WANROY

HYBRID ON-GRID SOLAR INVERTER USER MANUAL

Model： WYIN36 / WYIN46 / WYIN5K

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1.Notes On This Manual

1.1 Clarification

This manual provides instructions for the assembly, installation, commissioning, and maintenance of the GH hybrid inverter. Please note that it does not include information on peripheral equipment or accessories, such as PV modules or energy storage batteries. For details on these devices, please refer to their respective manufacturer's manuals.

Target People:

	This manual is qualified for persons who have received electrical training, demonstrated knowledge and skills in operation this equipment. This person is able to deal with the dangers and hazards involved in installing electrical devices.

1.2 Additional Information

For more information about our products, please visit our official website.

1.3 Storage of the Manual

Please keep this user manual properly for future reference. We cannot be held responsible for any damage that may occur as a result of not following the instructions provided in this manual.

1.4 Symbol Description

The following table provides explanations for the symbols that will appear in this manual:

	**MANUAL:** Please read this manual carefully before use.
	**DANGER:** This symbol indicates a dangerous situation that, if not avoided, could result in death or serious injury.

	**WARNING:** This symbol indicates a dangerous situation that, if not avoided, could result in death or serious injury.
	**CAUTION:** This symbol indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.
	**NOTE:** Failure to follow this warning could result in damage to the equipment.

1.5 Warning symbols

Symbol	Description
	**Dangerous voltage warning!** This product works under high voltage. All operations on this product must be performed as described in the documents and by qualified professionals.
	**Be careful of Heat!** This product may becomes hot during operation. Do not touch the product while it is in operation.
	**Follow Operating Instructions!** Before using this product, please read the product manual carefully. Follow all safety precautions and instructions described in the documents.
	Grounding Protection Connection Point.
	Direct Current (DC)

	Alternating Current (AC)
	**Dangerous Signal!** Risk of electric shock! The installation operation can only be performed after the inverter has been switched off and disconnected for at least 5 minutes.

2. Safety And Conformity

2.1 Safety Instructions

Danger To Life Due To Lethal Voltages!

High voltage exists inside this inverter and on the power cord. Therefore, only authorized electricians should install and operate this equipment. Even if the inverter is disconnected, there may still be a risk of electric shock from high voltage!

Danger Of Burn Injuries Due To Hot Housing Parts!

During operation, the four sides of the housing cover and the heat sink may become hot. Only touch the front cover of the inverter during operation.

PV Modules & Grounding Equipment

Comply with the local requirements for grounding the PV modules and generator. We recommend connecting the generator frame and other electrically conductive surfaces in a way that ensures continuous conduction with ground, to provide optimal protection for the system and people.

Capacitive Discharge Currents

PV modules with a larger capacity than the ground, such as thin-film photovoltaic modules on metal substrates, can only be used if their coupling capacity does not exceed 470nF. During the charging and discharging operation, a leakage current will flow to the ground, and its magnitude depends on the installation of the PV modules such as aluminum foil on a metal roof) and the weather conditions (such as rain and snow). Generally, the leakage current does not exceed 30mA. If it exceeds this range, the inverter will trigger protection and automatically disconnect from the grid.

Do not attempt to open the device during operation!

2.2 DC and AC Breaker

Disconnecting the unit securely from the grid, the PV generators, and batteries by using DC and AC breaker. The DC and AC breaker should be capable of disconnect all non-ground conductors after installation.

2.3 Grounding of PV Modules

This inverter is a non-transformer isolated, and it is strictly prohibited to ground the PV modules directly. Only the mounting frame should be grounded. Otherwise, an error message “PV ISO Low” will be displayed.

2.4 Qualification Of Skilled Workers

- Knowledge of the operation and functionality of inverters.
- Instruction on how to handle the dangers and risks associated with installing and used of electrical devices.
- Training in the installation and commissioning of electrical devices.
- Familiarity with all relevant standards and guidelines
- Understanding and adherence to this manual and all safety instructions.

3. Product Description

3.1 Inverter Overview

（Model： WYIN5K)

Overview（see Figure 1）

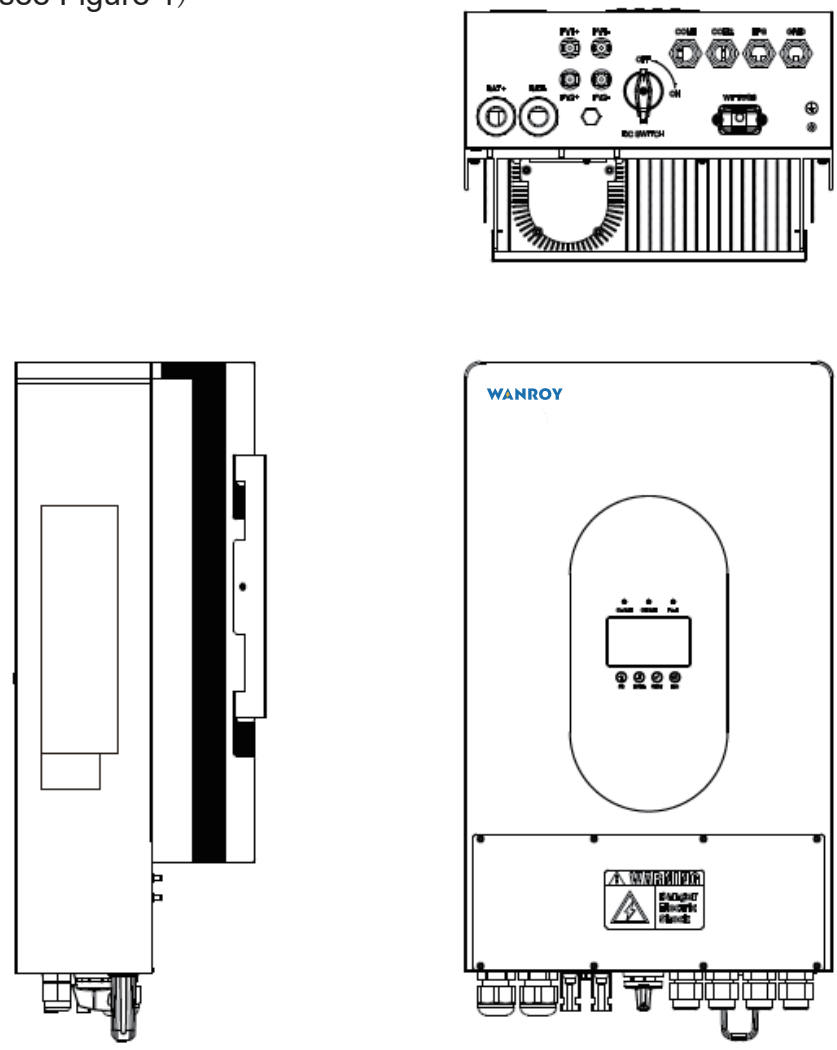


Figure 1

3.2 Unit Information

- The unit is bidirectional, which is suitable for PV system with battery storage. The energy generated by the PV system is primarily used for load consumption. Any excess energy is used to charge the battery directly injected into the public grid. In the event that the energy output from the photovoltaic is insufficient to support the connected load, the system will automatically draw energy from the battery if it has sufficient capacity. If the battery energy is insufficient to meet its own consumption needs, energy is obtained from the public grid.
- This hybrid Inverter supports working with energy storage batteries, so make sure you are using lead-acid or lithium batteries before connecting. Users can modify the setting through the inverter button, or APP, or Web server.

