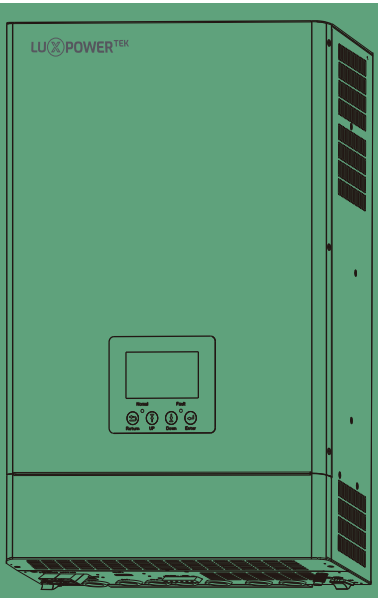
Off-grid Inverter User Manual

SNA 3000-6000 WPV



Version: UM-SNA01001E03

Please read carefully carefully to understand product reliability and warranty eligibility. For detailed warranty information, refer to the Lux Power Technology Limited Warranty. This manual is intended for professional service providers. Nothing in this document constitutes an express or implied warranty.

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Table Of Contents

Revision History

Version	Date	Description
UM-SNA01001	2024.07.19	First official release.
UM-SNA01001-01	2024.09.13	Added description and settings for the GEN port, including smart load and AC coupling functions.
UM-SNA01001E02	2025.07.21	Updated the description of grounding connection.
UM-SNA01001E03	2025.09.30	Updated safety instructions and fixed some known issues.

Information on this Manual

Validity

This manual applies to the following models: SNA3000 WPV/SNA4000 WPV/SNA5000 WPV/SNA6000 WPV.

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.

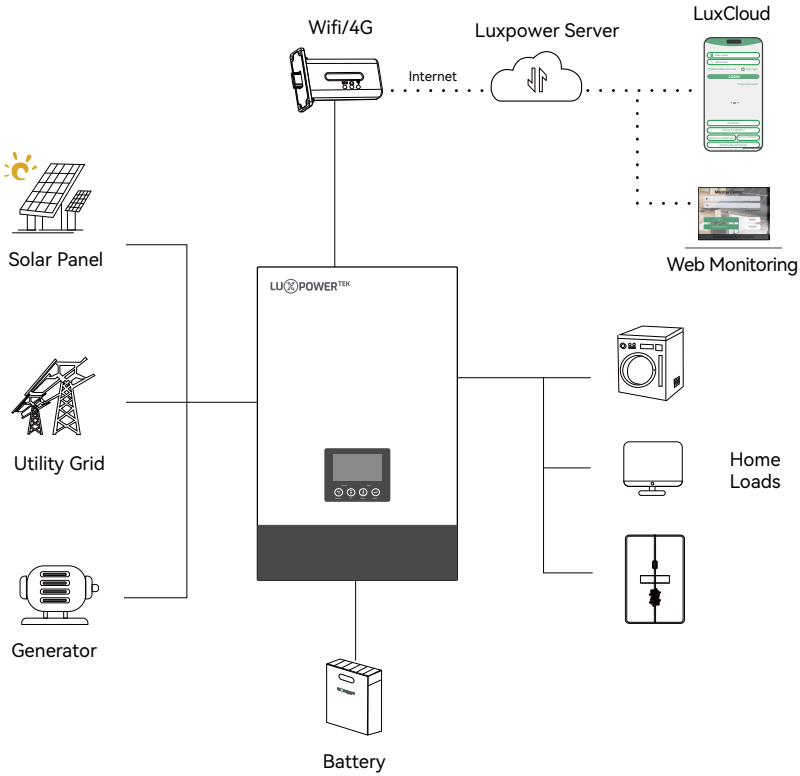
Safety Instructions

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 Luxpower'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.

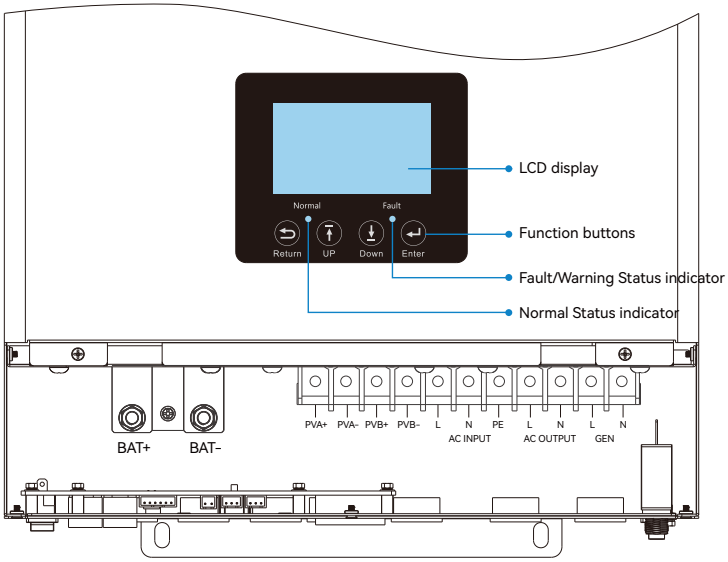
1. Product Overview

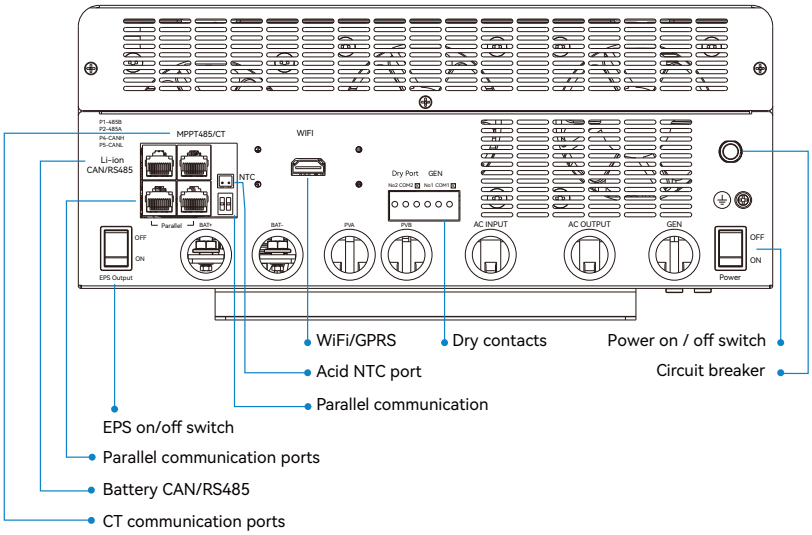
1.1 Features of the Inverter



- **Multi-functional High-frequency Pure Sine Wave Off-grid Inverter**: Stable and reliable operation to meet diversified power needs.
- **Versatile Applications**: Suitable for off-grid systems, backup power supply, and self-consumption scenarios.
- **Dual MPPT Design**: Wide voltage range of 120–385V to maximize PV generation efficiency.
- **Power Factor 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 WiFi/GPRS connection, remote firmware upgrade, and free mobile APP (iOS/Android).

1.2 Interface of the Inverter





1.3 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.

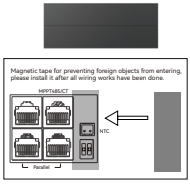
Inverter ×1

User Manual ×1

Expansion Screw and Tube ×4

Cross Head Screw ×5 / Nut ×2

Wi-Fi Module ×1



Soft Magnetic Strip ×1

Label ×1

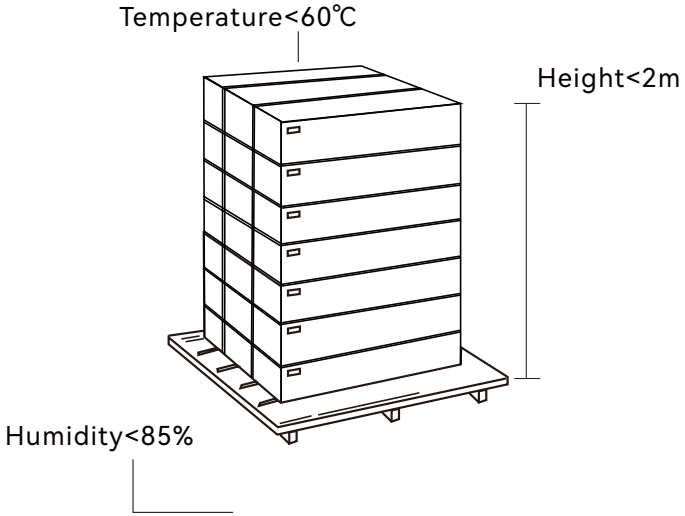
1000:1 CT ×1

Storage requirements

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

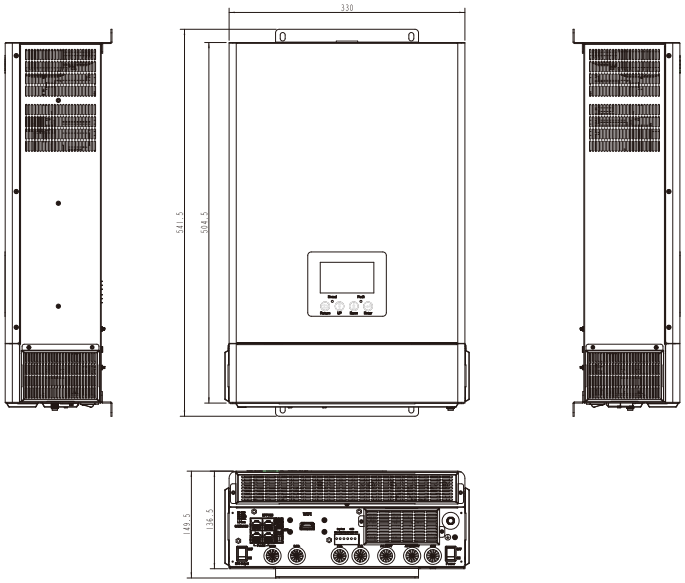
⚠ CAUTION

- Must be stored in the original packaging.
- Storage temperature: −25°C to 60°C; humidity: 0–85%.
- Packages must be stored upright, stacked no more than 6 layers, and height less than 2 m.
- Avoid direct sunlight, rain exposure, and corro issive environments.



1.4 Product Dimensions

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

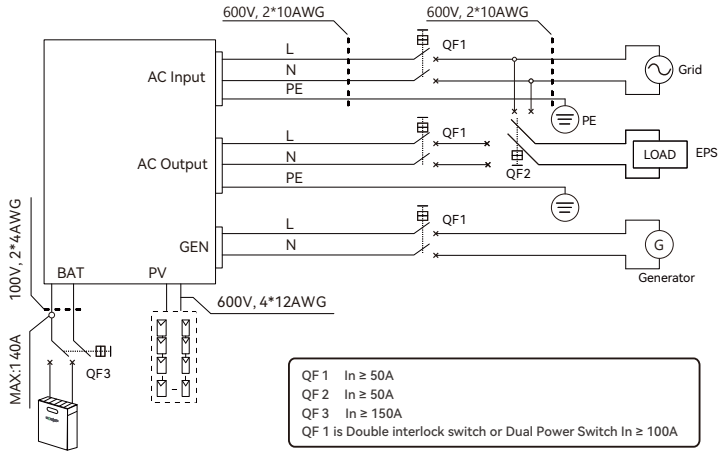


2. Installation

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.

