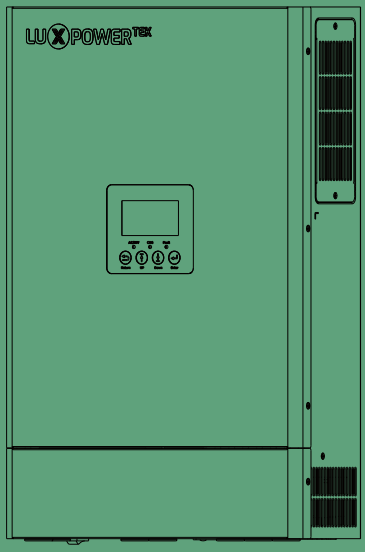
Eco Hybrid Inverter
User Manual

GETA-LB-EU 6K/48V



Version: UM-SNA08001E01

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GETA-LB-EU 6K/48V

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Revision History

Version	Date	Description
UM-SNA08001E01	2026.10.12	First official release.

Information on this Manual

Validity

This manual applies to the following model: GETA-LB-EU 6K/48V.

Scope

This manual provides installation, operation, and troubleshooting guidelines for the product. Please read carefully before performing any installation or operation.

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.

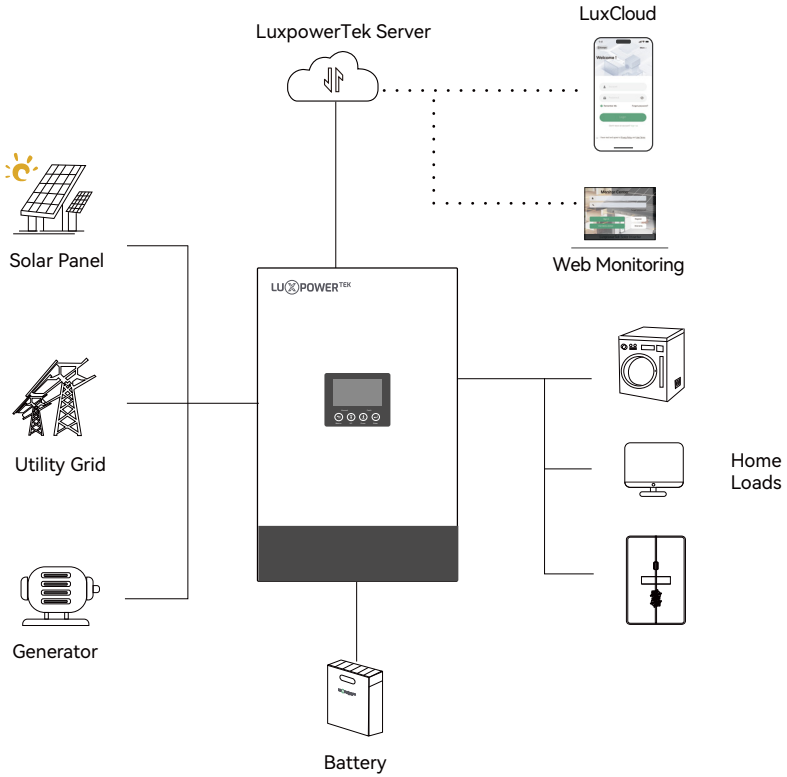
Safety Instructions

WARNING: This section contains important safety and operating instructions. Please read carefully and keep for future reference.

- All operations and wiring must be carried out by qualified professionals.
- Before using this equipment, carefully read all instructions and warning labels. Any damage caused by improper operation is not covered under LuxpowerTek's warranty.
- All electrical installations must comply with local electrical safety standards.
- Do not disassemble this equipment. For service, contact a qualified service center. Incorrect reassembly may result in electric shock or fire. Opening the inverter housing or replacing any components without LuxpowerTek's authorization will void the warranty.
- To reduce the risk of electric shock, disconnect all wiring before performing any maintenance or cleaning. Simply switching off the device does not eliminate the risk.
- CAUTION: To avoid personal injury, charge only deep-cycle lead-acid or lithium batteries. Other types of batteries may explode, causing injury or equipment damage.
- Exercise extreme caution when working near batteries or using metal tools. Dropped tools may cause sparks or short circuits, leading to explosion.
- Do not attempt to charge frozen batteries.
- To ensure optimal performance, always use cables and circuit breakers that meet the recommended specifications.
- When connecting or disconnecting AC or DC terminals, strictly follow the installation instructions. Refer to the "Installation" section of this manual for detailed steps.
- GROUNDING INSTRUCTIONS: This equipment must be connected to a permanent grounding system. Installation must comply with all applicable local regulations and requirements.
- Never short-circuit the AC and DC terminals. Do not connect the inverter to the utility grid if the DC input side is short-circuited.

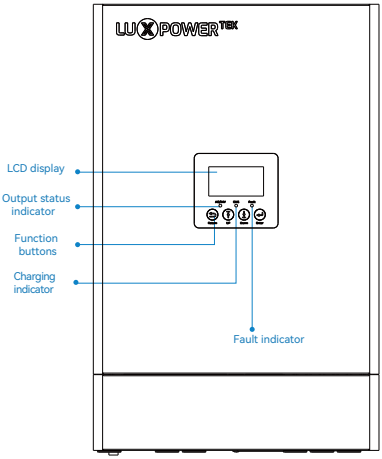
1. Product Overview

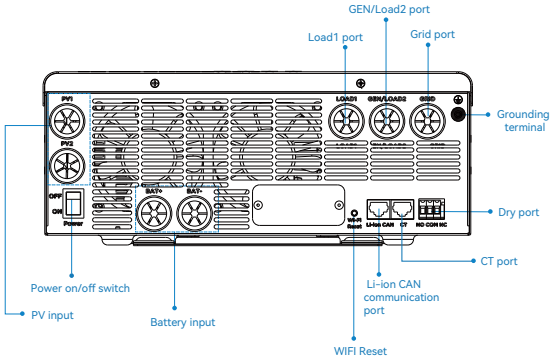
1.1 Features of the Inverter



- **Multi-functional High-frequency Pure Sine Wave Energy Storage Inverter**: Delivers stable and reliable performance to meet diverse power consumption needs.
- **Versatile Applications**: Supports off-grid systems, backup power supply, and self-consumption applications.
- **Dual PV Input Capability**: Supports two PV string inputs with a maximum PV current of 27A.
- **Flexible Battery Configuration**: Supports operation with or without batteries.
- **Dedicated Generator Port**: Enables remote start/stop control of generators.
- **Smart Battery Management**: Compatible with mainstream lithium battery BMS via CAN communication.
- **Remote Monitoring & Upgrade**: Supports WiFi connection, remote firmware upgrade, and free mobile APP (iOS/Android).

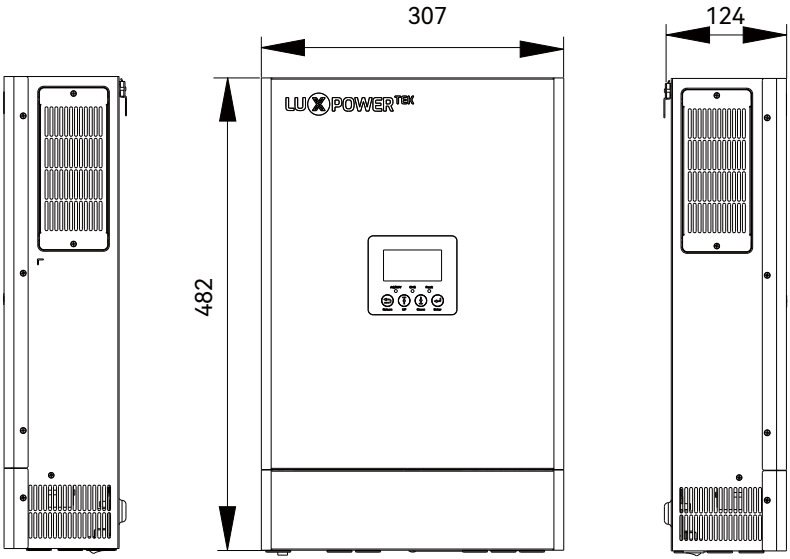
1.2 Interface of the Inverter





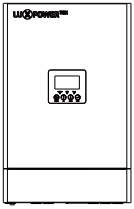
1.3 Product Dimensions

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



1.4 Packing List

Before installation, please carefully check the package contents. Ensure that all items are complete and in good condition. If any parts are missing or damaged, please contact your distributor immediately.