Connection (see Figure 2)

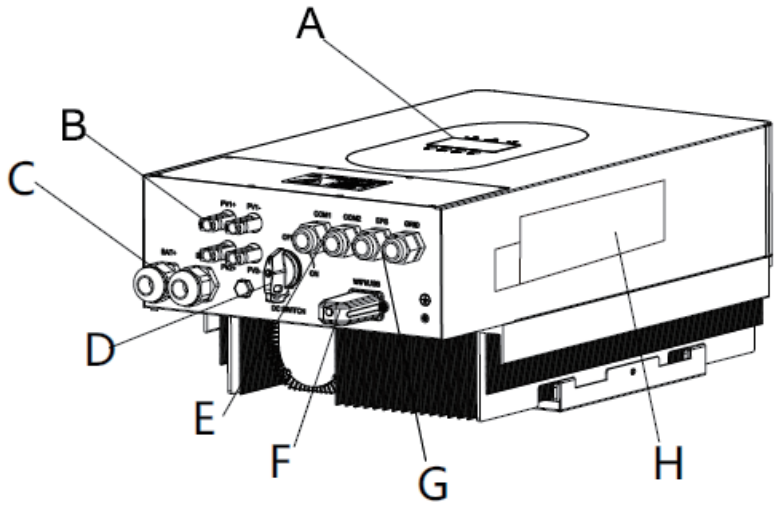


Figure 2

A	LCD Display	E	COM Terminals
B	PV Input Terminals	F	WIFI Or GPRS Com Module and USB Port
C	Battery Input Terminals	G	AC Output Terminals
D	PV Input Switch	H	Spec Label and Inverter Serial Number

3.3 Inverter Storage

- The unit must be stored in its original packaging.
- The storage temperature should be always be between -25℃ and +60℃.
- The relative humidity storage should always be between 0% and 95%.
- If storing a batch of units, the maximum number of layers for the original carton is five.

Note: Battery storage must comply with the specifications provided by the battery manufacturer.

3.4 Inspection of Unpacking

Thoroughly inspect the packaging upon receipt. If any damage to the packaging is visible, or if you find that the unit is damaged after unpacking, please notify the supplier immediately.
If any damaged or missing components are noticed, please contact WANROY. Do not dispose of the original packaging. If you need to transport the unit, it is recommended to store it with the original packaging.

Product accessories (see Figure 3)

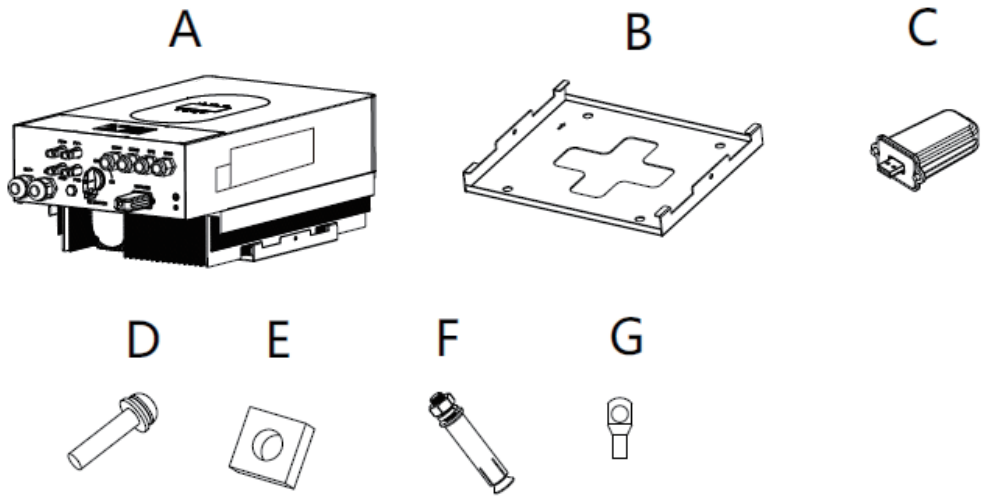


Figure 3

No	Components	Quantity(PCS)
A	Inverter	1
B	Mounting Frame	1
C	WIFI /USB	1
D	Cover Screw	2
E	CT	1
F	Mounting Frame Fixings	4
G	Battery Input Terminations（SC16-8)	2

3.5 Installation and Electrical Connection

DANGER

Danger to life due to fire or explosion

Despite careful construction, electrical devices have the potential to cause fires. Do not install the inverter near flammable and explosive materials!

DANGER

Risk of burns due to hot housing cover and radiator

The inverter should be installed in an inaccessible place.

DANGER

- All electrical installations must adhere to the IEE wiring rules. It is important to avoid removing the case of the inverter, as it does not contain user-serviceable parts. Please seek assistance from qualified service personnel for any repair work.
- All wiring and electrical installations should only be performed by a qualified electrician.
- Carefully remove the unit from its packaging and inspect it for any external damage.If you find any issues, please contact WANROY.

- This inverter is designed to be used with PV generation, and cannot be connected to other renewable energy devices.
- Both AC and DC voltage sources are terminated inside the PV Inverter. All AC and DC input and output must be disconnected before performing any maintenance.
- This unit is intended to supply power to the public grid only. Do not connect it to a generator or any other external power generating device, as it may cause severe damage to your equipment.
- Due to the DC capacitance inside the inverter, there may still be high voltage inside the PV inverter even after the device is disconnected from the grid and PV panels.
  Although the product is designed to comply all safety regulations, some parts and surfaces of the inverter generate high heat during operation. To reduce the risk of injury, avoid touching the heat sink on the sides and back of the unit while the inverter is in operation.

3.6 Basic installation requirements

These are guidelines for the installer to select a suitable location for installation, in order to avoid potential damages to the device and operators.

- The inverter should not be installed in direct contact with water or exposed to direct sunlight.
- The inverter should be installed at a minimum height of 91.4cm (3 feet) above the ground.
- The wall on which the inverter is installed must be sturdy and capable of bearing the weight of the inverter for an extended period of time.
- The humidity around the inverter should be between 0 - 95%, without any condensation.
- The installation location should be conveniently accessible for future maintenance.
- Do not install the inverter on buildings made of flammable or non-heat-resistant materials.
- Be sure that the inverter is out of the reach of children.
- Do not cover or place anything on the inverter.
- Avoid installing the inverter near strong magnetic signals, such as TV antennas, other antennas, or cables, and ensure that there is sufficient space for cooling the inverter.

- Provide optimal ventilation for the inverter to ensure adequate heat dissipation. The ambient temperature should be below 40°C to ensure optimal operation.
- Install the inverter vertically or at a maximum backward tilt of 15°, ensuring that the connector is at the lower end of the inverter. Avoid horizontal installation and tilting forward or sideways, as shown in Figure 4.

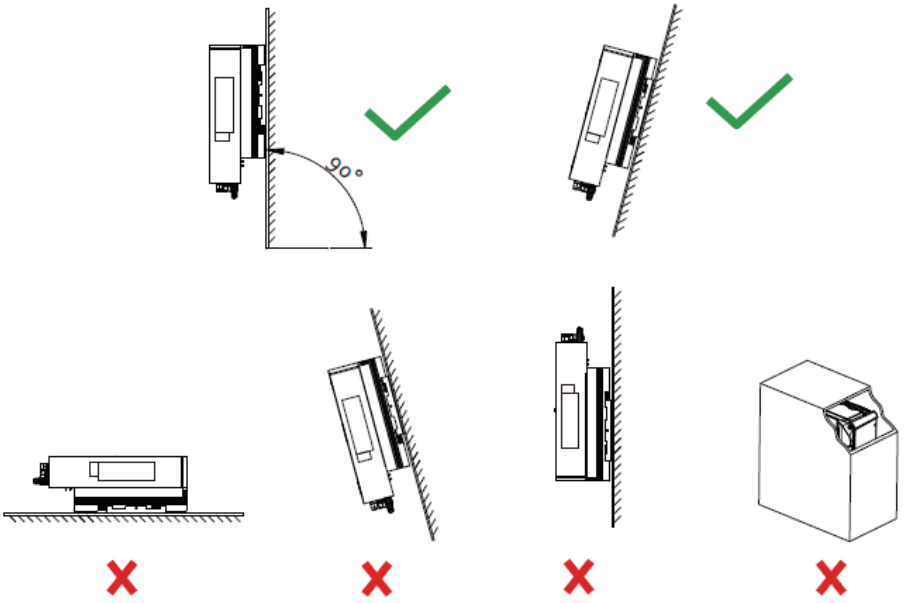
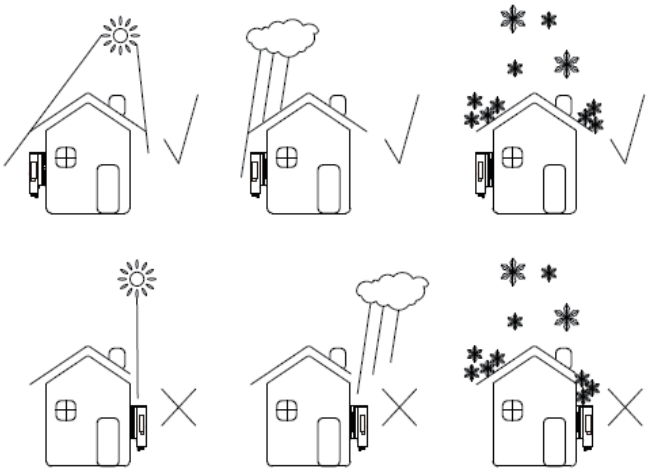