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 3000 m.
- Areas subject to rainfall 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 mm²


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:

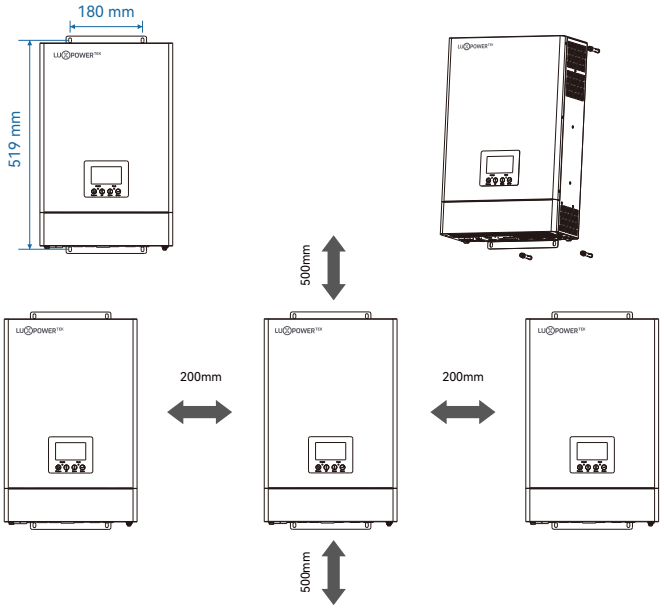
- Mount the inverter on a solid and stable wall.
- Do not install on flammable building materials.
- Ensure adequate ventilation space: at least 20 cm on both sides and 50 cm above and below.
- Keep the ambient temperature within 0°C to 55°C to ensure optimal operation.
- The recommended installation method is vertical wall-mounting.

Installation Procedures

Step 1: Use the wall-mounting bracket as a template to mark the positions of the 4 mounting holes. Drill holes with a diameter of 8 mm and a depth greater than 50 mm.

Step 2: Insert the expansion plugs into the holes and tighten them. Then, securely fix the wall-mounting bracket onto the wall using the supplied expansion bolts.

Step 3: Hang the inverter onto the bracket and lock it in place with the provided fixing screws.



2.6 Battery Connection

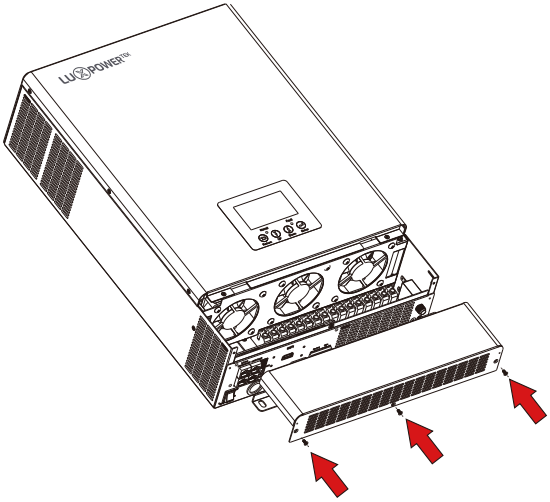
Wiring instructions

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 three 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.



2.6.1 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
SNA5000 WPV	150A / 80V DC	1/2 AWG	4–5 N·m	M6/M8
SNA6000 WPV	200A / 80V DC	1/0 AWG	4–5 N·m	M6/M8

Note:

Battery terminal screw: M6

2.6.2 General safety notes

- 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.

2.6.3 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 4–5 N·m.
- Before starting the inverter, double-check that the polarity is correct.

2.6.4 Lithium battery connection

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

Operating Procedures:

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

Step 2: Connect the CAN or RS485 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 03 → Select "Li-ion".

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

Example:

a. Luxpower battery → Select Type 6: Luxpower.

b. Hina battery → Select Type 1: Hina.

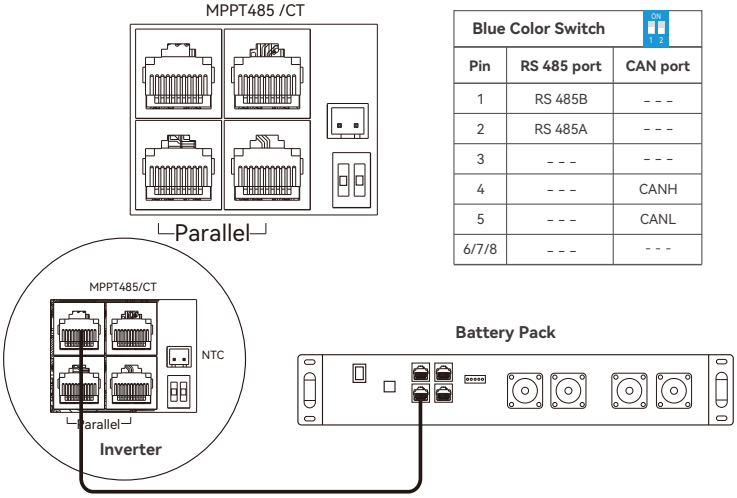
Notes for third-party lithium batteries:

a. Confirm whether the communication protocol (CAN/RS485) 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.



Blue Color Switch		
Pin	RS 485 port	CAN port
1	RS 485B	- - -
2	RS 485A	- - -
3	- - -	- - -
4	- - -	CANH
5	- - -	CANL
6/7/8	- - -	- - -

2.7 Current Transformer (CT) Connection

The CT is used to measure the input and output power of the grid. It must be installed at the main incoming switch or close to the main distribution box.

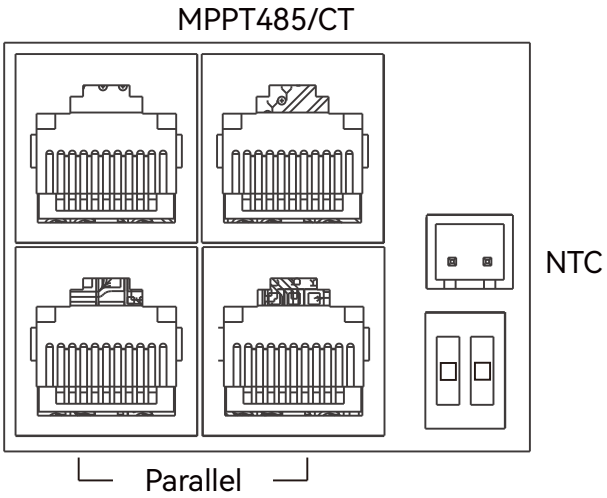
- The external grid CT function is disabled by default. If power feedback is required, enable it via LCD → Advanced Settings → External Grid CT.
- Incorrect CT installation may result in inaccurate power measurements, which can affect inverter functionality and display data.

2.7.1 CT Port definition

The CT port uses an RJ45 connector.

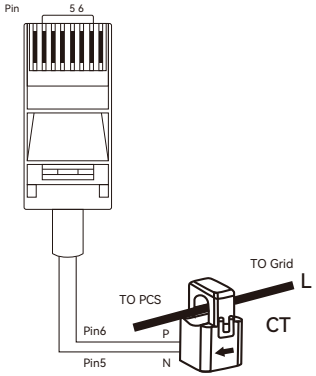
Pin definition is as follows:

Pin	Description
	CT
1/3	B
2/4	A
5	CT1N
6	CT1P
7	B2
8	A2



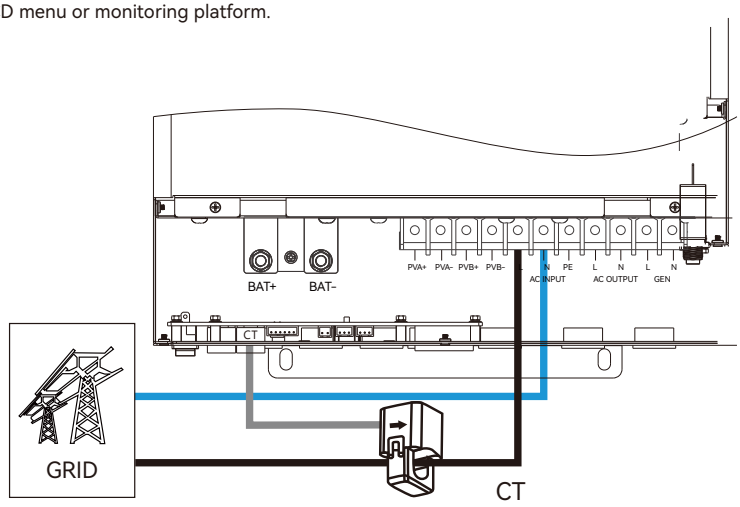
2.7.2 Installation precautions

- 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.



2.7.3 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.



2.8 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/GEN and PE wiring are listed below.

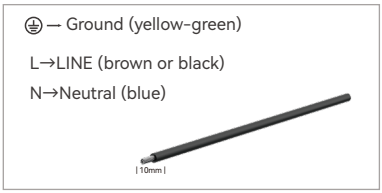
Model	AC Input/Output/GEN Gauge	Cable Size (mm^2)	Torque Value
SNA5000WPV / 6000WPV	10 AWG	6 mm^2	2.0 N·m

Model	PE Gauge	Cable Size (mm^2)	Torque Value
SNA5000WPV / 6000WPV	12 AWG	4 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.

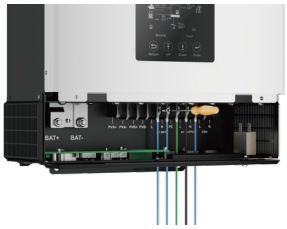
Step 2: Strip 10 mm of insulation from the wires.



Step 3: Use Y-type terminals to prepare the wires (strip, insert, and crimp).

Step 4: Insert the Y-type terminals under the screws of the AC input/output terminals.

Step 5: Tighten the screws with the recommended torque of 2.0 N·m using a torque screwdriver.



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.

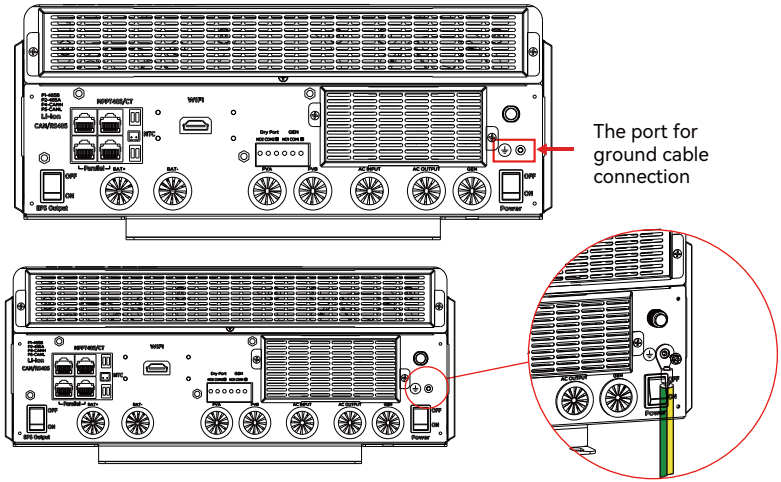
Additional Notes

Both the AC input (IN) and AC output (OUT) sides must be connected through 50 A circuit breakers — the input side to the grid, and the output side to household loads (EPS / backup).

Distribute loads reasonably and ensure reliable grounding for system safety.

2.9 Ground Cable Installation

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



Required materials

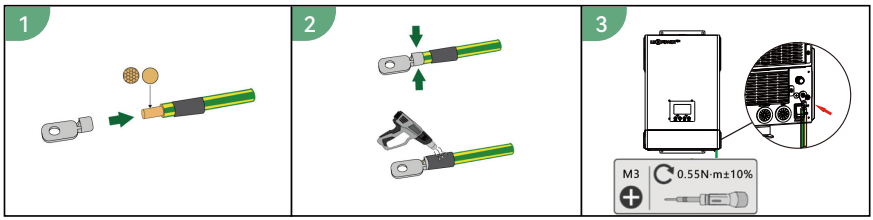
- Single-core copper wire (solid or stranded)
- Cross-sectional area: 4–6 mm^2 (minimum 4 mm^2 recommended)
- Ring terminal (OT type, size: M4 or M5 depending on inverter design)
- Crimping tool
- Torque wrench
- Screwdriver

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 4–5 N·m (±10%).

