery voltage low	Check if battery voltage is in normal range, need to charge the battery if battery voltage is low
W027	Battery open	Check if there is output from the battery and battery connection with inverter is OK
W028	EPS Over load	Check if EPS load is too high
W029	EPS voltage high	Restart inverter, if the error still exist, contact us

7.6 Fan Replacement

Please check and clean the fans regularly. The recommended period is 6 months. Please replace the fan following up the below diagram if there is problem with the fans. Turn off the system and wait for more than 5 minutes before disassembling the machine.

Replacement diagram:



8. Specification

Input (PV DC)	GEN3-LB-EU 3K	GEN3-LB-EU 3.6K	GEN3-LB-EU 4K	GEN3-LB-EU 4.6K
Max. PV input power (W)	6600	7000	7000	8000
Rated PV input voltage (V)		360		
Number of independent MPPT inputs		2		
Max. PV input voltage (V)		530		
MPPT voltage range (V)		150~425		
Start-up voltage (V)		140		
Max. PV input current per MPPT (A)		20		
Max. PV short-circuit current input per MPPT (A)		32		
Battery				
Compatible battery type	Lead-acid battery/Lithium battery			
Rated battery voltage (V)		48		
Battery voltage range (V)		40~60		
Max. charging / discharging current (A)	80	80	80	95
Max. charging / discharging power (W)	3600	3600	4000	4600
Force wake up battery from PV function		Yes		
Grid				
Rated AC voltage (V)		230		
Rated AC frequency (Hz)		50 / 60		
Rated AC output current (A)	13	16	20	25
Rated AC output power (W)	3000	3600	4000	4600
Max. AC input current (A)		52		
Max. AC input power (W)		12000		
PF	0.99 (Adjustable from 0.8 leading to 0.8 lagging)			
THDI		<3%		
Max. continuous AC passthrough current (A)		52		
GEN				
Rated GEN voltage (V)		230		
Rated GEN frequency (Hz)		50 / 60		
Rated GEN input current (A)		52		
Rated GEN input power (W)		12000		
UPS				
Rated output power (W)	3000	3600	4000	4600
Rated output current (A)	13	16	20	25
Rated output voltage (V)		230		
Rated output frequency (Hz)		50 / 60		
Surge power, duration	2 × rated power for 10s			
Switching time		7ms		
Wave form		Sine wave		
THDV		<5%		
Efficiency				
MPPT efficiency		99.9%		
Max. charge / discharge efficiency		95.0%		
Protection				
Over current / voltage protection		Yes		
Anti-islanding protection		Yes		
AC Short-circuit current protection		Yes		
Leakage current protection		Yes		
AFCI		Optional		
Ground fault monitoring		Yes		
Grid monitoring		Yes		
PV DC switch		Yes		
AC / DC surge protection		Type II		
General				
Dimensions (W × H × D)		TBD		
Weight		TBD		
Ingress protection rating		IP66		
Relative humidity		0~95%		
Operating environment temperature range (°C)		-25~60 (>45 derating)		
Storage temperature range (°C)		-40~65		
Display & Communication interface		LCD, RS485, Wifi, CAN		
Warranty		5years		
Cooling method		Smart Cooling		
Topology on AC / Battery side		Transformer		
Noise emission (dB)		<30		
Max. operating altitude (m)		2000 (> 2000m derating)		

Input (PV DC)	GEN3-LB-EU 5K	GEN3-LB-EU 6K	GEN3-LB-EU 8K
Max. PV input power (W)	8000	12000	12000
Rated PV input voltage (V)		360	
Number of independent MPPT inputs		2	
Max. PV input voltage (V)		530	
MPPT voltage range (V)		150~425	
Start-up voltage (V)		140	
Max. PV input current per MPPT (A)		20	
Max. PV short-circuit current input per MPPT (A)		32	
Battery			
Compatible battery type	Lead-acid battery/Lithium battery		
Rated battery voltage (V)		48	
Battery voltage range (V)		40~60	
Max. charging / discharging current (A)	120	125	180
Max. charging / discharging power (W)	5000	6000	8000
Force wake up battery from PV function		Yes	
Grid			
Rated AC voltage (V)		230	
Rated AC frequency (Hz)		50 / 60	
Rated AC output current (A)	21.7	26	34.7
Rated AC output power (W)	5000	6000	8000
Max. AC input current (A)		52	
Max. AC input power (W)		12000	
PF	0.99 (Adjustable from 0.8 leading to 0.8 lagging)		
THDI		<3%	
Max. continuous AC passthrough current (A)		52	
GEN			
Rated GEN voltage (V)		230	
Rated GEN frequency (Hz)		50 / 60	
Rated GEN input current (A)		52	
Rated GEN input power (W)		12000	
UPS			
Rated output power (W)	5000	6000	8000
Rated output current (A)	21.7	26	34.7
Rated output voltage (V)		230	
Rated output frequency (Hz)		50 / 60	
Surge power, duration		2 × rated power for 10s	
Switching time		7ms	
Wave form		Sine wave	
THDV		<5%	
Efficiency			
MPPT efficiency		99.9%	
Max. charge / discharge efficiency		95.0%	
Protection			
Over current / voltage protection		Yes	
Anti-islanding protection		Yes	
AC Short-circuit current protection		Yes	
Leakage current protection		Yes	
AFCI		Optional	
Ground fault monitoring		Yes	
Grid monitoring		Yes	
PV DC switch		Yes	
AC / DC surge protection		Type II	
General			
Dimensions (W × H × D)	TBD	412 × 534.5 × 229.5 mm / 16.22 × 21.04 × 9.04 in	
Weight		TBD	
Ingress protection rating		IP66	
Relative humidity		0~95%	
Operating environment temperature range (°C)		-25~60 (>45 derating)	
Storage temperature range (°C)		-40~65	
Display & Communication interface		LCD, RS485, Wifi, CAN	
Warranty		5years	
Cooling method		Smart Cooling	
Topology on AC / Battery side		Transformer	
Noise emission (dB)	<30		<50
Max. operating altitude (m)		2000 (> 2000m derating)	

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