Figure 4

- Although the electrical components of the inverter are rated IP65, it is recommended to avoid prolonged exposure to sunlight, rain, and snow in the installation environment, as shown in Figure 5.

Figure 5



- Ensure adequate heat dissipation by following the minimum clearance requirements from walls, other inverters, or objects, as shown in the table below and in Figure 6.

Direction	Min. clearance(cm)
above	60
below	60
sides	40
front	30

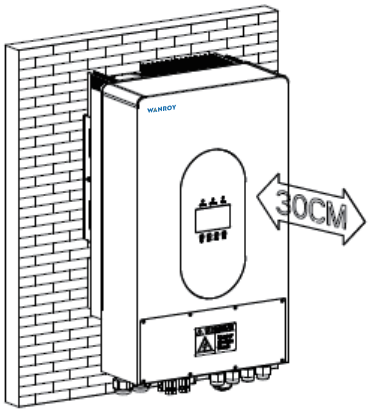
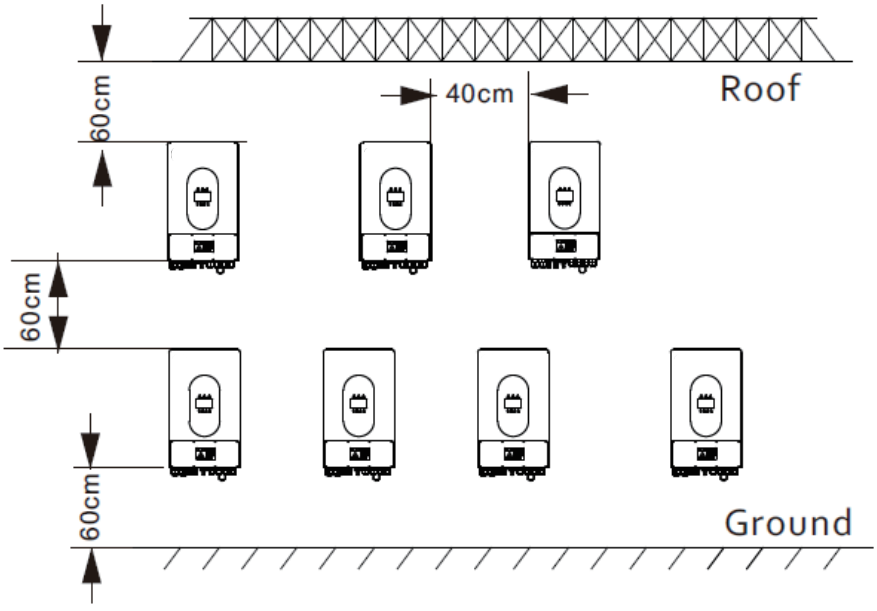


Figure 6

Multiple installation clearance reference (Refer to Figure 7)

- It is essential to maintain adequate clearance between individual inverters to prevent the circulation of ambient air from adjacent units.
- If necessary, increase the clearance space to ensure proper air circulation and sufficient cooling and heat dissipation of the inverter.

Figure 7



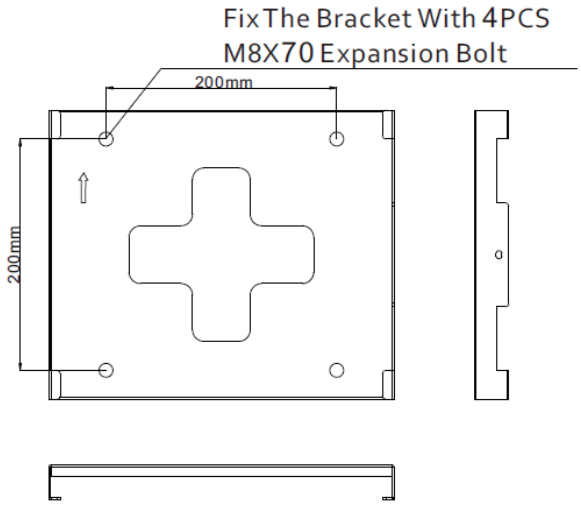
Installing the Wall Mount

WARNING

To avoid electric shock or other injury, check the existing electrical wiring system or plumbing installation before drilling bracket fixing holes.

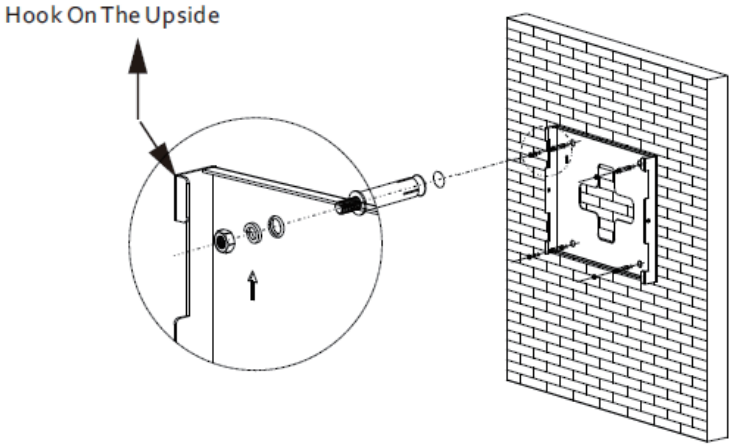
- The size of the bracket is shown in figure 8(4 expansion screws, 2 wall screws).

Figure 8



- Using the mounting frame as a template, drill holes as shown in Figure 9.

Figure 9



PLEASE NOTE: The warranty will be void if the inverter is damaged due to the use of mounting fixtures that are not strong enough to support the weight of the unit or if the equipment is damaged due to installation that does not comply with the manufacturer's requirements.

Wall mounting

WARNING

A fall can result in equipment damage and other fatal injuries. Do not place the inverter on the stand unless you are sure that the mounting frame is securely mounted on the wall.

- Lift the inverter a little higher than the stand while taking its weight into account to ensure that it remains balanced. Then, hang the inverter on the bracket using the hook provided on the bracket, as shown in Figure 10.

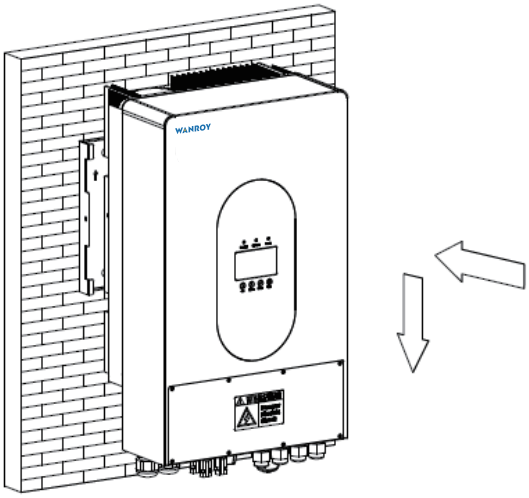


Figure 10

- After confirming that the inverter is firmly fixed, insert and lock the two M4 security screws on the left and right sides in turn to prevent the inverter from falling off from the bracket (as figure 11).