Inverter ×1

User Manual ×1

Self-tapping screws and plastic anchors ×3

Crosshead screw ×1 + flange nuts ×2

Wall-mount bracket ×1

1000:1 CT ×1

Storage requirements

The inverter must be stored appropriately if not installed immediately, refer to below figure.

⚠ CAUTION

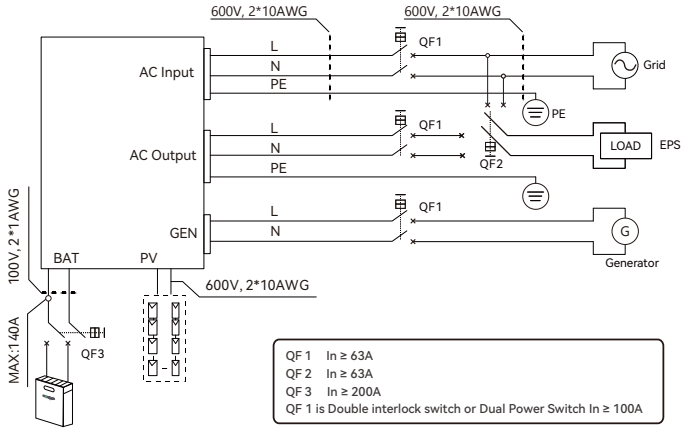
- Must be stored in the original packaging.
- Storage temperature: −15°C to 60°C; humidity: 5−95%.
- Packages must be stored upright, stacked no more than 6 layers, and height less than 2 m.
- Avoid direct sunlight, rain exposure, and corroissive environments.

2. Installation

2.1 Preparation

Before installation, please ensure all breakers and cables are prepared in advance. For detailed requirements on cable specifications and circuit breaker parameters, please refer to the subsequent sections (Battery / AC / PV wiring).

System connection diagram:



2.2 Handling Requirements

- Handle with care during transportation to avoid impact or dropping.
- It is recommended that two people cooperate or use appropriate handling equipment.
- Do not place heavy objects on top of the inverter.
- Keep the inverter upright during transport and storage.

2.3 Installation Environment Requirements

During installation and operation, avoid direct sunlight, rain exposure, and snow accumulation on the inverter.

The inverter equips built-in Type III surge protection, but for the regions prone to thunderstorms, additional lightning protection is advisable to reduce the risk of damage from lightning strikes.

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, high salt spray or humidity greater than 95%.

2.4 Installation Tools

Recommended tools for installation:

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

2.5 Inverter Installation

NOTICE

Precautions:

When selecting the installation location, please follow these requirements:

- Mount the inverter on a solid and stable wall.
- Do not install on flammable building materials.
- Ensure adequate ventilation space: at least 20 cm on both sides and 50 cm above and below.
- Keep the ambient temperature within -10°C to 55°C to ensure optimal operation.
- The recommended installation method is vertical wall-mounting.

Installation Procedures

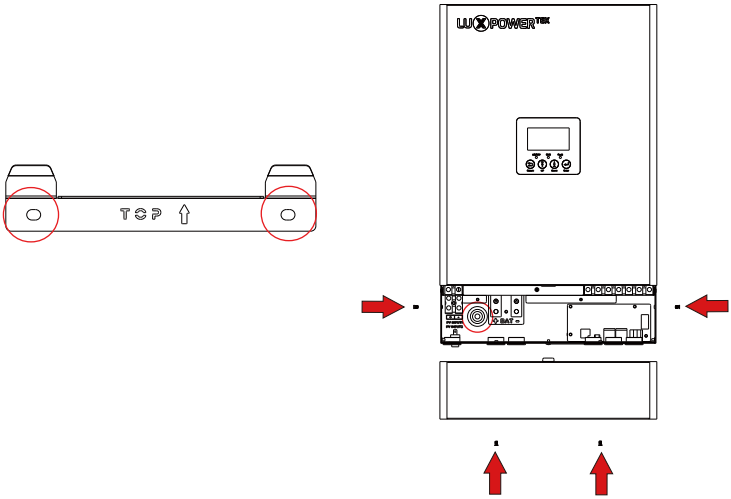
Step 1: Use the wall-mounting bracket as a template to mark the positions of the 2 mounting holes. Drill holes with a diameter of 8 mm and a depth greater than 40 mm.

Step 2: Insert the plastic expansion anchors into the holes, align the bracket with the holes, and fasten it securely to the wall using the supplied self-tapping screws. Then hang the inverter onto the bracket.

Step 3: Remove the four screws from the wiring cover, hang the inverter onto the installed wall-mount bracket, mark the bottom mounting screw holes, and then take the inverter down.

Step 4: Drill holes with a diameter of 8 mm and a depth greater than 40 mm, and insert the plastic expansion anchors into the holes.

Step 5: Hang the inverter onto the mounted wall-mount bracket and tighten the bottom mounting screws.



2.6 Wiring Instructions

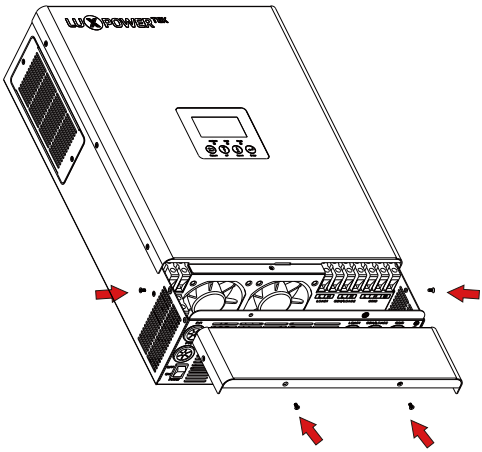
Important Notes Before Wiring

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 four screws shown in the diagram).
- Ensure the inverter is completely powered off before removing the cover.
- When wiring, always double-check the polarity of all DC cables to ensure it is correct.
- 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.



2.7 Battery Connection

2.7.1 Recommended battery cables and breaker specifications

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.

Model	Breaker Specification	Cable Size	Torque (N·m)	Compatible Cable Hole
GETA-LB-EU 6K/48V	200A / 80V DC	1 AWG	3N.m±10%	M6

2.7.2 General safety instructions

- A proper DC circuit breaker or isolating switch must be installed between the inverter and the battery.
- 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.

2.7.3 Lead-Acid battery connection

When using lead-acid batteries, please follow the requirements below:

- The recommended charging current is 0.2C (C = battery capacity).
- Battery cables must comply with the recommended cable specifications (see table above).
- Properly install ring terminals, and tighten all bolts with a torque of 3N.m±10%.
- Before starting the inverter, double-check that the polarity is correct.

2.7.4 Lithium battery connection

When using lithium batteries, ensure the battery BMS is compatible with LuxpowerTek inverter (refer to the latest compatibility list on the LuxpowerTek official website).

Operating Procedures:

Step 1: Connect the power cables according to the recommended specifications (see table above).

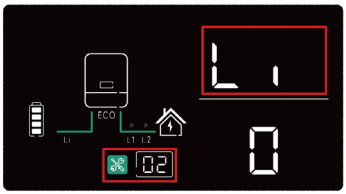
Step 2: Connect the CAN communication cable between the battery and the inverter:

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

Step 3: Configure the battery type via the LCD:

a. Go to Program 02 → Select "Li-ion".

b. In the menu, choose the correct battery brand/model (refer to the LuxpowerTek battery compatibility list).



Example:

a. LuxpowerTek battery → Select Type 6: Luxpower.

b. Hina battery → Select Type 1: Hina.

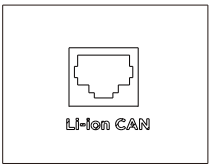
Notes for third-party lithium batteries:

a. Confirm whether the communication protocol (CAN) is compatible.

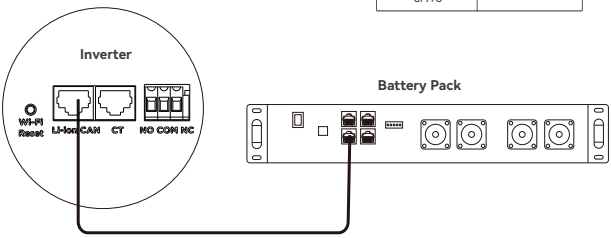
b. Some batteries may require setting DIP switches or brand IDs.

c. If communication fails, the system will fall back to voltage control mode (SOC/temperature will not be displayed).

d. Always refer to the battery manufacturer's manual during installation.



Pin	CAN port
1	- - -
2	- - -
3	- - -
4	BAT.CANH
5	BAT.CANL
6/7/8	- - -



2.8 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.

⚠ WARNING: Improper grounding may cause electric shock hazards or equipment malfunction. Always comply with local electrical codes and standards.