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



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.

2.10 PV Connection

2.10.1 Recommended cables and breaker specifications

Model	DC Breaker	Cable Type	Cable Size (mm^2)	Torque Value
SNA5000WPV / 6000WPV	600 V / 25 A	1 × 10 AWG	6 mm^2	2.0 N·m

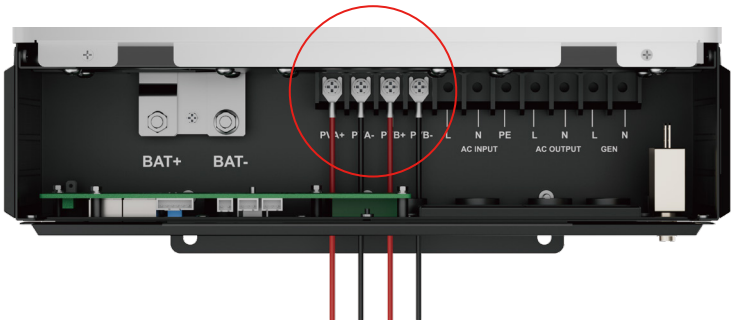
Wiring Procedures

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.



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.

2.11 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.

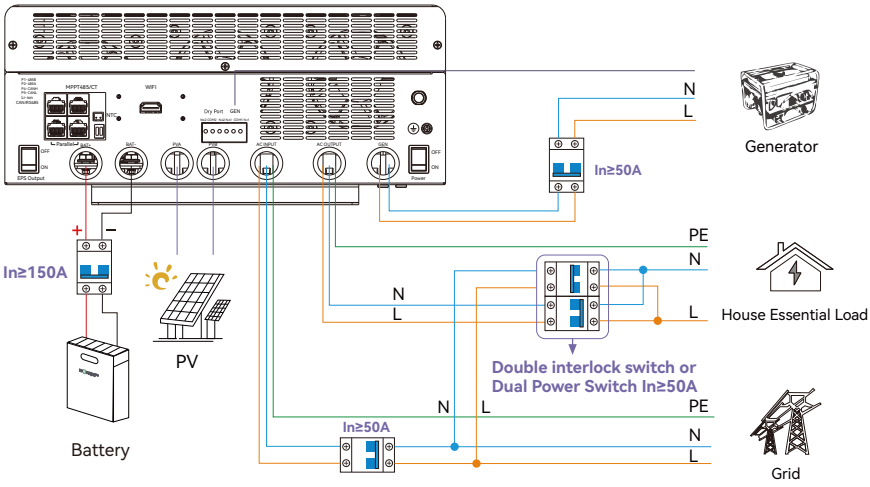
2.11.1 Generator system connection

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.

- 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 table below lists the recommended generator capacities corresponding to the number of parallel inverters:

Number of inverters in parallel	Generator Capacity
1	>10kW
2	>15kW
3	>20kW
4	25kW

This SNA5K/6K product can work with a generator and includes a dedicated Gen port for generator connection.



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 AC output (LOAD) to power loads.

2.11.2 Integrated two-wire Start/Stop

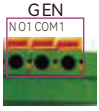
The Dry port (NO2, COM2) could be used to deliver signal to external device when battery voltage reaches warning level. The GEN port (NO1, COM1 could be used to wake-up the Generator and then the generator can charge the battery.

● NOTICE

NO: Normal open

Dry Port Relay Maximum Specification: 250VAC 5A

Gen Port Relay Maximum Specification: 250VAC 5A

Unit Status	Condition		Dry port NO2 COM2  NO2 & COM2	GEN NO1 COM1  NO1 & COM1
Power Off	Inverter is off and no output is powered.		Open	Open
Power On	Without Grid	Battery voltage < Low DC warning voltage	Close	Close
		Battery voltage > Setting value or battery charging reaches floating stage	Open	Open
	With Grid	Battery voltage < Low DC warning voltage	Close	Open
		Battery voltage > Setting value or battery charging reaches floating stage	Open	Open

2.11.3 Generator AC connection

Please follow the steps listed below to ensure the generator connections are properly installed.

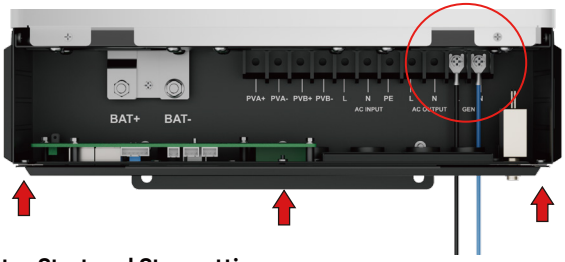
Operating Procedures

Step 1: Before making any wiring connections, ensure the inverter(s) are powered off, the generator is powered off, and all circuit breakers are open (off) to prevent damage to the unit.

Step 2: Properly identify the generator's output lines. According to European wiring standards, the Live (L) wire will be black, Neutral (N) will be blue, and Ground (PE) will be green/yellow. Once identified, strip approximately 10mm (≈3/8 in.) of insulation from the wires.

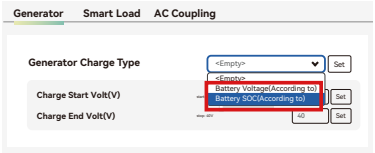
Step 3: Ground the generator's output ground to the Ground Bus (labeled PE) of the inverter.

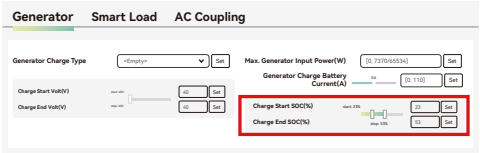
Step 4: Connect the Live (L) wire to the GEN port's L terminal and the Neutral (N) wire to the GEN port's N terminal.



2.11.4 Generator Start and Stop settings

Using the Luxpower Monitoring Platform, navigate to the "Maintenance" page where "Remote Set" will be automatically selected. Scroll to the "Generator" section and select the "Generator Charge Type" (see screenshot below). Typically, lead-acid batteries are charged based on voltage, while lithium batteries are charged based on SOC (State of Charge).





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: the generator will automatically stop after 20 minutes.

2.11.5 Generator Charging Mode settings

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

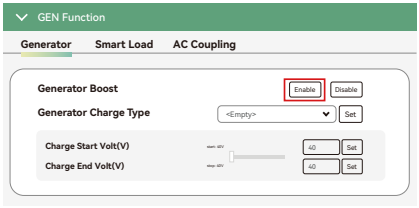
- By Voltage and Time: Recommended for lead-acid batteries.
- By SOC (State of Charge) and Time: Recommended for lithium batteries.

Configurable Parameters Include:

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

2.11.6 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.



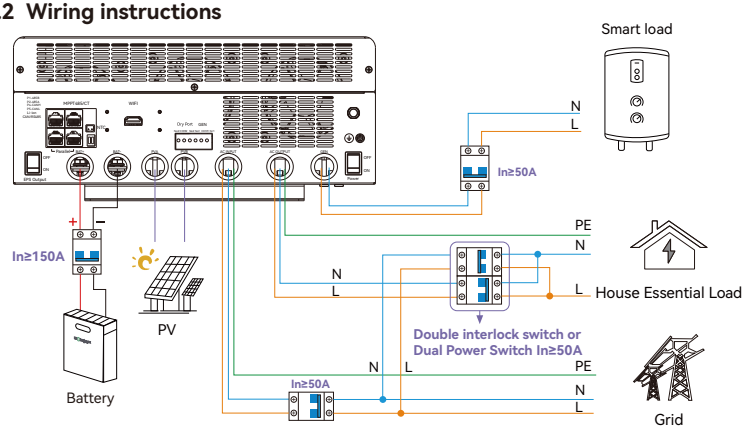
2.12 Smart load

2.12.1 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.

2.12.2 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

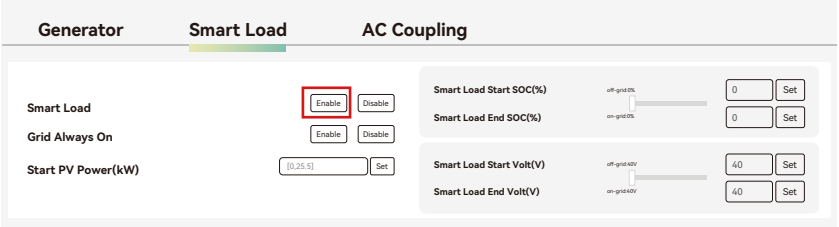
c. PE (Protective Earth): Yellow-green

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.

2.12.3 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 generator interface as an AC power input, transforming your grid-tied system into an energy storage system.

2.12.4 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.

2.13 AC Coupling Settings

2.13.1 Function overview

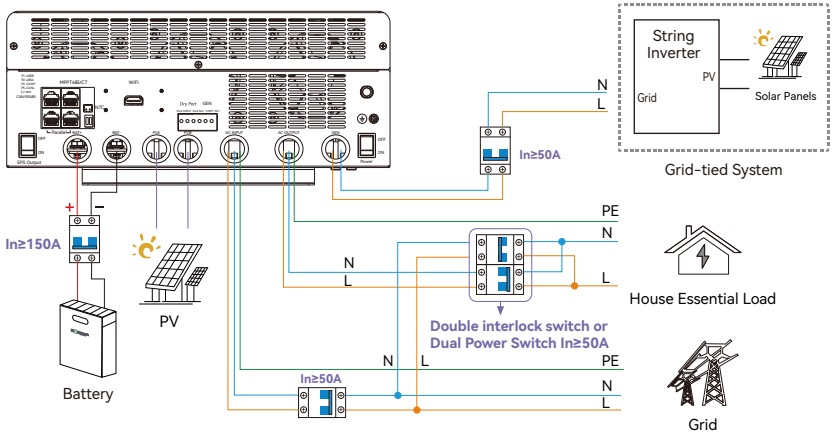
The AC Coupling function allows users to integrate an existing on-grid inverter system through the GEN interface, thereby upgrading the system into a hybrid energy storage system.

- 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 the AC Coupling function while the grid is available, ensure that the system has proper grid connection authorization and fully complies with local grid interconnection regulations.

2.13.2 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 port terminals on this inverter:

a. L (Line) → GEN port L

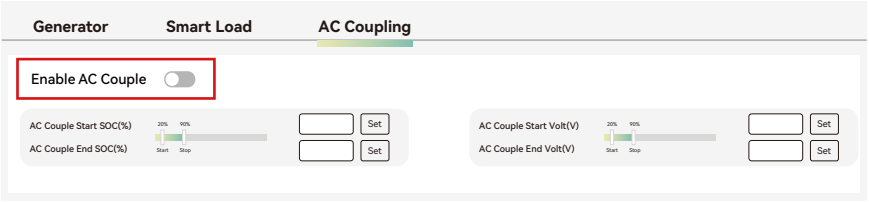
b. N (Neutral) → GEN port N

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.

The AC Coupling setting must be enabled when connecting an existing on-grid 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).



2.13.3 System features

- Grid-Tied Mode: The grid-tied inverter continuously operates, feeding PV-generated electricity directly into the grid. Any excess energy can be sold back to the grid.
- 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.

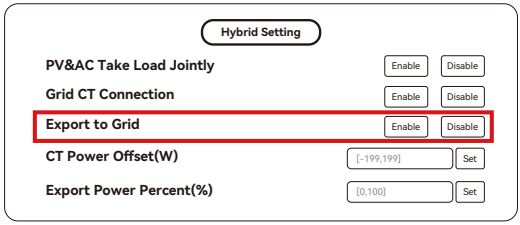
2.13.4 Export to Grid

When the grid is available, to feed surplus energy from an AC coupled inverter into the grid, the "Export to Grid" function must be enabled in the settings interface.