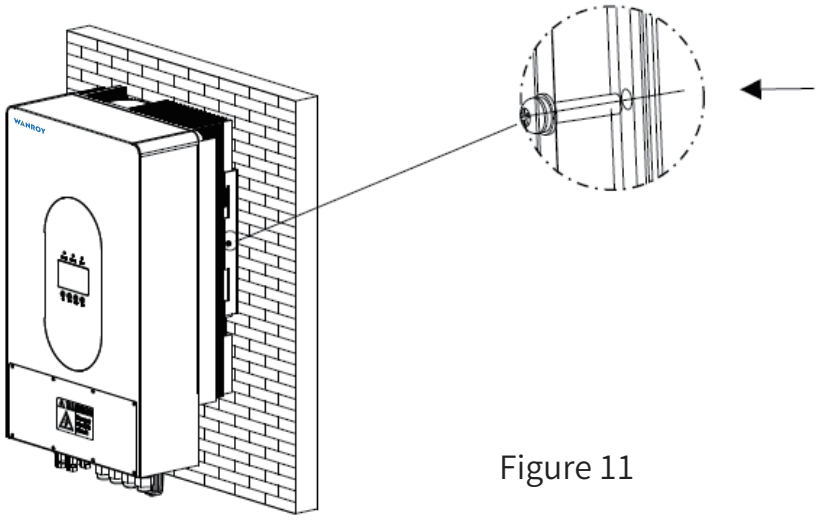


Figure 11

Inspection of Inverter Installation Status

- Try to lift the inverter from the bracket to check the installation of the inverter. The inverter should be firmly inserted into the card slot.
- Please make sure to choose a suitable mounting surface to ensure that the inverter is stable and shake-free.

Electrical connections

Warning: High Voltage!

The conductive parts of the inverter contain high voltages that may cause electric shock. Prior to performing any work on the inverter, please disconnect the AC side, PV and battery side of the inverter. Never reverse the polarity of the battery, as doing so will damage the inverter and invalidate the warranty.

WARNING

Electrostatic discharge (ESD) can damage electronic components. When replacing or installing the inverter, it is crucial to take appropriate anti-static measures. This includes wearing an anti-static wrist strap or using an ESD mat to prevent the build-up of static electricity.

DANGER

Before connecting the DC power cord, ensure that the AC power supply is grounded. This is a crucial safety measure that helps to prevent electrical shock and damage to the inverter.

3.7 Inverter system diagram

Refer to Figures 12 and 13 for detailed illustrations of the inverter system.

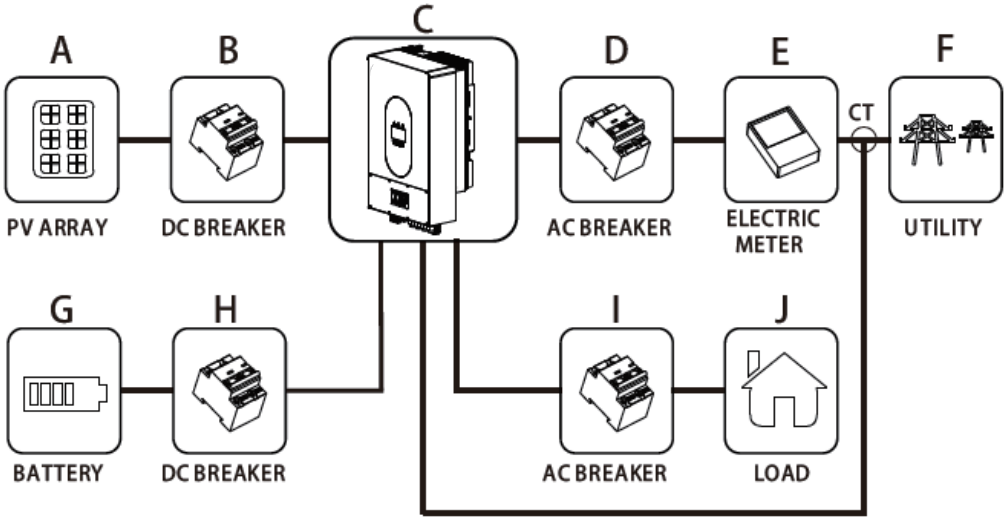
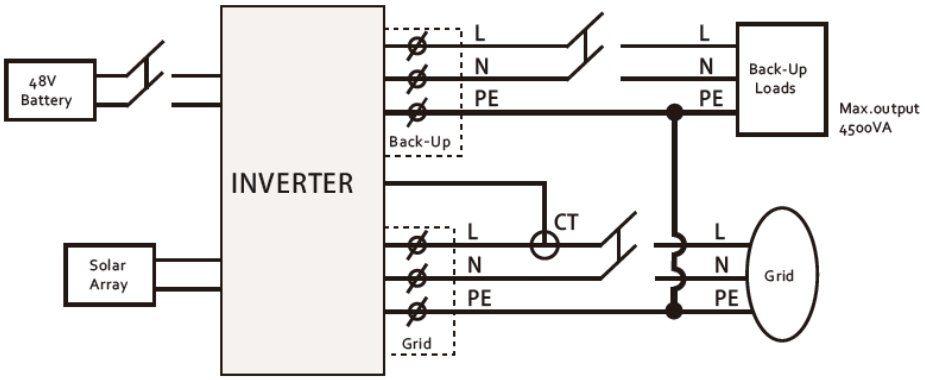


Figure 12

NOTE

Ensure that all lines are properly selected and installed in compliance with BS7671:2015, which is the IEE Wiring Regulations.

Figure 13



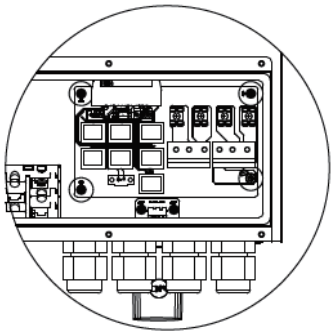
3.7.1 Grid connection (AC grid), refer to Figure 14 and Figure 15.

Figure 14

A Conductor Cross-section:
See the conductor cross section
in the flowing chart

B Bare Length: 8mm around

Figure 15



Output Connection Terminals

AC The current specifications of the AC leakage switch are as follows:

Model	WYIN36	WYIN46	WYIN5K
Minimum current (A)	20A	32A	32A

Output cable cross-sectional area requirements:

Model	Electric Current(A)	Cross-sectional Area (mm²)
WYIN36	20A	2.5-4.0
WYIN46	32A	4.0-6.0
WYIN5K	32A	4.0-6.0

NOTE

The cable length should not exceed 50 meters, because the line resistance existing on the cable will cause a large power loss.

WARNING

Be sure to install a separate AC circuit breaker or other load disconnect device between the inverter and the grid to ensure that the inverter can safely disconnect the load in an emergency.

3.7.2 EPS (Emergency Power Supply) Connection

The EPS can provide a maximum output power of 4500w, and an emergency load can be connected to the EPS port. It is crucial to install an AC isolator or other load disconnection device between the EPS output of the inverter and the emergency load to ensure safe operation in case of an emergency. We recommend using an AC leakage circuit breaker with a specification of at least 32A to ensure proper protection.

WARNING

The maximum output power of EPS is 4500w for the GH5000TL and GH4600TL models, and 3600W for the GH3600TL model. If the load is continuously greater than 4500W or 3600W, the inverter will stop outputting. Please note that the output power of EPS depends on the battery capacity.