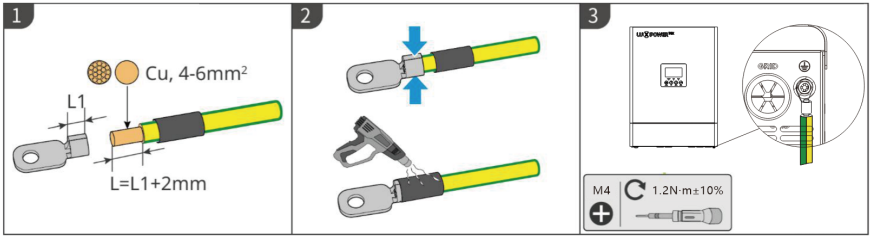
Name	Cable	Cable Size (mm^2)	OT Terminal	Torque (N·m)
Ground cable	Single-core copper wire (solid or stranded)	3 mm^2	M4	2.0 N·m

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.



2.9 AC Input/Output Connection

⚠ CAUTION

- The AC terminals are divided into IN (input) and OUT (output). Do not connect them incorrectly.
- Ensure correct L (Live) and N (Neutral) polarity. Reversed polarity may cause short circuits, especially in parallel operation.
- Before performing AC input/output wiring, make sure the AC power is completely disconnected to avoid the risk of electric shock.

⚠ The AC Output 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.

Recommended cable size for AC input/output and GEN wiring are listed below.

Model	AC Output Gauge	AC Input / GEN Gauge	Torque Value
GETA-LB-EU 6K/48V	12 AWG / 2.05 mm^2	10 AWG / 5.3 mm^2	2.0 N·m

Wiring Procedures (for Input and Output)

Step 1: Before wiring, ensure that the DC protection switch is turned off.

Step 2: Strip 10 mm of insulation from the wires.

Step 3: Prepare the wires using crimp terminals (strip, insert, and crimp).

Step 4: Insert the crimp terminals under the screws of the AC input/output terminals.

Step 5: Tighten the screws to the recommended torque (2.0 N·m) using the proper tool.

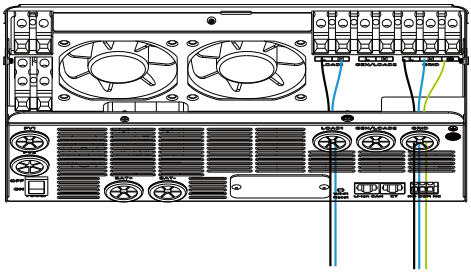
Step 6: Always connect the PE ground wire first, followed by L (Live) and N (Neutral).

Step 7: Check that all wires are firmly connected to ensure there is no looseness.

⏚ — Ground (yellow-green)

L→LINE (brown or black)

N→Neutral (blue)



Additional Notes

Input (IN): The AC input must be connected to the grid through a circuit breaker.

Output (OUT): The AC output should be connected to household loads (EPS/backup). Properly distribute the loads to ensure protective earth safety is prioritized.

2.10 PV Connection

Recommended cables and breaker specifications

Model	DC Breaker	Cable Type	Cable Size (mm^2)	Torque Value
GETA-LB-EU 6K/48V	600 V / 32 A	1 × 10 AWG	5.3 mm^2	2.0 N·m

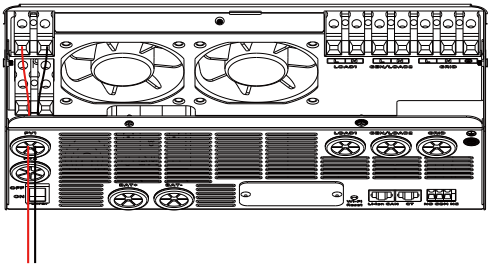
Wiring Procedures

Step 1: Strip approximately 10 mm of insulation from the positive and negative wires.

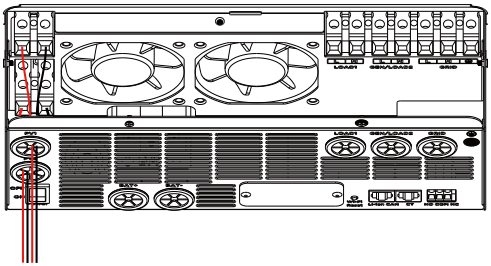
Step 2: Check that the polarity of the PV module wiring matches the inverter input terminals.

Step 3: Connect the PV module positive (+) to the inverter PV input positive (+), and the negative (−) to the inverter PV input negative (−).

Step 4: Verify that all cables are securely connected.



If a second PV string is required, connect PV2 following the same steps above.



Note: The output voltages of PV1 and PV2 should be kept approximately the same, meaning the number of PV modules in each string should be identical.

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 / 32 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.

2.11 GEN/LOAD2 Port Function

NOTICE

1. The GEN/LOAD2 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/LOAD2 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.

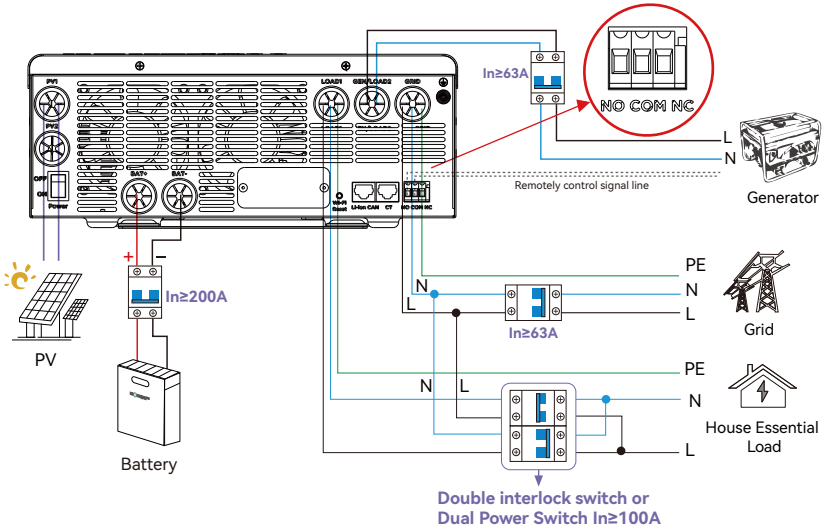
2.11.1 Generator connection

2.11.1.1 Function Overview

This product supports generator connection through the GEN/LOAD2 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.

- When selecting a generator, ensure sufficient capacity and stable frequency (Total Harmonic Distortion THD < 3%).
- It is recommended that the generator's rated output power be at least 1.5 times the inverter output power to meet both load supply and battery charging requirements.
- The recommended generator capacity: 5.0 ~ 7.0kW.

This product can work with a generator and includes a dedicated GEN/LOAD2 port for generator connection.



Operating Procedures

Step 1: Ensure that both the inverter and generator are powered off, and all circuit breakers are in the off position.

Step 2: Identify and connect the GEN wiring according to wiring specifications:

a. L (Line): Black or brown

b. N (Neutral): Blue

c. PE (Protective Earth): Yellow-green

Step 3: Connect the L line to the corresponding GEN terminals on the inverter, and connect the N line to the N terminal of the GEN/LOAD2 port.

When properly wired and configured, the generator, if compatible with remote start, will start automatically when the battery voltage / SOC is lower than the cut-off value or there is a charge request from the BMS. When the generator is running, it will charge the batteries and excess AC power will be diverted to the LOAD1 port to power loads.

2.11.1.2 Integrated two-wire Start/Stop

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

● NOTICE

NO: Normal open NC: Normal close

Dry Port Relay Maximum Specification: 250VAC 5A

Unit Status	Condition		GEN (NO COM NC) NC & COM	GEN (NO COM NC) NO & COM
Power Off	Inverter is off and no output is powered.		Open	Close
Power On	Without Grid	Battery voltage/SOC < Generator Charge Start Voltage/SOC	Close	Open
		Battery voltage/SOC>Generator Charge EndVoltage/SOC	Open	Close
	With Grid	Battery voltage/SOC<Generator Charge Start Voltage/SOC	Open	Close
		Battery voltage/SOC>Generator Charge EndVoltage/SOC	Open	Close

2.11.1.3 Generator Start and Stop settings

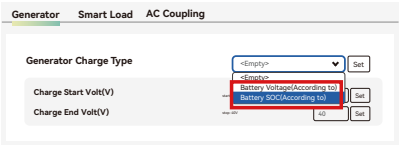
Start Conditions:

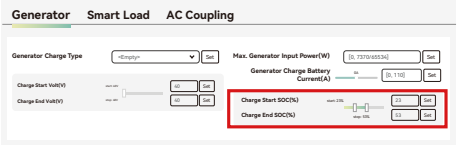
The generator will start when utility fails and one of the following conditions is met:

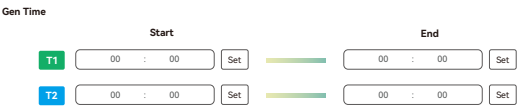
- Battery voltage is below the configured cutoff voltage.
- BMS issues a charge request.
- Battery voltage or SOC is below the “Generator Charge Start SOC/Volt” and within the generator’s configured charging time.
- One-touch generator start command issued via monitoring platform.