When enabled, the AC coupled inverter will feed unused energy back to the grid, maximizing energy utilization.

When disabled, surplus energy is only used for battery charging or local loads and cannot be exported to the grid.

Before enabling, confirm that the local utility allows surplus energy export and strictly comply with relevant grid-connection policies and standards.

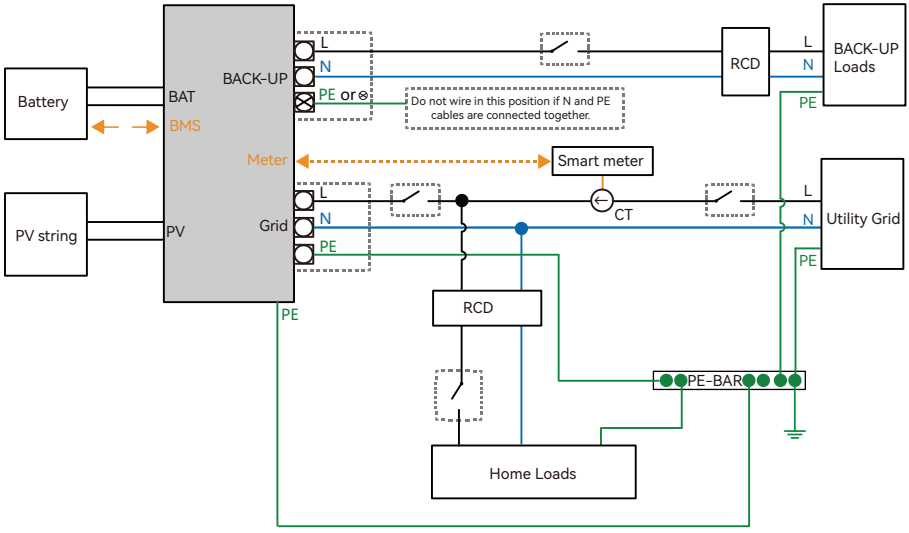


2.14 Parallel Function

SNA series inverter support up to 16 units to composed single phase parallel system or three phase parallel system, for parallel system setup.

NOTICE

- Each inverter must have its own dedicated PV input; PV inputs cannot be shared.
- All parallel cables must be connected according to the instructions to ensure signal transmission and system stability.
- Before parallel operation, ensure all inverters have the same firmware version and that parallel parameters are configured.

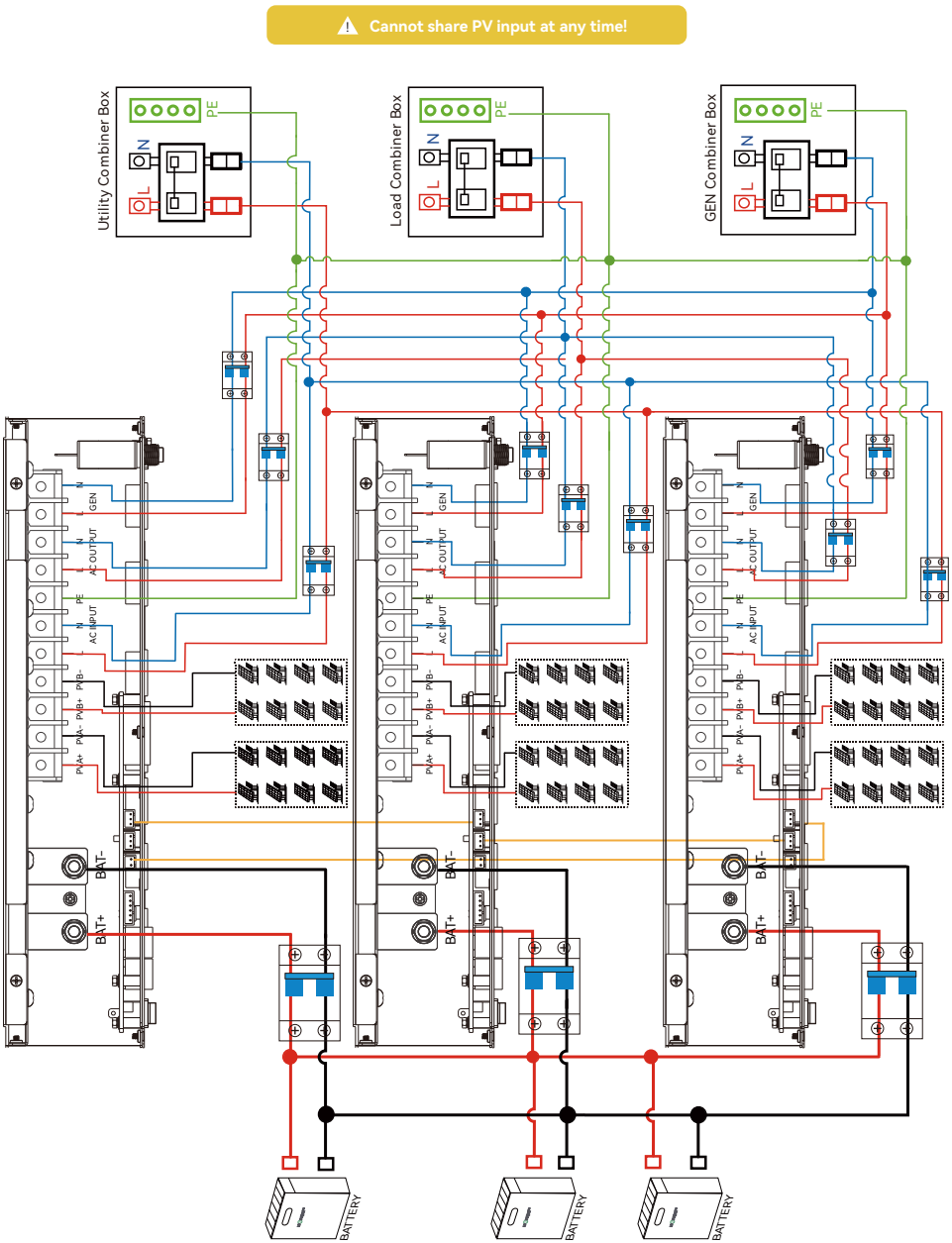


System Wiring Diagram:

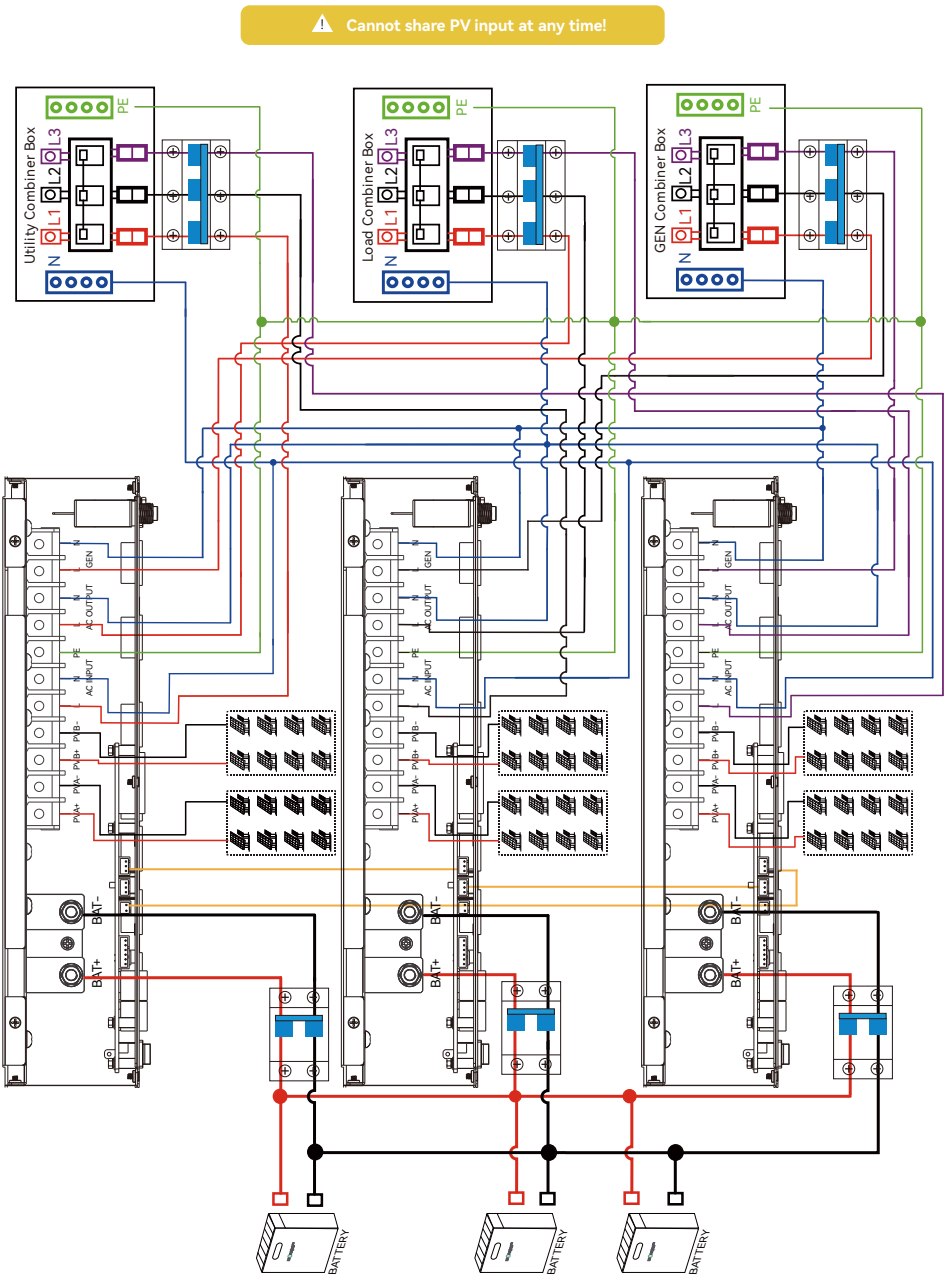
NOTICE

The PE line of the load must be correctly and effectively grounded. Otherwise, backup functions may not operate properly during grid faults.

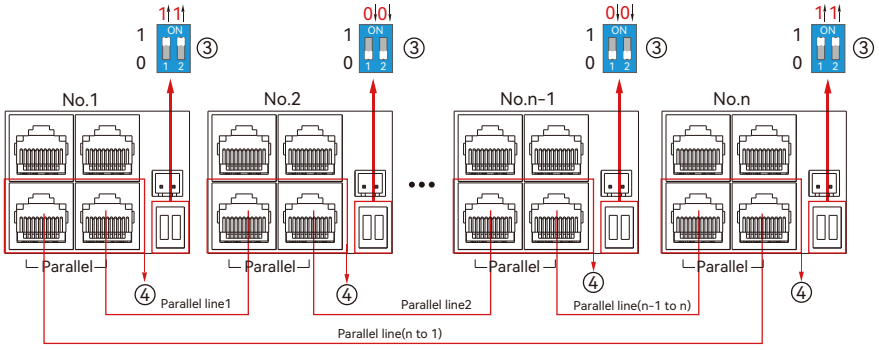
2.14 .1 Single phase parallel conncetion diagram



2.14 .2 Three phase parallel conncetion diagram



2.14.3 Dip Switch

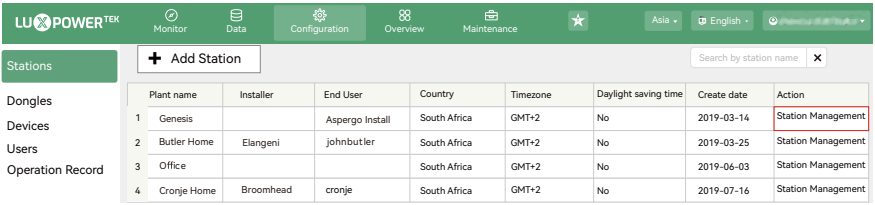


The max parallel quantity is 16, so 2≤n≤16

2.14.4 Monitoring settings

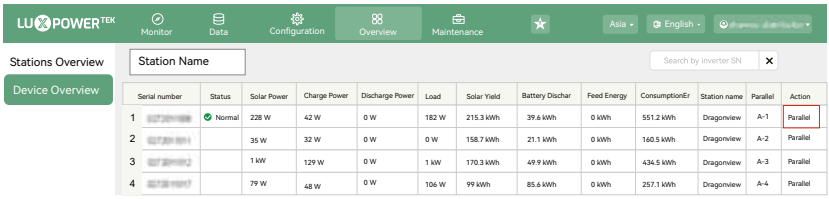
Operating Procedures

Step 1: Setup the monitor for the system, add all dongles in one station. Users can login to the visit interface of monitor system, Configuration->station->Plant Management->add dongle to add the dongles.