Note: Do not connect to the grid, in case the machine is damaged due to wrong wiring!

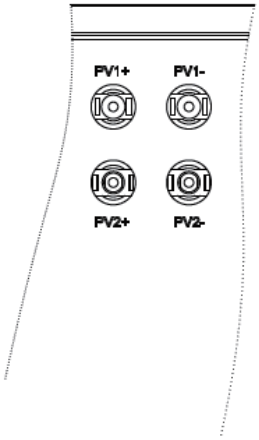
3.7.3 PV panel connections (Refer to Figure 16 and Figure 17)

DANGER

1. There is a risk of electric shock and fire. The maximum input voltage per string should not exceed 500V DC.
2. There is no transformer design, and the positive and negative ends are not grounded.

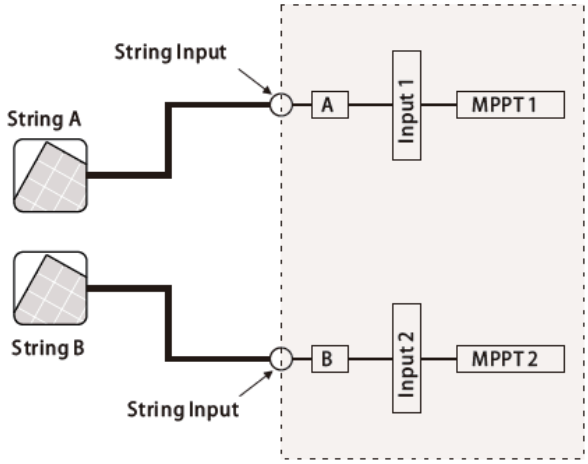
This device supports two PV access, refer to Figure 17.

Figure 16



PV Input Connection Terminal

Figure 17



There are two MPPT's on the unit, so you can connect two independent MPPT channels.

- The maximum open-circuit voltage of each group of PV input should not be higher than 500V DC.
- Please check the design of the PV plant carefully to ensure compliance with this specification. When the ambient temperature of the PV panel is -10°C, the maximum open circuit voltage may appear, and the input voltage at this time must not exceed the maximum input voltage of the inverter (500V).

- Before connecting the PV panel to the DC terminal, please make sure the the polarity is correct. Incorrect polarity connections may damage the inverter.
- Please check the short-circuit current of the PV cell group. The total short-circuit current of the photovoltaic battery pack should be less than the maximum DC current of the inverter.
- Connect the positive and negative poles of the PV panel output to the positive (+) and negative (-) poles of the photovoltaic inverter. Each PV port on the inverter can withstand 15A.
- When PV is connected, the positive and negative of the same road should be connected to the same PV terminal (for example, the positive is connected to the positive of PV1, and the negative is connected to the negative of PV1).
- When PV has only one set of string input, please do not mix input area A and B.
- When PV panels are exposed to sunlight, there is high voltage. To reduce the risk of electric shock, avoid touching live parts and handle connection terminals with care.

Cable Sectional Area Requirements

Model	Electric Current(A)	Cross-sectional Area (mm²)
WYIN36	20A	4.0-6.0
WYIN46	20A	4.0-6.0
WYIN5K	20A	4.0-6.0

3.7.4 Connection of Energy storage battery

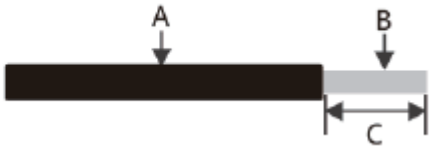
- A separate DC circuit breaker with a minimum rating of 150A must be installed between the inverter and the energy storage battery before connecting to ensure safe disconnection of the inverter during maintenance.

DANGER

Reversing the positive and negative inputs may cause damage to the inverter!

- Connecting the battery with a suitable cable is important for safe and efficient system operation. To reduce the risk of injury, use the recommended cable size. Refer to Figure 18.

Figure 18



Grade	Description	Value（mm²）
A	Cable outer diameter	10-12mm²
B	cross-sectional area	15-25mm²
C	Bare wire length	10mm²

- It is important to follow the manufacturer's instructions when installing energy storage batteries.
- The maximum charging/discharging current of this inverter is 95A and 100A respectively.
- The rated battery voltage of this inverter is 51.2V, and the series voltage of the battery should not exceed 58.5V to prevent damage to the inverter and to ensure the warranty remains valid.

Please follow the steps below to check if the battery connection is correct, referring to Figure 19.

◇ Verify that the rated voltage of the battery matches the specifications of the inverter.

◇ Open the circuit breaker between the inverter and the battery.

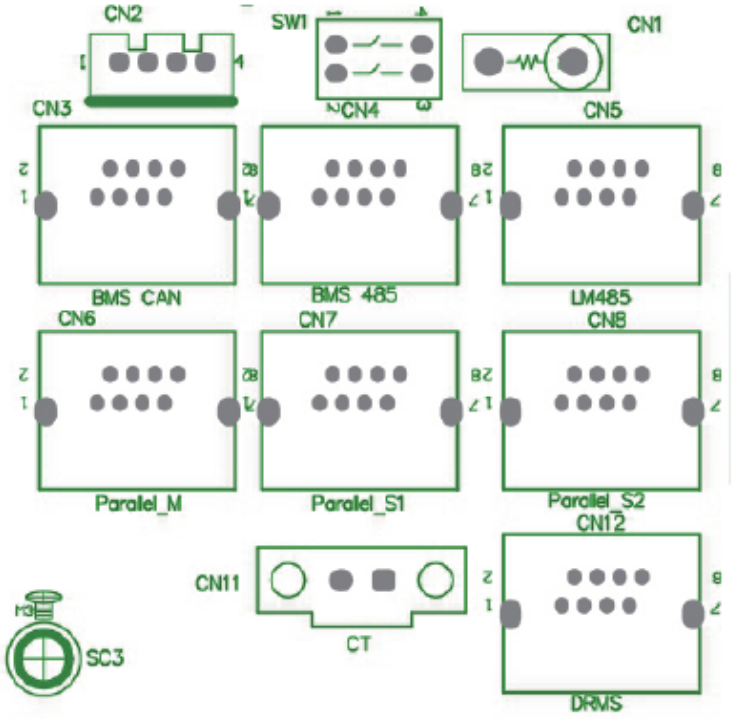
◇ Check for correct polarity of the battery and inverter connections, ensuring that the positive and negative terminals are correctly aligned.

◇ Securely connect the DC cable of the energy storage battery to the terminal blocks.

◇ Tighten the DC wires to the battery input terminals of the inverter.

◇ During commissioning, ensure that the correct battery protocol is selected so that it can be controlled by the Battery Management System (BMS).

Figure 19



NOTE

Using a lithium battery that is compatible and has been tested with the inverter is recommended. Make sure the communication is normal.

3.7.5 CT (Current Transducer) or ammeter connected to inverter

In the system, a CT (Current Transducer) or electricity meter must be installed to monitor the electrical energy consumption of the house and the state of the inverter (charging or discharging). The CT or ammeter should be installed at the grid input terminal to enable the inverter to monitor the household's overall electricity consumption.

Based on the CT readings, the inverter can adjust the PV power delivered to the grid to maintain a balance between the household's energy usage and generation level (see Figure 20).