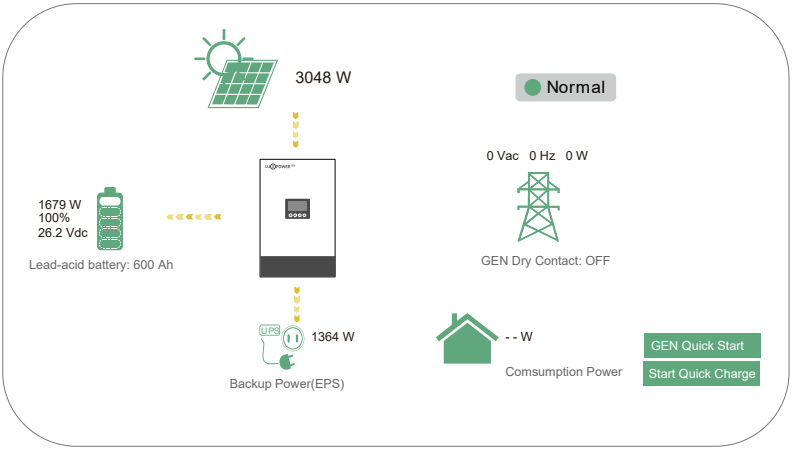
Stop Conditions:

- 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.









2.11.1.4 Generator Charging Mode Settings

Users can select the generator charging logic via the monitoring platform or the LCD interface:

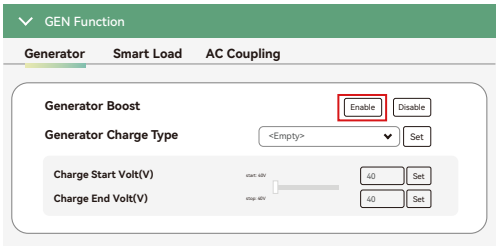
- By Voltage and Time: Recommended for lead-acid batteries.
- By SOC (State of Charge) and Time: Recommended for lithium batteries.

Configurable Parameters Include:

- Start/stop voltage or SOC.
- Generator charging time 1 and charging time 2.
- Maximum charging current.
- Maximum generator input power.

2.11.1.5 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.



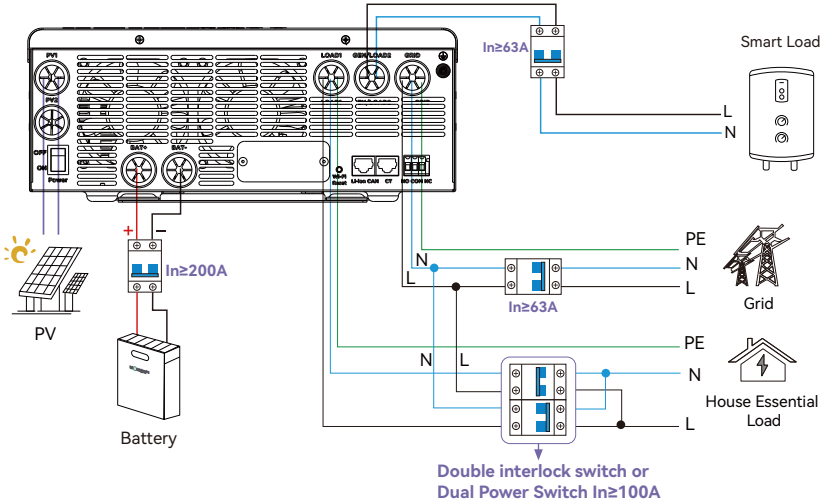
2.11.2 Smart Load

2.11.2.1 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.

2.11.2.2 Wiring Instructions



Operating Procedures

Step 1: Ensure that both the inverter and external loads are powered off, and all circuit breakers are in the off position.

Step 2: Identify and connect the smart load wiring according to wiring specifications:

a. L (Line): Black or brown

b. N (Neutral): Blue

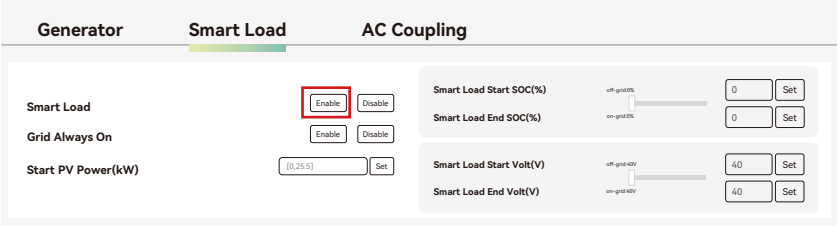
c. PE (Protective Earth): Yellow-green

Step 3: Connect the smart load's 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.

Step 4: It is recommended to install a dedicated circuit breaker for the smart load branch (e.g., 50A / 2P or compliant with IEC 60947 standards) to ensure safe operation.

2.11.2.3 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.

2.11.2.4 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.

2.11.3 AC Coupling Settings

2.11.3.1 Function Overview

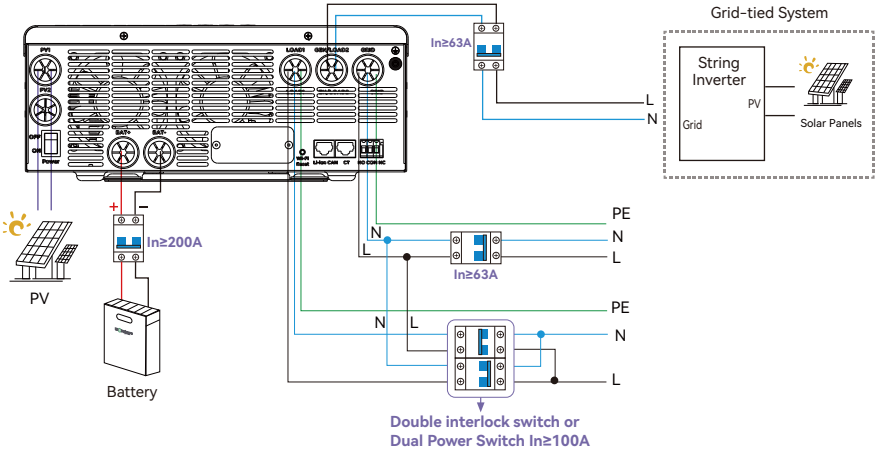
The AC Coupling function allows users to integrate an existing grid-tied PV system through the GEN/LOAD2 interface. This enables seamless integration of solar energy generation with off-grid energy storage systems.

AC Coupling in Off-Grid Mode

When the utility grid is disconnected, this inverter automatically switches to off-grid mode, maintaining stable system voltage and frequency, and enables the grid-tied inverter to continue generating power via the GEN/LOAD2 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 grid-tied inverter.
- When PV power is insufficient, both the battery and the grid-tied inverter will supply power jointly to ensure uninterrupted operation of critical loads.

2.11.3.2 Wiring Instructions



Operating Procedures

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

Step 2: Connect the output terminals of the grid-tied inverter (L, N, PE) to the corresponding GEN/LOAD2 port terminals on this inverter:

a. L (Line) → GEN/LOAD2 port L

b. N (Neutral) → GEN/LOAD2 port N

c. PE (Protective Earth) → Inverter grounding terminal

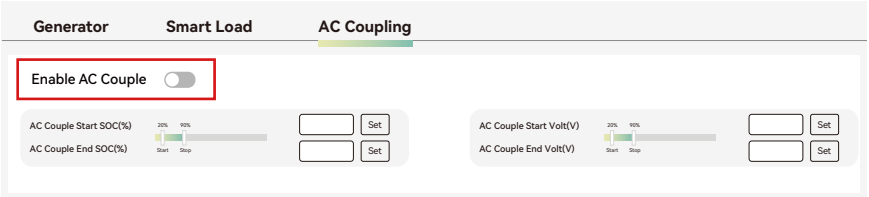
Step 3: It is recommended to install a dedicated circuit breaker in the AC Coupling loop to ensure safe operation.

2.11.3.3 AC Coupling Settings

Enable AC Coupling

The AC Coupling setting must be enabled when connecting an existing grid-tied system to the GEN port.