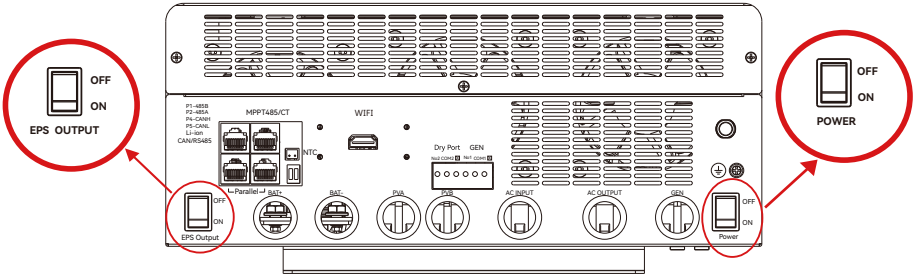
Step 2: Enable share battery for the system if the system share one battery bank, otherwise disable the shared battery function.

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



For more detailed guidance for paralleling system, please visit https://www.luxpowertek.com/download/ And download the guidance.

2.15 Power and EPS ON/OFF



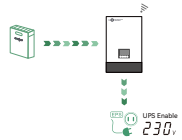
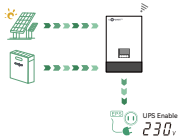
1. Power Switch: Control power supply for the unit.

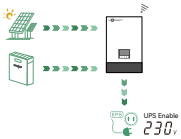
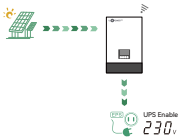
2. EPS Output Switch: Use to control the AC output.

After connection, please turn on both switch. Users can turn off the EPS output switch to turn off power supply in some emergency case.

3. Working Modes

3.1 SNA Series inverter modes introduction:

Bypass Mode		AC is used to take the load.
PV Charge Bypass		PV charge the battery while the AC power the load.
BAT Grid off		Battery is used to take the load.
PV+BAT Grid off		PV+Battery power the load together.

PV Charge		1.When the EPS key off, the inverter charge the battery only. 2.When the battery is power off, the PV can wake up the battery automatically.
PV Charge+Grid off		PV charge the battery and power the load.
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
PV+AC charge		PV+AC charge the battery. AC is from AC Input or GEN Input.
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.
PV charge Grid on		PV charge battery and power the load. *The rest power from PV can feed in Grid.
PV+BAT Grid on		PV+Battery power the load, and the AC can power the load if PV+Battery power not enough.
PV Grid on		PV power the load, the rest power feed in Grid.

3.2 Working Modes related setting description

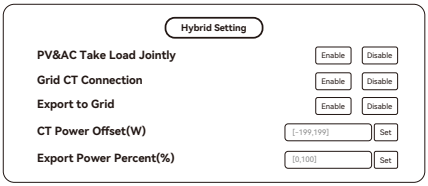
Situation	Setting 1	Setting 2	Setting 3	Working modes and Description
AC abnormal	NA	NA	NA	off grid inverter mode if P_Solar>=P_load, solar is used to take load and charge battery if P_Solar<P_load, solar and battery take the load together, system will discharge until battery lower than the Cut Off Voltage / SOC.
AC normal	PV&AC Take Load Jointly Enable	In the AC first time	NA	Hybrid Mode 1(charge first) Solar power will used to charge battery first, The solar power will be used to charge the battery first. AC will take load. 1. 2. if solar power is higher than power need to charge the battery, the extra power will used to take load together with grid. 3. If there is still more energy after charge battery and take the load, it will feed energy into grid if export to grid function is enabled.
		Enable AC charge and in the AC charge time	AC charge accroding to Time	Hybrid Mode 1(charge first)+AC charge battery if solar power is not enough to charge battery.
			AC charge accroding to battery voltage or SOC	Hybrid Mode 1(charge first)+AC charge battery if solar power is not enough to charge battery and the battery voltage / SOC is lower than AC start charge voltage / SOC, 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	Hybrid Mode 2(load first) Solar power will used to take load first, 1. if solar power is lower than load, battery will discharge together to take load until battery lower than EOD voltage / SOC. if solar power is higher than load, the extra power will used to charge battery, if there is still 2. more energy, it will feed into grid if enable export.
	PV&AC Take Load Jointly Disable	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 charge 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 Hybrid Mode Function Overview

3.3.1 Function Description

The hybrid mode is an extended feature of the SNA off-grid inverter series, designed to provide more flexible power supply options for various application scenarios.

This function is mainly suitable for regions without mandatory grid-connection requirements, helping users maximize the synergistic advantages of solar power and battery storage.If your region has explicit or strict regulations regarding grid connection, do not enable this function to ensure that the system complies with local grid standards and safety requirements.



Related setting

PV & AC Take Load Jointly: Disabled by default. If there is no mandatory grid-connection requirement in your region, you can enable this feature to operate in hybrid mode.

Grid CT Connection: Enable this option if an external CT (current transformer) is connected.

Export to Grid: If there is no mandatory restriction on grid export in your area, you may enable this feature.

CT Power Offset: Allows you to enter a power calibration parameter to eliminate CT measurement errors, enabling more stable and accurate power control under anti-reflux or hybrid operation modes.

Default value: 0 W

Adjustment range: typically ±199 W

Recommended use cases:

If, under “Zero Export” mode, the monitoring system still displays slight “positive power (feedback),” set a negative offset (e.g., -50 W).

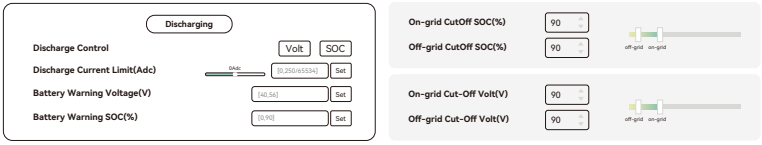
If the system continuously draws power from the grid, set a positive offset (e.g., +50 W) to help maintain a more accurate power balance point.

Export Power Percent: When “Export to Grid” is enabled in regions without mandatory grid restrictions, you can set an export power ratio.

3.4 Monitoring Operation Modes

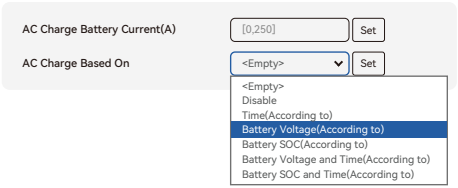
3.4.1 AC First

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.



3.4.2 AC Charge

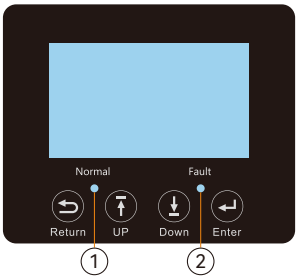
The system will not use AC to charge the battery (except when a forced charge command is issued by the lithium battery BMS).



- 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.

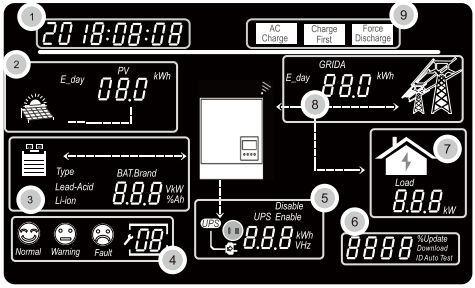
4. LCD display and settings

4.1 LED Display



LED Indicator			Messages
1	Green	Solid On	Working normal
		Flashing	fast: Warning slow: Firmware update
2	Red	Flashing	Fault condition occurs in the inverter

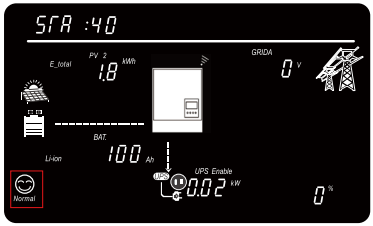
4.2 LCD Display



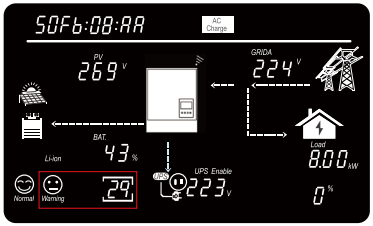
NO.	Description	Remarks
1	Generally Information Display Area	Display the currently time / date by default (year / month / day / hour / minute" switching automatically). When press Up or Down buttons, this area will display the firmware version information, serial number etc. Display the setting selection information when entering settings.
2	On-grid solar inverter output power and energy data	This area shows the data of PV voltage, power and the setting of PV input connection information.
3	Battery information and data	This area shows the battery type, battery brand (lithium battery), the lead-Acid battery setting of CV voltage, Floating charging voltage, Cut off voltage, Discharge end voltage . And display the voltage, SOC and power in turns of period of 1 seconds.
4	System working status / setting code	There are three type of working status-normal, warning and fault, in right side of this area, there are code display, it will display different type of code-the system working mode code, warning code, fault code and setting code.
5	UPS/EPS output information and data	When UPS function is enabled, this area will display UPS voltage, frequency, power etc. in turns of periods of 1s.
6	Programming & the percentage of AC output power	When firmware updating in process, it will display relevant information When in grid off, this area will display the Percentage of the maximum AC output power.
7	Loads consumption	Display the power consumption by the loads in on grid model.
8	Grid information and Generator information	Display the grid (GRIDA) information of voltage, frequency, input or output power, the Generator (GRIDB) information of voltage, frequency, input power ,switch period of 1s.
9	Working mode settings area	When make settings on the SNA series inverter through the LCD, this area will display the AC Charge, Force Discharge, Charge First option for setting on those working modes. It will not display those information unless in the setting process.

4.3 Inverter Status Display

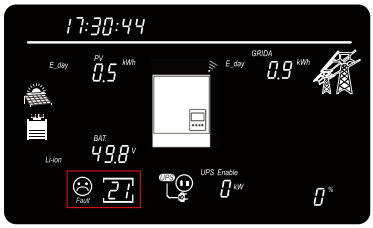
Normal status, running status 40



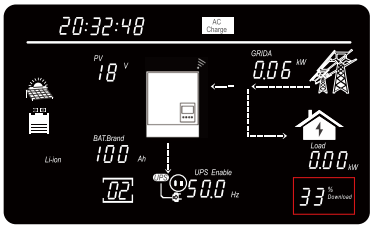
Warning Status, warning 29



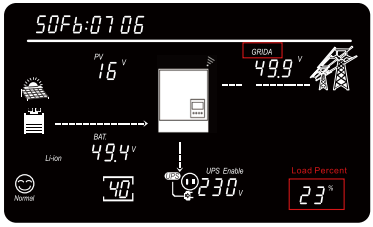
Fault status, fault 21



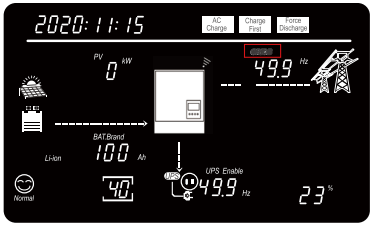
Flash status: download percent is 33%



When display ‘GRIDA’ , it means the Grid information is about AC utility, The percent display on the right down corner means the load percentage.