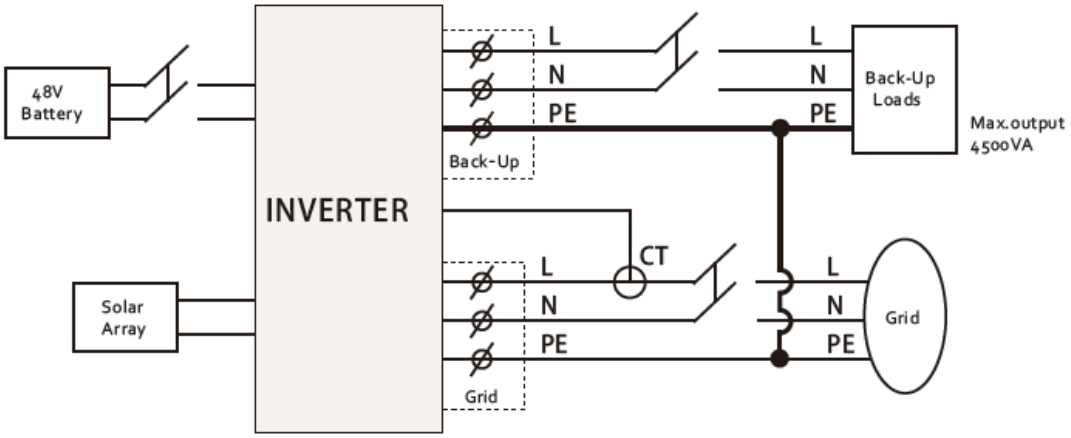


Figure 20

The CT should be installed between the grid and the inverter, and it must be placed in front of the local load, around the live conductors. The arrow on the CT should point towards the grid (see Figure 21).

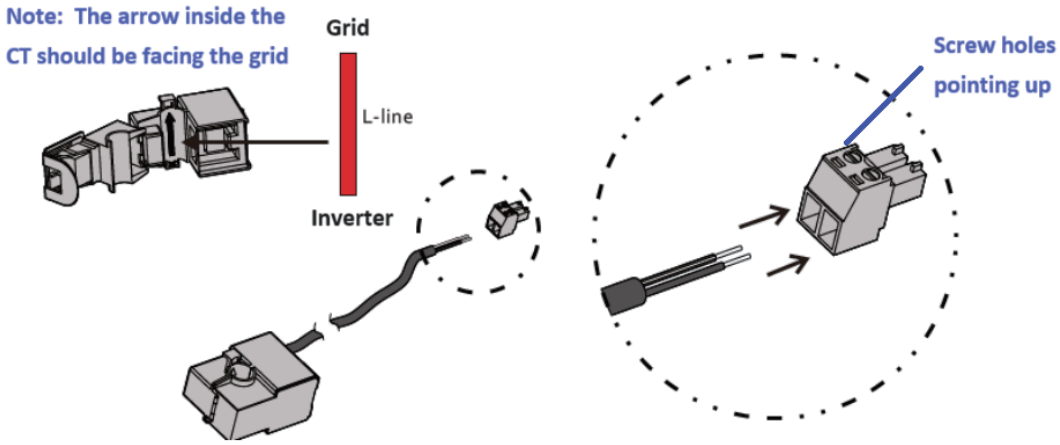


Figure 21

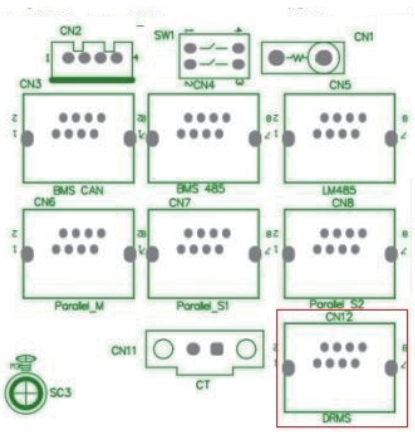
4.Communication Instructions

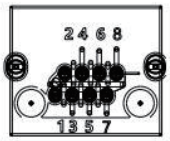
4.1 Wi-Fi/GPRS

Hybrid inverters typically use Wi-Fi or GPRS as a standard wireless communication method.

4.2 Communication port connection

The communication port connection is made through DRM connection CN12, located on the front board as shown in Figure 22.





No	Function
1	DRM
2	DRM
3	DRM
4	DRM
5	REFG
6	GND-S
7	/
8	/

CN3

No	Function
1	/
2	/
3	/
4	M3CANH
5	M3CANL
6	/
7	/
8	/

CN4

No	Function
1	/
2	/
3	/
4	/
5	/
6	BMS485+
7	BMS485-
8	/

CN5

No	Function
1	/
2	/
3	/
4	/
5	/
6	LM485+
7	Lm485-
8	/

Figure 22

When the inverter receives an order from DRM0 connection,it will respond accordingly by reducing the output power to 0(by shorting the connection between RJ45 No.5 and No.6).

4.3 Guidelines for Parallel and Group Three-phase Operation

Note: Parallel operation needs to be operated with the help of our monitoring server (please contact your supplier to obtain access).

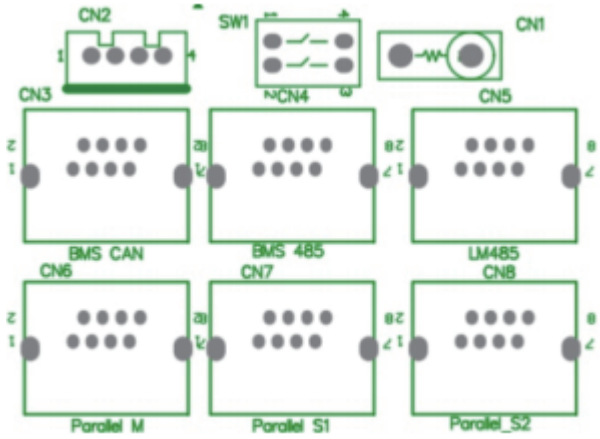


Figure 23

CN6

No	Function
1	/
2	/
3	/
4	DSPCANH
5	DSPCANL
6	B_T1
7	/
8	/

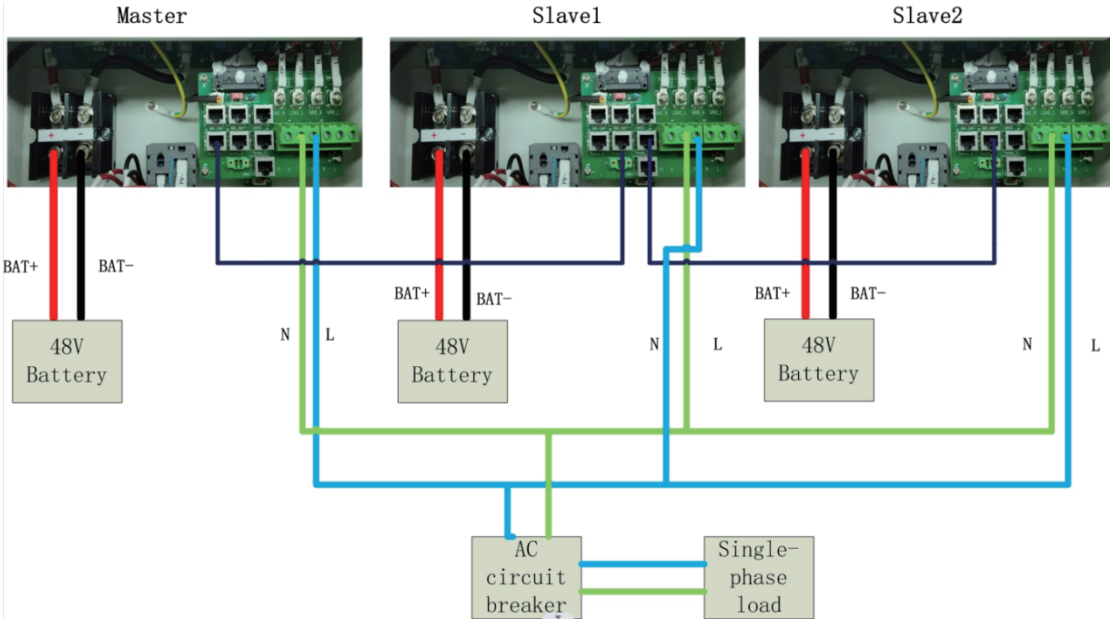
CN7

No	Function
1	/
2	/
3	/
4	DSPCANH
5	DSPCANL
6	B_R1
7	/
8	/

Please refer to Figure 23 for the connection of parallel machines (take 3 parallel machines as an example).