- Start SOC(%): The SOC at which the AC-coupled inverters are turned on when in off-grid mode (50% recommended).
- End SOC(%): The SOC at which the AC-coupled inverters are shut down when in off-grid mode (90% recommended).



2.11.3.4 System Features

- **Off-Grid Mode**: The grid-tied inverter operates using a virtual grid signal provided by this inverter. The generated energy can be used to charge the battery or supply loads.
- **Energy Priority**: PV generation supplies the load first. Remaining energy is used to charge the battery. When battery energy is insufficient, the system automatically switches to grid power.

2.12 CT Connection

To measure the power imported from and exported to the grid, install the CT at the service entry point inside or near the main service panel. The "External Grid CT" function is disabled by default. If grid power export is required to offset the loads, enable the "External Grid CT" function on the inverter monitoring page.

2.12.1 CT Port Definition

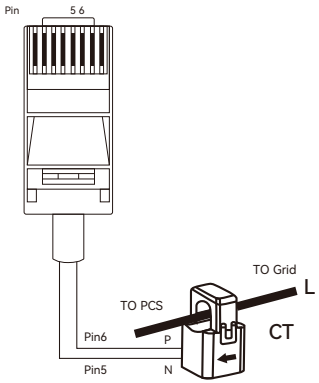
The CT port uses an RJ45 connector.

Pin definition is as follows:

Pin	Description
1	NC
2	NC
3	NC
4	NC
5	CT-N
6	CT-P
7	NC
8	NC

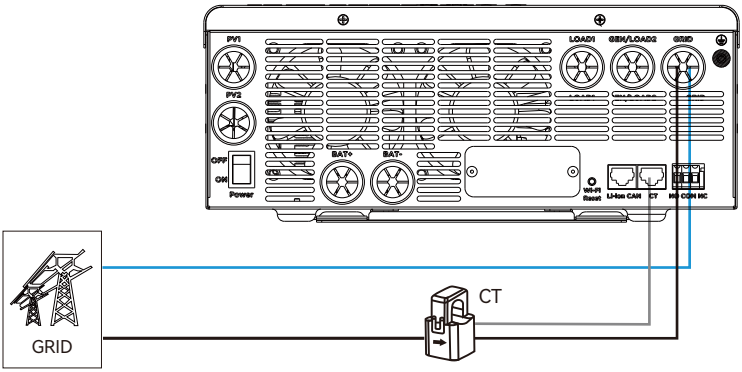
2.12.2 Installation precautions

- 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.



2.12.3 CT Ratio

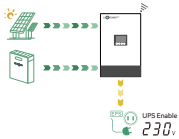
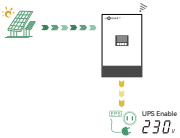
- Supported CT ratios: 1000:1, 2000:1, 3000:1.
- The CT included in the accessory package has a default ratio of 1000:1.
- When using a third-party CT, ensure that its ratio is one of the above and configure it correctly in the LCD menu or monitoring platform.



3. Working Mode

3.1 Offgrid Inverter Mode Introduction

Status Code	Mode	Diagram Illustration	Description
0x11	Bypass Mode		AC is used to take the load.
0x19	PV Charge Bypass		PV charge the battery while the AC power the load.
0x10	AC Charge		1. AC charge the battery from AC Input or GEN Input. 2. When the battery is power off, the AC can wake up the battery automatically

0x14	PV+AC charge		PV+AC charge the battery. AC is from AC Input or GEN Input.
	PV charge Grid on		PV charge battery and power the load.
0x40	BAT Grid off		Battery is used to take the load.
0xC0	PV+BAT Grid off		PV+Battery power the load together.
	PV Charge+Grid off		PV charge the battery and power the load.
0x80	PV Grid off		NOTE: The output power depends on the PV energy input, if the PV energy is unstable, witch will influence the output power. When you power off the battery, the PV will supply power to the load.
0x08	PV Charge		The inverter charge the battery only. When the battery is power off, the PV can wake up the battery automatically.

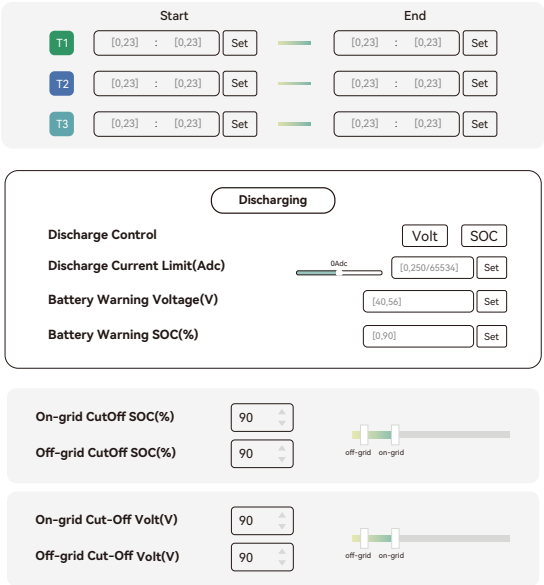
3.2 Working Mode Related Setting Description

Situation	Setting1	Setting2	Working modes and Description
AC abnormal	NA	NA	off gridinverter mode if P_Solar>=P load,solaris used to take load andcharge batteryif-P_Solar<P_load, solar and battery take the load together, system will discharge until battery lower than the Cut Off Voltage/SOC
AC normal	In the AC first time	NA	Bypass Mode AC will take the load and Solar is used to charge battery
	Enable AC charge and in the AC charge time	AC charge accroding to Time	Bypass Mode + AC harge battery Solar is used to charge battery AC will take load and also charge battery during AC charge time if solar power is not enough
		AC charge accroding to SOC/Battery voltage	Bypass Mode+AC charge battery Solar is used to charge battery AC will take load and also charge battery when battery SOC/Volage is lower than start SOC/Voltage, and the AC will stop charging when the battery Voltage/SOC is higher than AC end charge battery voltage/SOC
	Not in the AC first time and disable AC charge or not in the AC charge time	NA	off grid inverter mode if P_Solar>=P_load, solar is used to take load and charge battery if P_Solar<P_load, solar and battery take the load together, system will discharge until battery lower than EOD Voltage/SOC

3.3 Monitoring Operation Mode

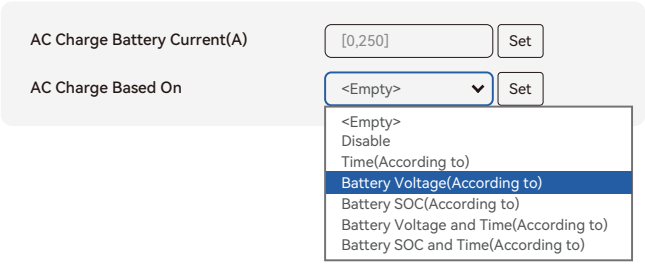
3.3.1 AC First

During the setting time, system will use AC to take load, use solar power to charge the battery first. If there is extra solar power, extra solar power will take the load. When out of the setting time, system will use solar and battery to take load first until battery voltage / SOC is lower than On Grid EOD settings, then it will use AC to take the load.



3.3.2 AC Charge

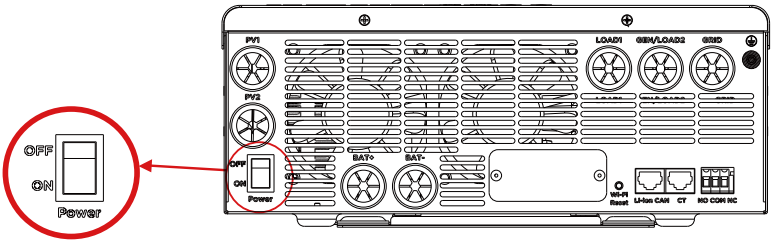
The system will not use AC to charge the battery (except when a forced charge command is issued by the lithium battery BMS).



- According to Time: During the setting time, system will use AC to charge the battery until battery full and battery will not discharge during the setting time.
- According to Battery Voltage: During the setting voltage, system will use AC to charge the battery if battery voltage is lower than AC Charge Start Battery Voltage and will stop when Voltage is higher than AC Charge End Battery Voltage.
- According to Battery SOC: During the setting SOC, system will use AC to charge the battery if battery SOC is lower than AC Charge Start Battery SOC and will stop when Voltage is higher than AC Charge End Battery SOC.
- According to Battery Voltage and Time: During the setting time, system will use AC to charge the battery if battery voltage is lower than AC Charge Start Battery Voltage and will stop when Voltage is higher than AC Charge End Battery Voltage. And battery will not discharge during the setting time.
- According to Battery SOC and Time: During the setting time, system will use AC to charge the battery if battery SOC is lower than AC Charge Start Battery SOC and will stop when Voltage is higher than AC Charge End Battery SOC. And battery will not discharge during the setting time.