When display ‘GRIDB’ , it means the AC information is about Gen set input.

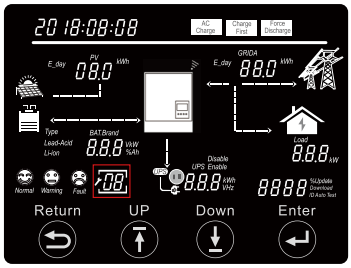


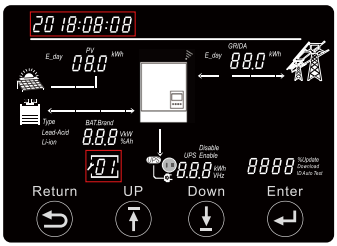
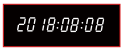
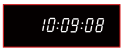
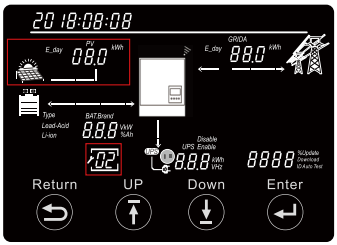
4.4 LCD Settings

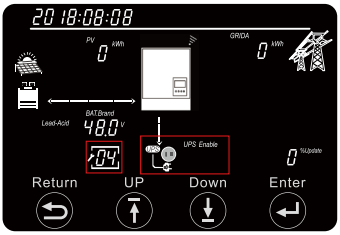
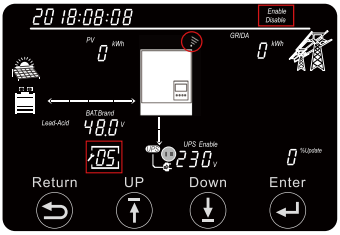
There are four buttons on the LCD.

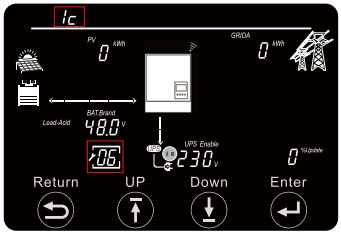
Step for setting by the display:

Step 1. After touch Enter button for about 2 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 19.
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.

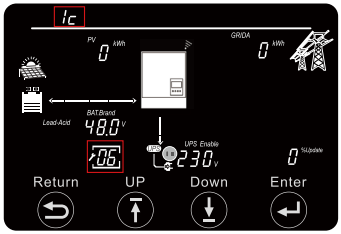


Index	Description	Setting Option
1	Date&time	 Setting Year / Month / day  Setting hour / minute / second 
2	PV input mode	 Default: S S: two independent Strings input  P: Same string input for 2 MPPTs  dc: DC source input 

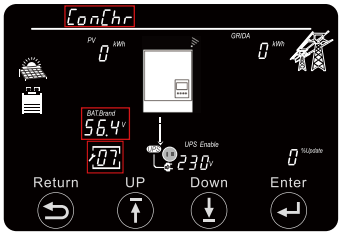
<table>
<tr><td rowspan="3">3</td><td rowspan="3">Battery</td><td>Run with No Battery:
Step 1. Choose battery type first, when no flashing, select Enter to choose Run with No battery.
  </td></tr>
<tr><td>For Lead Acid:
Step 1. Choose battery type first, when Lead-Acid flashing, select Enter to choose Lead-acid battery.
Step 2. Then choose battery capacity.
  </td></tr>
<tr><td>For Lithium battery:
Step 1. Choose battery type first, when Li-ion flashing, select Enter to choose Li-ion battery
Step 2. Choose battery brand.
0- > Standard Battery 2->Pylon Battery
6->Luxpower protocol Battery
  </td></tr>
<tr><td>4</td><td>UPS Output voltage and frequency</td><td> 
AC Output voltage
200Vac / 208Vac / 220Vac / 230Vac (Default) / 240Vac
 
AC Output frequency
50Hz (Default)/60Hz
  </td></tr>
<tr><td>5</td><td>Buzzer enable</td><td> 
Buzzer enable (Default)
 
Buzzer Disable
  </td></tr>
</table>

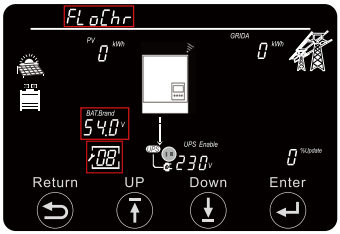
<table>
<tr>
<td rowspan="2">6</td>
<td rowspan="2">Ic: Maximum charge current</td>
<td>MODEL: SNA5000WPV
 
</td>
<td>Totoal charge current (Iac+Ipv) setting
Setting range: 0A~110A
Default: 110A
 

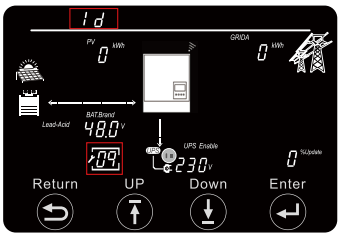
AC charge current setting:
Setting range: 0A~110A
Default: 30A
 

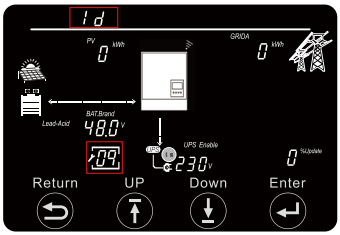
Generator charge current setting:
Setting range: 0A~60A
Default: 30A
 
</td>
</tr>
<tr>
<td>MODEL: SNA6000WPV
 
</td>
<td>Totoal charge current (Iac+Ipv) setting
Setting range: 0A~140A
Default: 140A
 

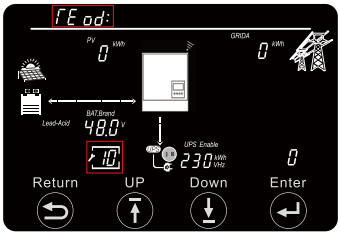
AC charge current setting:
Setting range: 0A~140A
Default: 30A
 

Generator charge current setting:
Setting range: 0A~110A
Default: 30A
 
</td>
</tr>
<tr>
<td>7</td>
<td>ConChr: CV voltage setting (Only in Lead-acid battery type)</td>
<td> 
</td>
<td>Setting range: 50.0-59.0Vdc
Default: 56.4V
 
</td>
</tr>
</table>

<table>
<tr>
<td>8</td>
<td>FloChr: Floating charging voltage setting (Only in Lead-acid battery type)</td>
<td> 

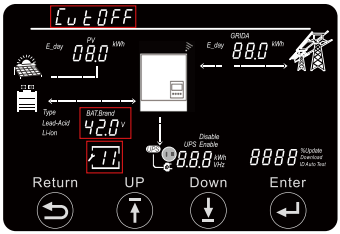
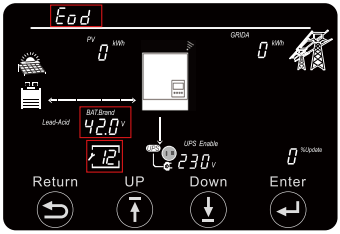
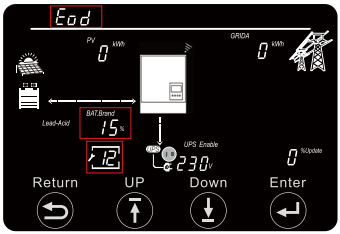
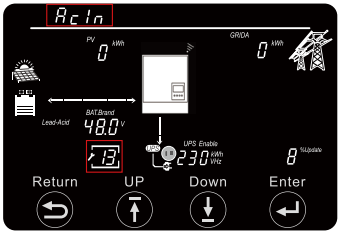
Setting range: 50.0~56.0Vdc
Default: 54.0V
 
</td>
</tr>
<tr>
<td rowspan="2">9</td>
<td rowspan="2">Id: Maximum discharge current</td>
<td>MODEL: SNA5000WPV
 

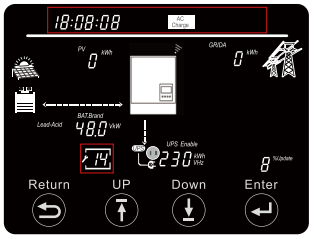
Totoal discharge current setting
Setting range: 0A~110A
Default: 110A
 
</td>
</tr>
<tr>
<td>MODEL: SNA6000WPV
 

Totoal discharge current setting
Setting range: 0A~140A
Default: 140A
 
</td>
</tr>
<tr>
<td>10</td>
<td>TEOd: Discharge control type: VOLT / SOC</td>
<td> 

Setting Range:
VOLT / SOC
 

 
</td>
</tr>
</table>

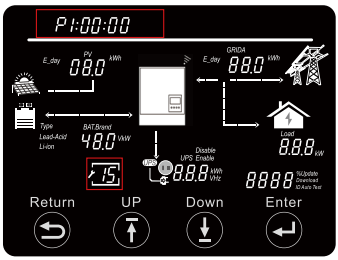
11	CutOFF: Cut off Voltage or SOC, depend on TEOd		Setting range: VOLT: 40.0-OnGrid EOD Volt Default:42V  SOC: 0-OnGrid EOD SOC Default: 15% 
12	Eod: Discharge end voltage or soc with grid, depend on TEOd	 	Setting range: VOLT: Cut off Volt-58V Default: 42V  SOC: Cut off SOC-90 Default: 15% 
13	AcIn: AC voltage range setting		Unity AC Input voltage range: 90Vac~280Vac  Unity AC Input voltage range: 170Vac~280Vac 

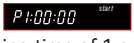
<table>
<tr>
<td rowspan="2">14</td>
<td>AC charge setting (The setting process must enable the AC charging function, confirm the full battery SOC value, and set the confirmation time period 1, 2, 3 to truly complete the AC charging function setting)</td>
<td> 

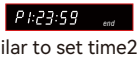
AC Charge function:
Setting range:
1. DIS: AC charge disable;
2. TIM: According to time;
3. VOL: According to battery voltage;
4. SOC: According to battery soc;
(Touch “Enter” button to set ac charge parameter)
 
</td>
</tr>
<tr>
<td colspan="2">AC charge control:
Setting range:
Vol:
1. Start Voltage: 35.4~52V;
2. End Voltage: 48~59V;
SOC:
1. Start Soc: 1~90%;
2. End Soc: 20~100%;
 

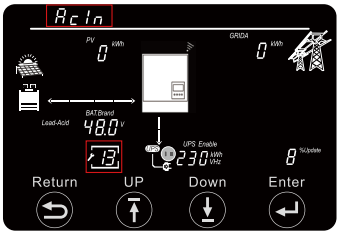
Setting AC Charge time of 1 start:
Range: 00:00~23:59
Default: 00:00~00:00
 

Setting AC Charge time of 1 end:
Range: 00:00~23:59
Default: 00:00~00:00
 

Similar to set time2 and times
 
</td>
</tr>
<tr>
<td>15</td>
<td>Utility source (AC Input) to take Load time setting</td>
<td> 