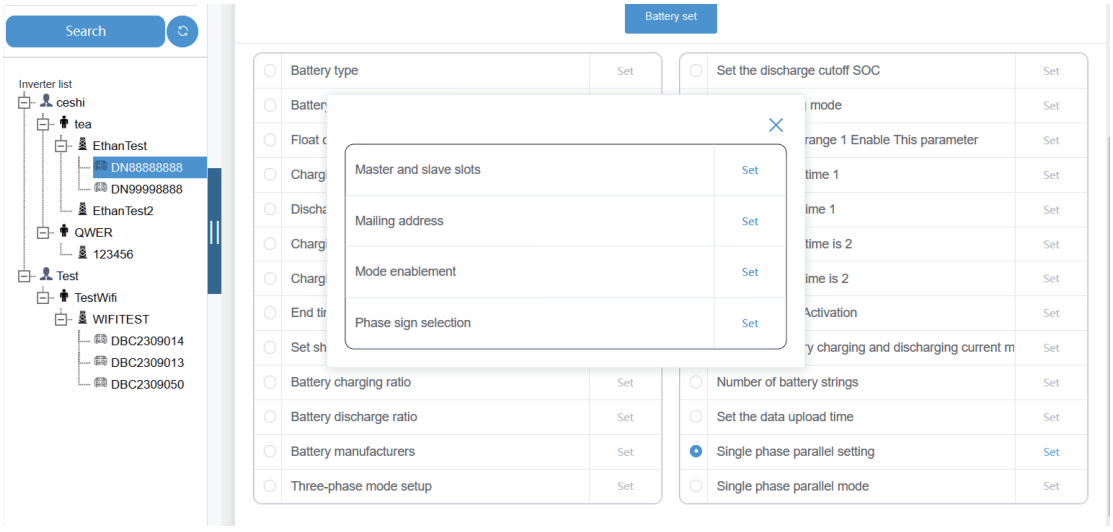
Note:

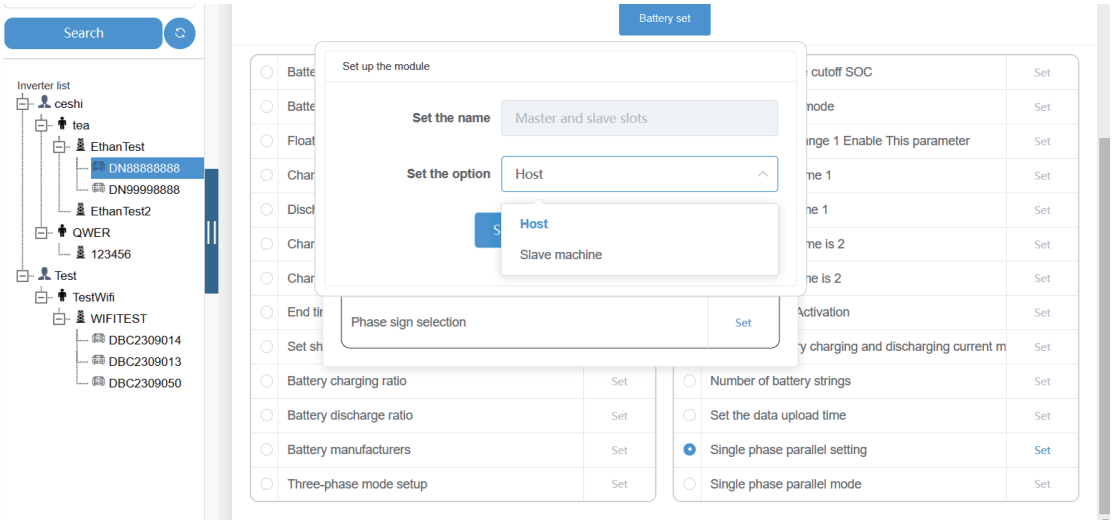
- Each inverter must be connected to the energy storage battery separately. Do not connect one battery to multiple inverters.
- When connecting the parallel machines, ensure that the live wire (L) is connected to the live wire (L) and the neutral wire (N) is connected to the neutral wire (N). Take care to avoid any incorrect connections, which could cause damage or safety hazards.



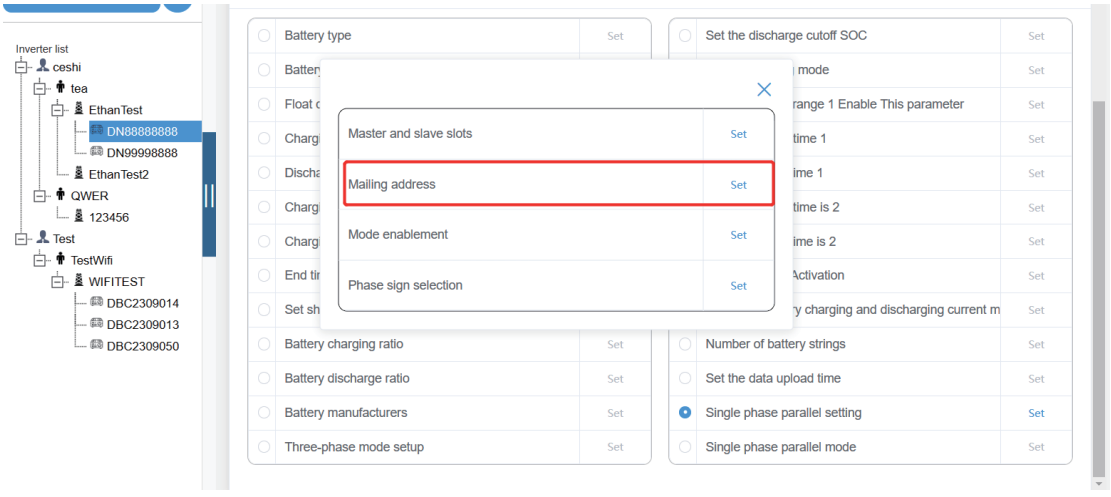
- After completing the wiring of the power line and communication line, you need to set the master and slave machines, enable parallel function, and then set the communication address and phase number. The setting method is as following (please note that assistance from our monitoring service is required, and LCD screen and APP settings will be available later).

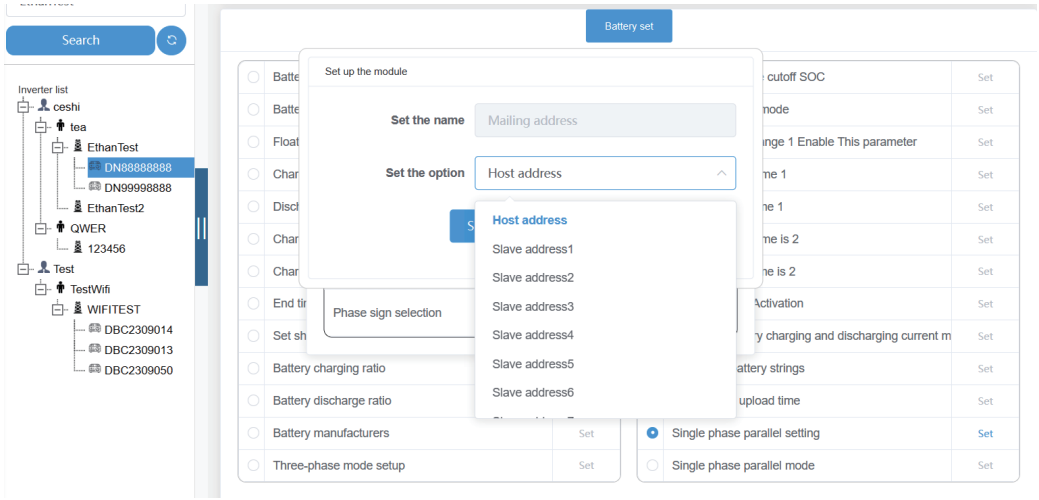
(1) Set the master and slave machines. In a given system, there should be only one master, with the remaining inverters being slaves(refer to the images below for clarification).