4. Operation

4.1 Power Switch



Power Switch: Controls the overall power supply of the inverter as well as the EPS backup power output.

Operation Instructions

Once the unit has been properly installed and the batteries are connected well, follow the steps below to start up the inverter:

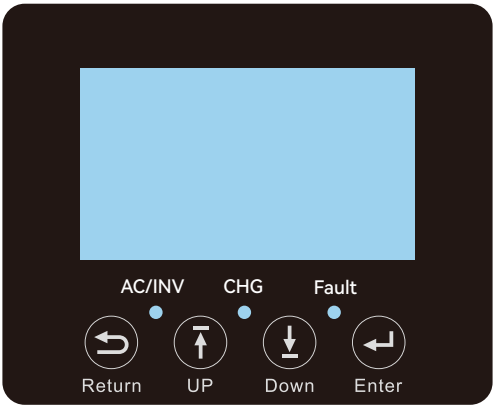
Step 1. Turn on the battery system firstly, then turn on the battery breaker, press On/Off button (located on the bottom of the case) to turn on the unit.

Step 2. Make sure the PV voltage of the strings are higher than the minimum PV input voltage, turn on the PV input breaker and check if the inverter works in PV charge mode.

Step 3. Turn on the load breaker.

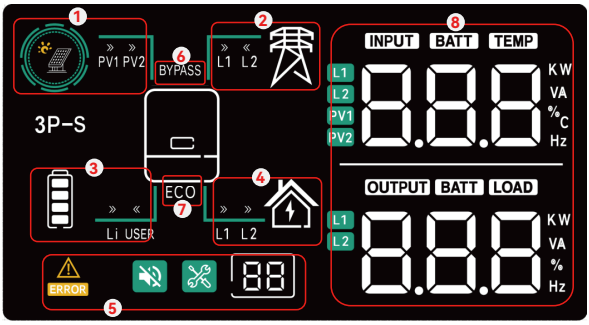
Step 4. Make sure step1 to step2 above work properly before turning on the grid power or generator breaker, and check if the inverter can go to bypass mode and Grid on mode normally.

4.2 LED Display



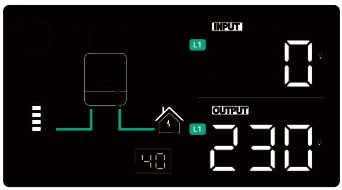
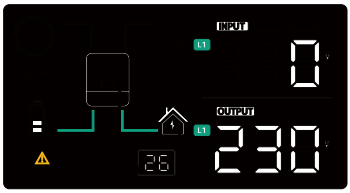
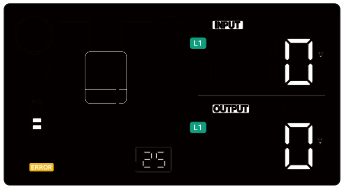
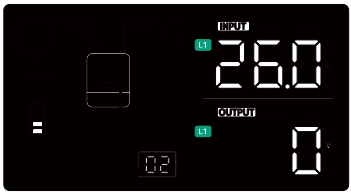
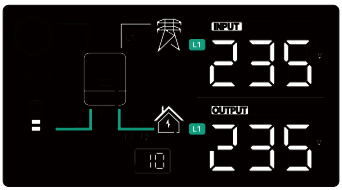
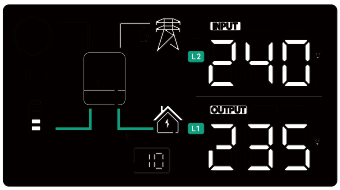
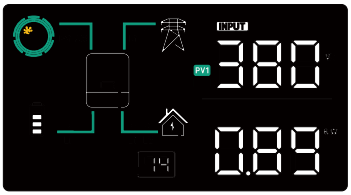
LED Indicator	Status	Messages	Description
AC/INV	Flashing	Inverter Output	The load is powered by energy from one or more of the following sources: the battery, solar, and the grid, which is then converted and stabilized by the inverter circuitry.
	Solid On	Bypass output	The load is being powered directly by the Utility Grid or Generator,without conversion by the inverter.
CHG	Flashing	Firmware Upgrading	The device is performing an internal program update.(Warning: Do no disconnect power during upgrade!).
	Solid On	Battery Charging	The system is currently charging the connected battery bank.
FAULT	Flashing	Inverter Warning	The inverter has detected a potential issue; proceed with caution and inspection.
	Solid On	Inverter Fault	The inverter has detected a serious fault. Check immediately and clear the fault.

4.3 LCD Display



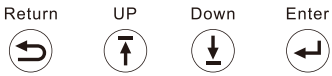
NO.	Description	Remarks
1	PV Input Status Area	Indicate the connection status of PV1 and PV2, as well as the power flow direction.
2	AC Input Status Area	Indicate the connection status of the grid and generator, along with the power flow direction. L1 represents the grid, and L2 represents the generator.
3	Battery Status Area	Display the battery type, SOC, and power flow direction. The presence or absence of the “Li” icon indicates lithium battery type or lead-acid battery type. No battery icon indicates battery-less mode.
4	Load Output Status Area	Display the load output status. L1 represents OP1 output, L2 represents OP2/Gen output. When both L1 and L2 are shown, it indicates both outputs are supplying loads.
5	System Operating Status/ Status Codes	The left side shows inverter warning and fault indicators. The center displays buzzer status and settings menu indicators. The right side shows warning codes, fault codes, status codes, and settings menu codes.
6	Bypass Load Indicator	Indicates that the grid or generator is supplying loads through bypass mode.
7	ECO Mode Indicator	Indicates that ECO mode is enabled.
8	System Operation Data Area	Displays the voltage, frequency, and power of the grid or generator input; the PV input voltage, current, and power; the battery voltage, current, and power; and the output voltage, current, power, and power percentage.

4.4 Inverter Status Display

Normal status, running status 40  	Warning Status, warning 26 
Fault status, fault 25  	Firmware upgrade: download percent is 26% 
When “INPUT” + “L1” is displayed, it indicates that the grid information is coming from the utility AC supply.  	When “INPUT” + “L2” is displayed, it indicates that the grid information is coming from the generator input. 
 	When “INPUT” + “PV1” is displayed, it indicates that the information shown corresponds to the PV1 input. When “INPUT” + “PV2” is displayed, it indicates that the information corresponds to the PV2 input.

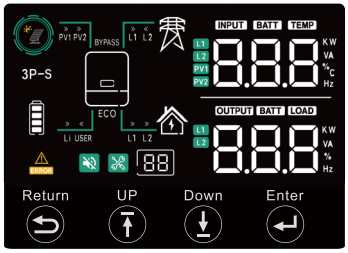
4.5 LCD Settings

There are four buttons on the LCD.



Step for setting by the display:

Step 1. After touch Enter button for about 3 seconds, the unit will enter setting mode. The setting icon and index will flashing.
Step 2. Touch UP or Down button to select setting index form 1 to 35.
Step 3. Then touch Enter button to set this item.
Step 4. Touch UP or Down button to change the settings.
Step 5. Touch Enter to confirm the setting or Return the setting list is as below.



Program	Description	Menu (Upper LED)	Selectable option (Lower LED)	
01	PV Input Mode	pu	Separate (Default) S	1. Separate(Default) 2. Parallel 3. DC source
02	Battery Type	AGM (Default) AGn	/	Lead-acid(Default)
		Lithium battery Li	0	If “Li” is selected, select the lithium battery brand next.

		No battery nob	/	No battery
03	Offgrid Output Voltage & Frequency	Voltage 230	/	230V (Default) Selectable: 208V / 220V / 230V / 240V / 200V / 120V
		Frequency 50	/	50Hz (Default) Selectable: 50Hz / 60Hz
04	Buzzer Control	bu2	Buzzer on (Default) ON	ON / OFF (Default)
05	Max. Charging Current	Ic	140	Max. total charging current: 140A (Default)

		Maximum utility charging current 12c	030	30A (Default). Range: 0 to the max AC charging current allowed by the product specification.
		Maximum generator charging current 19c	030	30A (Default). Range: 0 to the max AC charging current allowed by the product specification.
06	Max. Discharging Current	1d	160	160A (Default)
07	Constant-Voltage Charge (CV) Voltage	CU		This item is available only when Program 02 is set to “AGM” or “Li”. **12V models:** A)02=AGM: Default 14.1V; Range: Program 08 value - 14.8V. B)02=Li: Default 14.4V; Range: 12.0V–14.8V. **24V models:** C)02=AGM: Default 28.2V; Range: Program 08 value - 29.5V. D)02=Li: Default 28.7V; Range: 24.0V–29.5V. **48V models:** E)02=AGM: Default 56.4V; Range: Program 08 value - 59.0V. 02=Li: Default 57.4V; Range: 48.0V–59.0V.