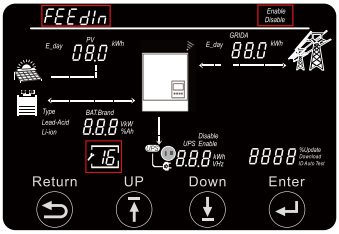
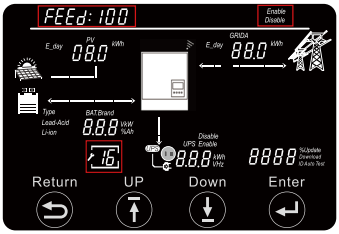
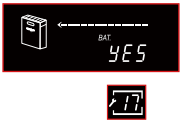
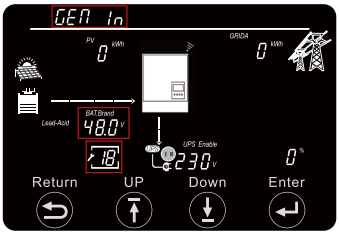
Setting time of 1 start:
Range: 00:00~23:59
Default: 00:00~00:00
 

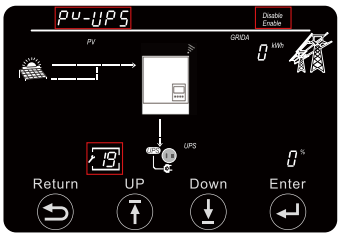
Setting time of 1 end:
Range: 00:00~23:59
Default: 00:00~00:00
 

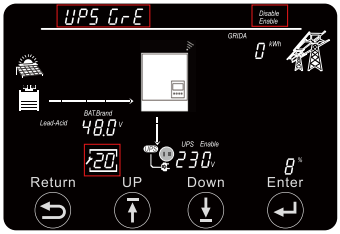
Similar to set time2 and time3
 
</td>
</tr>
<tr>
<td>16</td>
<td>Hybrid enable / disable</td>
<td> 

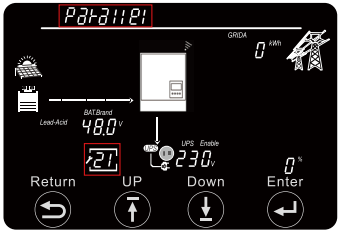
Setting Range:
Hybrid Disable (default)
 

Hybrid Enable
 
</td>
</tr>
</table>

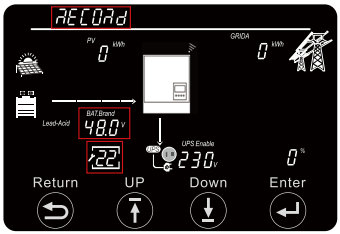
16	Feed-In Enable / disable Only valid when Hybrid is enabled		Setting Range: Feed-In Disable (default)  Feed-In Enable 
	Maximum Feed-In percent Only valid when Feed-In is enabled Power percent can be set larger than 100% in case of there is other generating device in the system		Setting Range: 0-100% 0% (default) 
17	Battery Wakeup Enable / disable (Not for No Battery type)		Enable wakeup battery 
18	Max Generator Input Power		Setting Range:0-7369W 7369W (default) 

<table>
<tr>
<td>19</td>
<td>PV Off Grid enable / disable</td>
<td> 

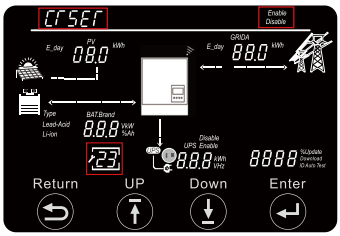
Setting Range:
PV Off Grid Enable (default)
Enable
PV Off Grid Disable
Disable</td>
</tr>
<tr>
<td>20</td>
<td>Power Save Function enable / disable</td>
<td> 

Setting Range:
Green Function Disable (default)
Disable
Green Function Enable: When enabled, if the inverter load reading is less than 60W for more than 0minutes, the inverter output will be cut off.
Enable
Setting Range:
ECO Mode Disable (default)
Disable
ECO Mode Enable
Enable</td>
</tr>
<tr>
<td>21</td>
<td>Parallel setting</td>
<td> 

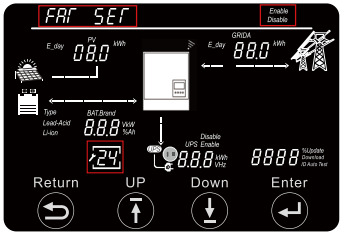
Parallel type setting
Setting Range: NoPL (not Parallel) / 1PH (Single phase) / 3PH (Three phase) NoPL (default)
PArA:1PH
Parallel phase setting
Setting Range: P1 (Rphase) / P2 (Sphase) / P3 (Tphase) P1 (default)
PHAS:P1
Bat Share enable / disable
Setting Range:
Disable (default) Enable
BatShArE Disable Enable</td>
</tr>
</table>

<table>
<tr>
<td>22</td>
<td>Error / Alarm Record</td>
<td> 

Error Record
->Record Index
->>Record Msg:
(Year: Month: Day;
Hour: Min:Sec; Error code)
 

Alarm Record->Record Index->>Record Msg:
(Year: Month:Day; Hour: Min: Sec; Alarm code)
 
</td>
</tr>
<tr>
<td>23</td>
<td>CT Offset</td>
<td> 

External Grid CT
(Latest Version Only)
Setting Range:
Disable (default) / Enable
 

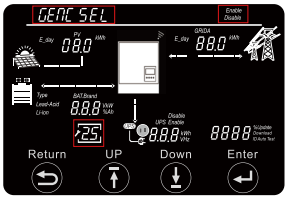
Internal CT Offset
Setting Range: -200~200W
20W (default)
 
</td>
</tr>
<tr>
<td>24</td>
<td>Fan speed setting</td>
<td> 

Fan1 Speed Percent
Setting Range: 20-100%
70% (default)
 

Fan1 Speed New Slope
Setting Range:
Disable (default) Enable
 

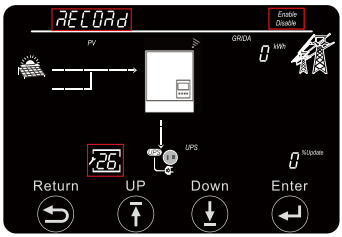
Fan2 Speed Percent
Setting Range: 20-100%
70% (default)
 

Fan1 Speed New Slope Setting Range:
Disable (default)
Enable
 
</td>
</tr>
</table>

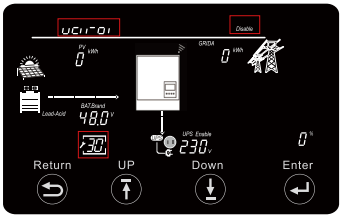
<table>
<tr>
<td>25</td>
<td>Generator charge setting</td>
<td>


Generator charge setting
->charge control type
Setting Range:
1. VOL (default)
2. SOC


->control type
->>control value
Setting Range:
VOL :
1. Start Voltage: 38.4-52V;
2. End Voltage: 48-59V;
SOC:
1. Start Soc: 1-90%;
2. End Soc: 20-100%;

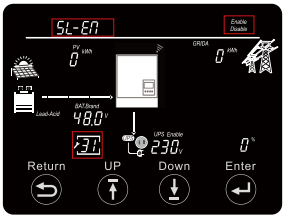

</td>
</tr>
<tr>
<td>26</td>
<td>Neutral-Ground Bonding Function</td>
<td>


This setting allows the user to enable or disable the internal neutral-ground bond. The inverter must be in standby to make this change. Turn the “EPS Output” switch to off to engage standby mode.
Range: Enable / Disable
Default: Enable


</td>
</tr>
<tr>
<td>30</td>
<td>GEN BOOST Enable/Disable</td>
<td>


GEN BOOST
->Enable/Disable
Setting Range:
1. Disable (default)
2. Enable

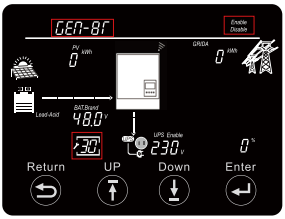

</td>
</tr>
</table>

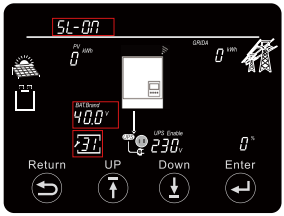
<table>
<tr>
<td rowspan="4">31</td>
<td rowspan="4">Smart Load
Enable/Disable</td>
<td> 
</td>
</tr>
<tr>
<td>Smart Load
->Enable/Disable
Setting Range:
1. Disable (default)
2. Enable

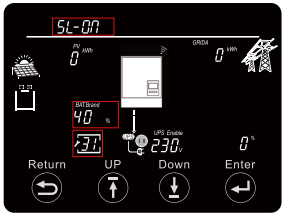
Enable

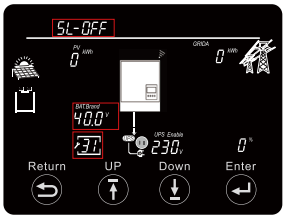
Disable</td>
</tr>
<tr>
<td>->>Smart Load GridOn
Setting Range:
1. Disable (default)
2. Enable

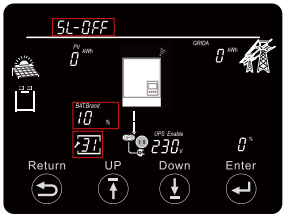
 
</td>
</tr>
<tr>
<td>->>>Smart Load PV Power
Setting Range:
0-25.5kW; (0.5kW default)

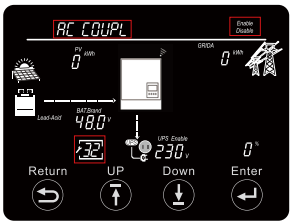
 
</td>
</tr>
<tr>
<td>->>>>Smart Load On Volt/Soc
Setting Range:
VOL: 40~59V; (54V default)
SOC: 0~100%; (90% default)

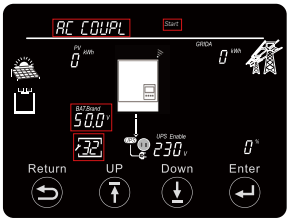
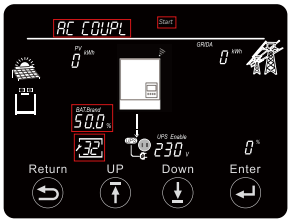
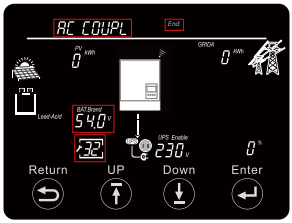
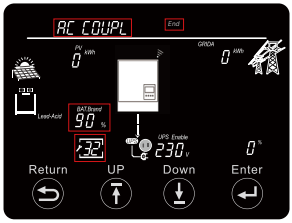
 
</td>
</tr>
</table>

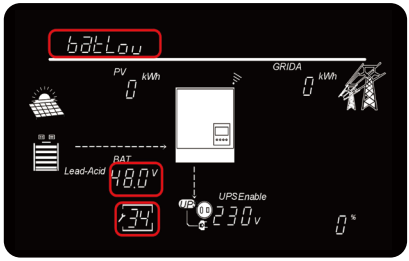
<table>
<tr>
<td></td>
<td></td>
<td>
->>>>>Smart Load Off
Volt/Soc
Setting Range:
VOL: 40~59V; (48V default)
SOC: 0~100%; (60% default)


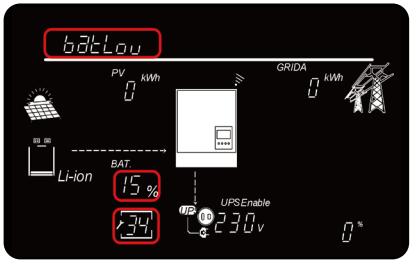
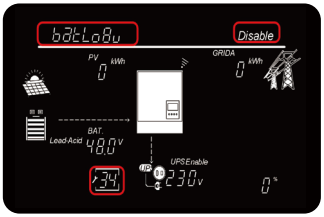


</td>
</tr>
<tr>
<td rowspan="2">32</td>
<td rowspan="2">AC Couple
Enable/Disable</td>
<td>


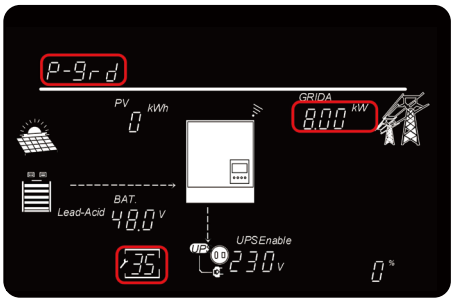
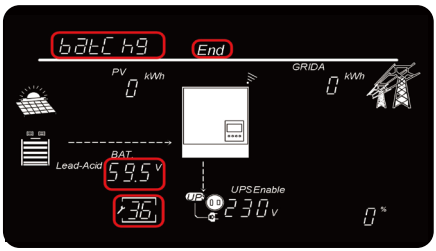
</td>
</tr>
<tr>
<td>
Enable Disable
AC Couple
->Enable/Disable
Setting Range:
1. Disable (default)
2. Enable
</td>
</tr>
</table>

		->>AC couple Start Volt/Soc Setting Range: VOL: 40~59V; (50V default) SOC: 0~101%; (50% default)	 
		->>> AC couple End Volt/Soc Setting Range: VOL: 40~59V; (54V default) SOC: 0~101%; (90% default)	 

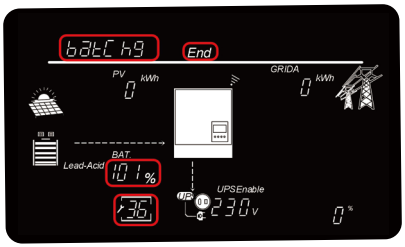
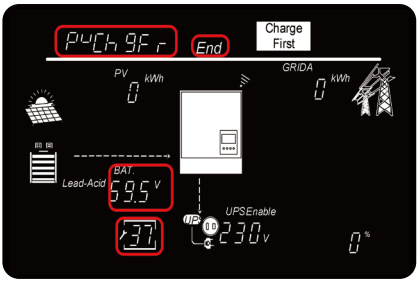
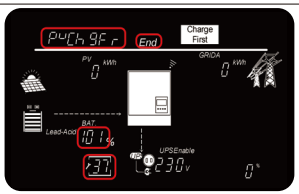
<table>
<tr>
<td rowspan="3">34</td>
<td rowspan="3">Bat Warning Value Setting Volt/SOC</td>
<td colspan="2"> 


</td>
</tr>
<tr>
<td>->Setting range:
VOL: CutOFF Volt-56.0V
Default: 44V
SOC: CutOFF SOC-100%
Default: 20%</td>
<td> 
</td>
</tr>
<tr>
<td> 

->>Bat low Buzzer Enable:
When enabled, the battery low warning will trigger the buzzer.</td>
<td> 
</td>
</tr>
</table>

<table>
<tr><td rowspan="2">35</td><td rowspan="2">Power input limit of the power grid</td><td colspan="2"> 
</td></tr>
<tr><td>->Setting range:
1~999 (unit: 0.1Kw)
Default:
3K Power level：4.8Kw
5K Power level：8.0Kw
other Power levels：9.0Kw
Parallel mode: 999Kw</td><td> 
</td></tr>
<tr><td>36</td><td>System stop Charge Volt/SOC</td><td colspan="2"> 

->Setting Volt value range:
40.0-59.5Vdc
Default: 59.5V
 
</td></tr>
</table>

			
		->>Setting SOC value range: 10%-101% Default: 101%	
			
37	PV charge first limited Volt/SOC	->Setting range: 40.0-59.5Vdc Default: 59.5V	
			
		->Setting range: 10%-101% Default: 101%	

5. SNA Series Inverter Monitoring System

- Users can monitor the system via WiFi Dongle / WLAN Dongle / 4G Dongle (Available in some countries since March 2021). Monitoring website: server.luxpowertek.com
- The monitoring APP can be downloaded from:
  - Google Play or Apple App Store (scan the QR code on the module or printed manual).
  - Or directly from our website: https://www.luxpowertek.com/download/

5.1 WiFi Quick Guide

A quick setup guide for WiFi connection and password configuration is included in the WiFi module package or the printed manual.

5.2 Monitoring System Setup

(For Installers and End Users)

Includes instructions for system monitoring setup, WiFi connection, inverter pairing, and APP configuration.

5.3 Lux_Monitor_UI Interface Overview

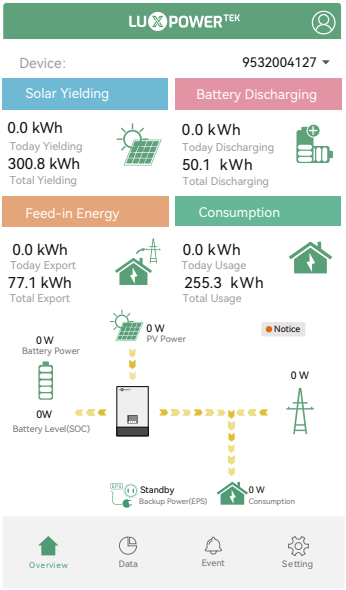
Introduces the main functions of the Luxpower monitoring interface, displaying solar generation, battery charging/discharging status, grid interaction, and real-time energy consumption.

5.4 Web Portal Settings Guide

Provides instructions for configuring inverter parameters and monitoring settings through the Luxpower web portal.

Note:

The setup and operation manuals for Sections 5.2, 5.3, and 5.4 can be obtained from your device supplier.



6. Specifications

Table 1 MPPT Mode Specifications		
INVERTER MODEL	SNA5000WPV	SNA6000WPV
Max. PV Array Power(W)	8000(4000/4000)	9600(4800/4800)
Rated PV Input Voltage(V)	320	
Number of Independent MPPT Inputs	2	
PV Input Voltage Range(V)	100~480	
MPPT Voltage Range(V)	120~385	
Start-up Voltage(V)	100	
Max. PV Input Current per MPPT (A)	17/17	
Max. PV Short-circuit Current per MPPT(A)	25/25	
Max. PV Charging Current(A)	110	140
Table 2 Battery Mode Specifications		
INVERTER MODEL	SNA5000WPV	SNA6000WPV
Output Voltage Waveform	Pure Sine Wave	
Output Voltage Regulation	208Vac / 220Vac / 230Vac / 240Vac±5%	
Output Frequency	50Hz / 60Hz	
Rated Output Power(W)	5000	6000
Rated Output Current(A)	22	26.5
Max. Charging / Discharging Current(A)	110/110	140/140
Max. Charging / Discharging Power(W)	5000	6000
Peak Efficiency	93%	
Overload Protection	5s@≥150% load; 10s@110%~150% load	
Surge Capacity	2* rated power within 5 seconds	
Recommend Capacity of Battery per Inverter	>200AH	
Battery Voltage Range	46.4V-60V(Li)	38.4V-60V(Lead_Acid)
High DC Cut-off Voltage	59VDC(Li)	60VDC(Lead_Acid)
High DC Recovery Voltage	57.4VDC(Li)	58VDC(Lead_Acid)

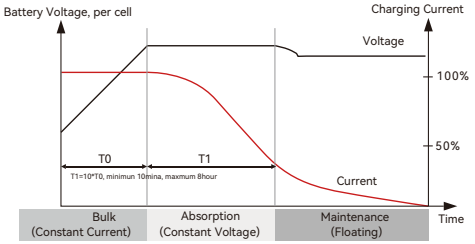
Low DC Warning Voltage(Lead Acid)	load < 20%	44.0Vdc(Settable)
	20% ≤ load < 50%	Warning Voltage@load < 20% -1.2V
	load ≥ 50%	Warning Voltage@load < 20% -3.6V
Low DC Warning Return Voltage(Lead Acid)		Low DC Warning Voltage@Different load+2V
Low DC Cut-off Voltage(Lead Acid)	load < 20%	42.0Vdc(Settable)
	20% ≤ load < 50%	Cut-off Voltage@load < 20% -1.2V
	load ≥ 50%	Cut-off Voltage@load < 20% -3.6V
Low DC Cut-off Return Voltage(Lead Acid)	Cut-off Voltage@ load<20%≥45V	Low DC Cut-off Voltage@load<20%+3V
	Cut-off Voltage@ load<20%<45V	48V
Low DC Warning SOC		20% SOC(Settable)
Low DC Warning Return SOC		Low DC Warning SOC +10%
Low DC Cut-off SOC		15% SOC (Grid on) (settable)
		15% SOC (Grid off) (settable)
Low DC Cut-off Return SOC		Low DC Cut-off SOC +10%
Charge Cut-off Voltage		58.4Vdc
No Load Power Consumption		<60W
Lead_Acid Battery Charging Algorithm		3-Step
Absorption Charging Voltage		Flooded Battery 58.4Vdc (Recommend)
		AGM / Gel Battery 56.4Vdc (Recommend)
Floating Charging Voltage		54Vdc
Charging Curve		

Table 3 Line Mode Specifications		
INVERTER MODEL	SNA5000WPV	SNA6000WPV
Input Voltage Waveform	Sinusoidal(utility or generator)	
Nominal Input Voltage(V)	230Vac	
Low Loss Voltage	170Vac±7V(UPS); 90Vac±7V(Appliances)	
Low Loss Return Voltage	180Vac±7V(UPS); 100Vac±7V(Appliances)	
High Loss Voltage	280Vac±7V	
High Loss Return Voltage	270Vac±7V	
Max. AC Input Voltage	280Vac	
Nominal Input Frequency	50Hz/60Hz(Auto detection)	
Max. AC Input Current(A)	35	39.5
Max. AC Input Power(W)	8000	9000
Max. AC Charging Current(A)	110	140
Rated AC Output Current(A)	22	26.5
Rated AC Output Power(W)	5000	6000
Rated AC Current of Bypass Relays(A)	40	60
Output Short Circuit Protection	Platform Protect when GridOff Discharge Circuit Breaker Protect when GridOn Bypass	
Transfer Time	<7ms@Single ; <20ms@Parallel	
Output power derating: When AC input voltage drops to 200V, the output power will be derated.	Max inv current: 25A Max inv power: 5kW	Max inv current: 30A Max inv power: 6kW

Table 4 Generator Mode Specifications		
INVERTER MODEL	SNA5000WPV	SNA6000WPV
Rated GEN Voltage(V)	230	
Rated GEN Frequency(Hz)	50/60	
Rated GEN Input Current(A)	32	
Rated GEN Input Power(W)	7370	
Rated GEN Current of Bypass Relays(A)	40	60

Table 5 Protection/General Specifications		
INVERTER MODEL	SNA5000WPV	SNA6000WPV
Over Current / Voltage Protection	YES	
Grid Monitoring	YES	
AC Surge Protection Type III	YES	
Safety Certification	NRS 097, CE	
Ingress Protection Rating	IP 20	
Display&Communication Interface	LCD+LED, RS485 / WIFI / CAN	
Warranty	2 Years	
Cooling Method	FAN	
Topology	Transformer-less	
Noise Emission(typical)	<50dB	
Operating Temperature Range	0℃ to 45℃(full load)	
Storage temperature	-15℃ ~ 60℃	
Humidity	5% to 95% Relative Humidity(Non-condensing)	
Altitude	<2000m	
Dimension(D*W*H)mm	505*330*135mm	
Net Weight	14.5kg	

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 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.

7.4 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
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	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
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	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)
E028	Sync signal lost in parallel system	Check CAN cable connection is connected to the right COM port
E029	Sync triger 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	Platform 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
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

YOUR RELIABLE ENERGY SOLUTION PARTNER

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