08	Float Charge Voltage	FC		This item is available only when Program 02 is set to “AGM”. **12V models:** Default 14.1V; Range: 12.0V to Program 07-A Value. **24V models:** Default 27.0V; Range: 24.0V to Program 07-C Value. **48V models:** Default 54.0V; Range: 48.0V to Program 07-E Value.
09	Discharge Control Type	dSt	(Default) SOC	1) SOC (Default) 2) VOL (Voltage)
10	Battery Low Warning Alarm (Threshold)	bLo		**If 09=SOC:** Range: Program 11 value – 100% **If 09=VOL:** 12V Range: Program 11 value - 14.0V (Default 11.0V); 24V Range: Program 11 value - 28.0V (Default 22.0V); 48V Range: Program 11 value - 56.0V (Default 44.0V).

11	Battery Cut-off (EOD) Setting	bCu		**If 09=SOC:** Range: 0% to Program 12 Value (Default 15%). **If 09=VOL:** 12V Range: 10.0V to Program 12 Value (Default 10.5V); 24V Range: 20.0V to Program 12 Value (Default 21.0V); 48V Range: 40.0V to Program 12 Value (Default 42.0V).
12	On-grid Discharge Cut-off Setting	Eod		**If 09=SOC:** Adjustable range Program 11 value – 100% (Default 15%) **If 09=VOL:** 12V models: Program 11 value – 14.0V (Default 10.5V) 24V models: Program 11 value – 28.0V (Default 21.0V) 48V models: Program 11 value – 56.0V (Default 42.0V)

13	AC Input Range	A in	Appliances (default) APL	1) APL (Default): 90–280VAC/45-140V 2) UPS: 170–280VAC/85-140V
14	Utility Charging Control	Ach	(Default) OFF	**OFF** (Default): Disable utility charging. **ON**: Enable utility charging (all time). SOC: Control by battery SOC: Start SOC Default 20% (1%–90%); Stop SOC Default 100% (20%–100%). UOL: Control by battery voltage: Start voltage—12V 11.6V (9.6–14.3V) / 24V 23.2V (19.2–28.5V) / 48V 46.4V (38.4–57.0V); Stop voltage—12V 12.0V (12.0–14.8V)/ 24V 24.0V (24.0–29.5V) / 48V 48.0V (48.0–59.0V).
15	AC First	AcF	(Default) OFF	ON / OFF

17	Battery Wakeup	B4U	(Default) OFF	ON / OFF
18	Max. Generator Input Power	MPG	(Default) 3.60	Range: 0 to rated power of the unit
19	PV Off-grid Mode without Battery	PG	(Default) OFF	ON / OFF

20	Green Function	GrN	(Default) OFF	ON / OFF
	Eco Mode	ECO	(Default) OFF	ON / OFF
25	Generator Charging Control	Gch	(Default) SOC	SOC: Control by battery SOC: Start SOC Default 20% (1%–90%); Stop SOC Default 100% (20%–100%). VOL: Control by battery voltage: Start—12V 11.6V (9.6–14.3V), 24V 23.2V (19.2–28.5V), 48V 46.4V (38.4–57.0V); Stop—12V 12.0V (12.0–14.8V), 24V 24.0V (24.0–29.5V), 48V 48.0V (48.0–59.0V).

30	Generator Boost	Gbt	(Default) OFF	ON / OFF
31	Smart Load	SL	(Default) OFF	ON / OFF
	On-grid Smart Load	GSL	(Default) OFF	ON / OFF
	PV Power to Enable Smart Load	PSL	(Default) 0.50	Range: 0–25.5kW
	Smart Load SOC/Voltage Threshold	(Enable / Disable thresholds)	/	**Enable threshold**: If 09=SOC: Default 90% (0%–100%); If 09=VOL: 12V 13.5V (10.0–14.8V), 24V 27.0V (20.0–29.5V), 48V 54.0V (40.0–59.0V). **Disable threshold:** If 09=SOC: Default 60% (0%–100%); If 09=VOL: 12V 12.0V (10.0–14.8V), 24V 24.0V (20.0–29.5V), 48V 48.0V (40.0–59.0V).

32	AC Coupling	AcP	OFF	ON / OFF
	AC Coupling SOC/Voltage	(Start / Stop thresholds)	/	**Start threshold:** If 09=SOC: Default 50% (0%–101%); If 09=VOL: 12V 12.5V (10.0–14.8V), 24V 25.0V (20.0–29.5V), 48V 50.0V (40.0–59.0V). **Stop threshold:** If 09=SOC: Default 90% (0%–101%); If 09=VOL: 12V 13.5V (10.0–14.8V), 24V 27.0V (20.0–29.5V), 48V 54.0V (40.0–59.0V).
35	Max. Utility Input Power	MPa	(Default) 7.20	Default (for 3.6kW models): 7.2kW. Range: 0 to 2× rated power.

5. Inverter Monitoring System

Users can monitor the system via App and Web, App name is “LuxCloud”, monitoring website: server.luxpowertek.com

We will use the LuxCloud App as an example. Please follow the steps below to download the app, register your account, and connect your device.

1. Download and install the “LuxCloud” App. QR codes for Android and iOS downloads are shown below.

Android

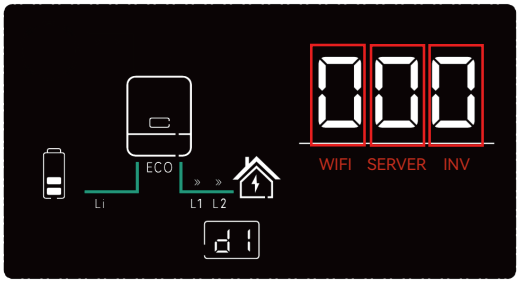
IOS

Registration Note:

When registering a Monitor account, if you are an end user, please request the Installer Code from your device provider (installer or distributor). You may also ask your device provider to help you complete the account registration directly.

2. Check Device Status. After the system is properly connected, power on the device.

After the inverter powers on and the home screen is displayed, press and hold the DOWN key for 2 seconds (the buzzer will beep four times), then release it to enter the WiFi Status interface.



WiFi Connection Status: WIFI, SERVER, and INV (From left to right).

3. Connect the dongle after the WiFi indicator in the above interface changes to 1 or begins flashing**.**

a. Log in and Create a Plant

Log into your App account. Tap “**Create Plant**”, allow location permission when prompted, fill in the basic plant information, and save.

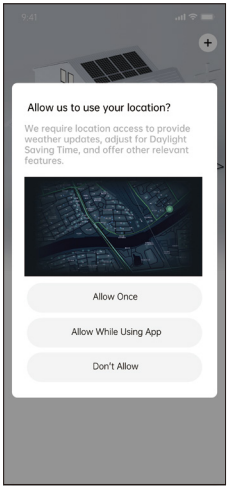
Create a Plant

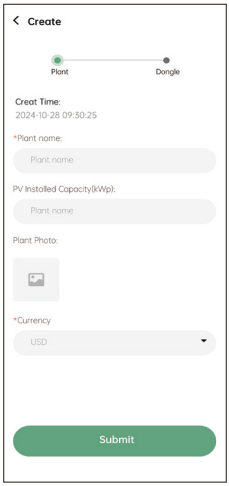
1). Tap Create Plant to create a new site.

2). Allow the App to access your location information (optional).

3). Fill in your personal information.

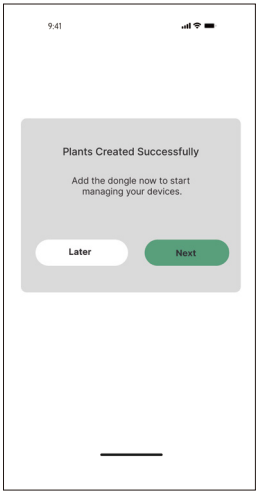
4). Complete the plant creation and proceed to Dongle matching.

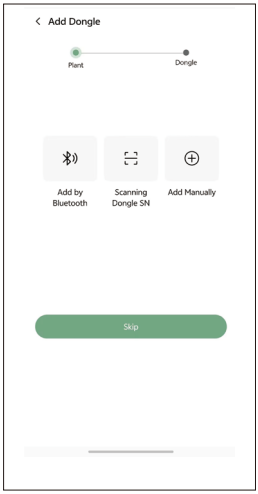




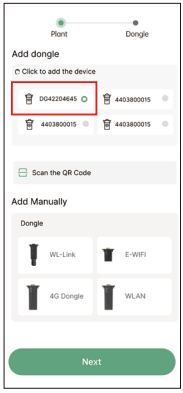
b. In the pop-up window, tap **Next**. Turn on your phone's Bluetooth and tap **Add by Bluetooth**.

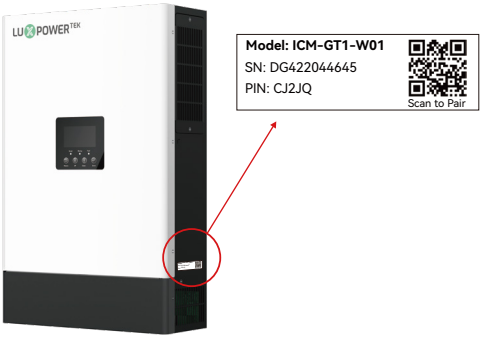
(Recommended: Connect via Bluetooth)



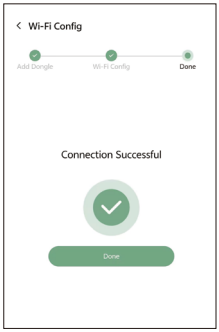


c. Select the serial number that matches the one on the device sticker and tap **Next**.

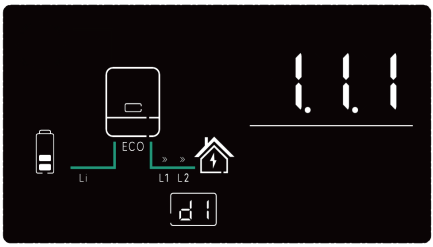




d. On the next screen, select your home Wi-Fi network, enter the Wi-Fi password, and tap **Save.** The dongle will reboot automatically. After completing the configuration, tap **Done**.



e. After the connecting, the indicator on the LCD will change to 1. The inverter is successfully online when all three connection statuses display 1.



LED Indicator Description

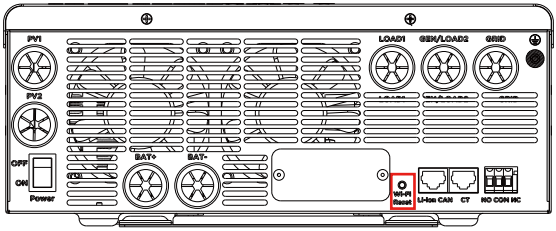
LED Indicator	Presentation of LED State
WiFi LED	Communication between dongle and Home WiFi
Cloud Icon LED	Communication between dongle and network
INV LED	Communication between dongle and inverter

LED Status Explanation

LED Status	Working Status	Troubleshooting
All LEDs solid on	Communication normal	-
WiFi LED flashing	Failure to connect to router	1. Check if the router is successfully connected 2. Verify that the home WiFi name and password are correct
Cloud Icon LED flashing	Internet connection failure	Verify if the router is working properly
INV LED flashing	Communication failure between dongle and inverter	Check and ensure the connection between dongle and inverter is secure

Note:

The dongle status is updated every 30 seconds. The WIFI Reset button can be used to reset or reboot the data logger (press for 5–10 seconds to reboot; press for more than 10 seconds to reset).



6. Specifications

Model	GETA-LB-EU 6K/48V
INPUT (PV DC)	
Max. PV array power (W)	9600
Max. PV input voltage (V)	500
Number of independent MPPT inputs	2
PV input voltage range (V)	60~500
MPPT voltage range (V)	60~440
Start-up voltage (V)	65
Max. PV input current per MPPT (A)	18/18
Battery	
Compatible battery type	Lithium-ion/Lead-acid
Rated battery voltage (V)	48
Max. AC charging current (A)	100
Max. PV charging current (A)	120
Max. PV+AC charging current (A)	120
Max. discharging current (A)	140
Max. charging/discharging power (W)	5800/6000
Force wake up battery from PV function	Yes
Force wake up battery from Grid function	Yes

Grid	
Rated AC frequency (Hz)	50/60
AC voltage range (V)	170-280VAC(For Personal Computer); 90-280VAC(For Home Appliances)
Rated AC voltage (V)	230
Rated AC input current (A)	26.1
Max. AC input power (W)	11500
PF	0.99
THDI	3%
Max. continuous AC passthrough current (A)	50
GEN	
Rated GEN voltage (V)	230
Rated GEN frequency (Hz)	50/60
Rated GEN input current (A)	26.1
Rated GEN input power (W)	6000
UPS	
Rated output power (W)	6000
Rated output voltage (V)	220/230VAC+5%
Rated output current (A)	26.1
Rated output frequency (Hz)	50/60
Output port	Dual outputs
Surge power	2 × rated power for 2s
Switching time(UPS)	10ms
Wave form	Sine wave
THDV	< 3%
Overload protection	5s@>=150% load; 10s@110%~150% load

Efficiency	
MPPT efficiency	99.0%
Max. efficiency	97.1%
Max. charge efficiency	93.0%
Max. discharge efficiency	93.4%
Protection	
Battery Reverse Polarity Protection	NO
Over current / voltage protection	Yes
AC Short-circuit current protection	Yes
DC Surge protection	Type III
AC Surge protection	Type III
General	
Dimensions(W*H*D)(mm)	307*482*124
Weight (kg)	9.7
Ingress protection rating	IP21
Relative humidity	5% ~ 95%
Operating environment temperature range (℃)	-10~45℃ (>40℃ Derating)
Storage temperature range (℃)	-15~60℃
Display & Communication interface	LCD+LED; WIFI
Warranty	1.5 years
Cooling method	Smart Cooling
Altitude	2000
Topology on AC / Battery side	Transformerless / Transformer
Standards & Certification	EN62109-1/-2, EN 61000

7. Maintenance

This chapter describes the safety precautions and procedures for inverter maintenance, replacement, and routine inspection.

All operations must be carried out by qualified personnel, and only after the power has been completely disconnected.

7.1 Power OFF the Inverter

WARNING

Before performing any maintenance, cleaning, or removal work, the inverter must be powered off and all power sources disconnected to prevent electric shock or equipment damage.

Operating Procedures

Step 1: Turn off the PV input breaker.

Step 2: Turn off the battery breaker.

Step 3: Turn off the AC output breaker (load side) and AC input breaker (utility or generator side).

Step 4: Switch off the inverter main power switch.

Step 5: Wait until the inverter display is completely off.

Step 6: Confirm that no voltage is present before proceeding with any further operation.

7.2 Removing the Inverter

WARNING

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.

7.3 Dust Filter Maintenance

WARNING

- Before maintenance, make sure all power sources are complely disconnected to avoid electric shock or short circuit.
- This procedure must be performed by a qualified electritian.
- After cleaning the dust filter, it must be completely dry before reinstalling.

Please check and clean the dust filter regularly. The recommended period is 2 months.

Please replace the dust filter following up the below diagram if there is problem with it.

Operation Procedures

Remove the vent grille to clean the dust screen behind it.

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: Remove the vent grille

- Lossening the four screws on the vent grille.
- Take out the covers and dust filter foams.

Step 3: Clean the dust filter foam with a soft brush, or replace a damaged one.

Step 4: Assemble the Dust filter foam and cover back by following the steps above.

7.4 Disposing of the Inverter

When the inverter or any of its components reaches the end of its service life or cannot be repaired, it must be disposed of in accordance with local environmental regulations.

- Do not dispose of the inverter as household waste.
- The unit contains electronic and metal components that should be sent to a qualified recycling facility.
- Batteries, capacitors, and similar components must be handled as hazardous waste in accordance with local standards.
- If you have any questions, contact the manufacturer or an authorized local service center for recycling guidance.

7.5 Trouble Shooting & Error List

The failures mainly divided into 5 categories, for each category, the behavior is different:

Code	Description	Trouble shooting
E000	Internal communication fault1	Restart inverter, if the error still exist, contact us (DSP&M3)
E002	Bat On Mos Fail	Restart inverter, if the error still exist, contact us
E003	CT Fail	Restart inverter, if the error still exist, contact us
E012	UPS 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
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	Over current internal	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)
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	Platform mismatch	Please contact LuxpowerTek 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
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
W031	EPS DCV high	Restart inverter, if the error still exist, contact us

Note

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luxpowertek

Lux Power Technology Co., Ltd
Headquarter: +86 755 8520 9056
www.luxpowertek.com
Contact us: info@luxpowertek.com

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