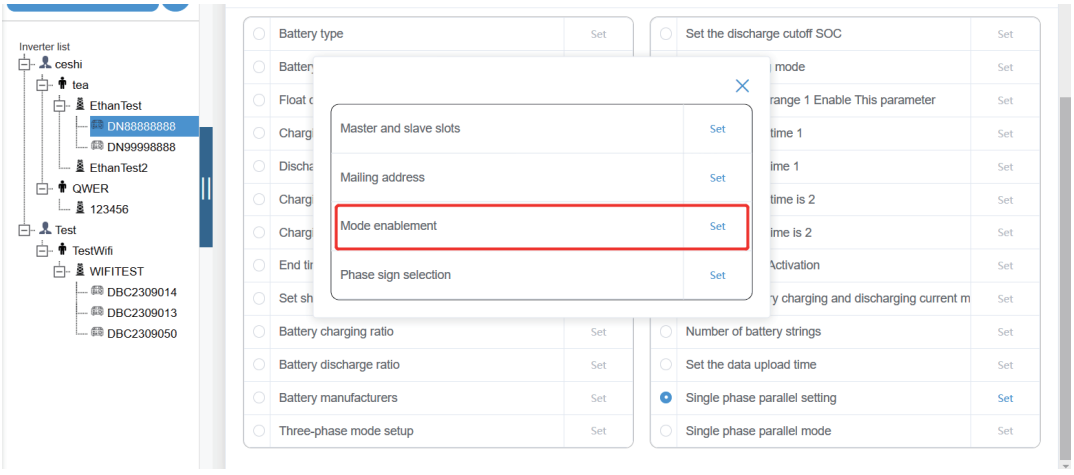


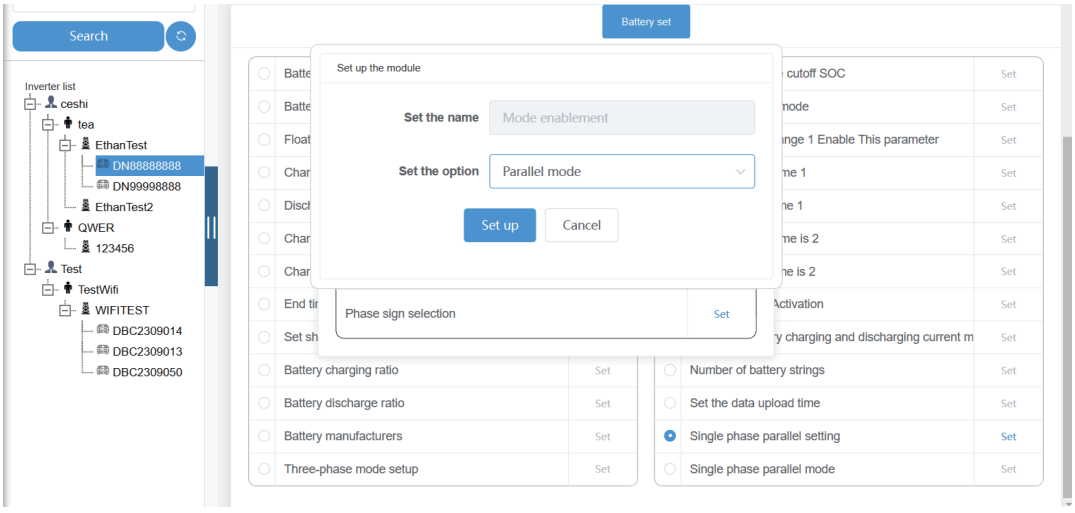
(2) Set the communication address. The master inverter should be set to the master address, while the slave inverters should be set to slave address 1, slave address 2, and so on (refer to the images below for clarification).



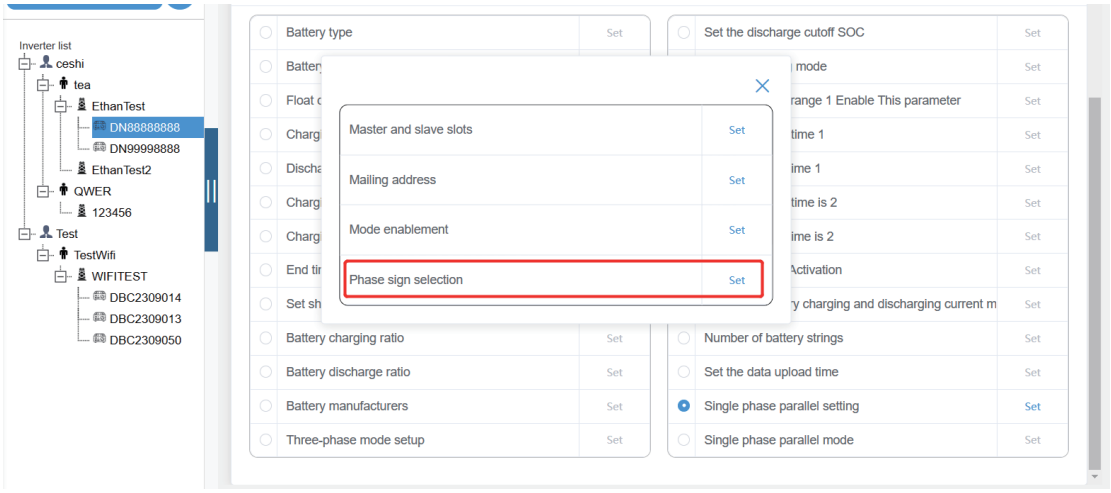


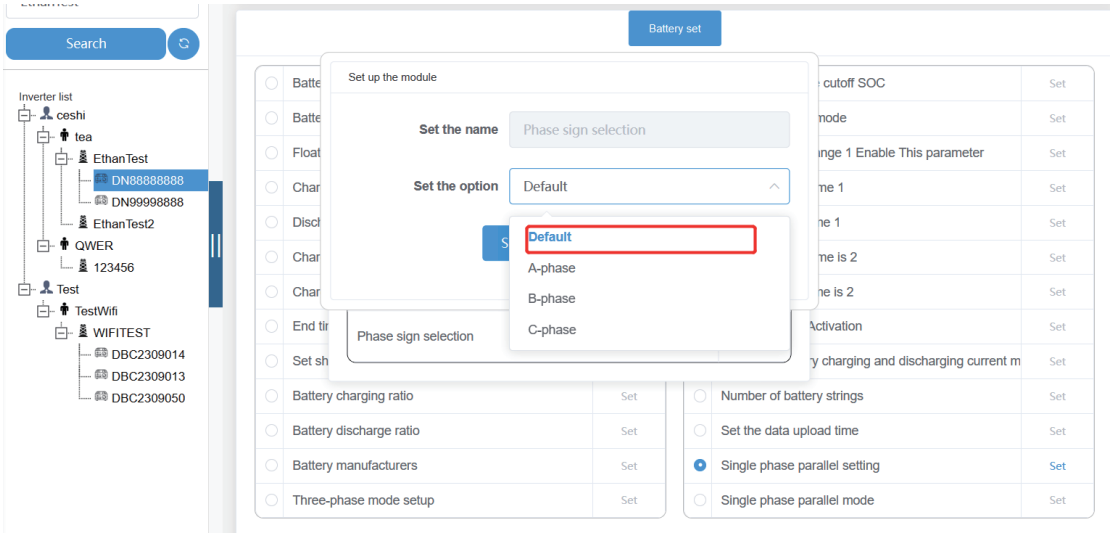
(3) Enable the parallel function.





(4) Select the default value for the phase number in parallel mode.

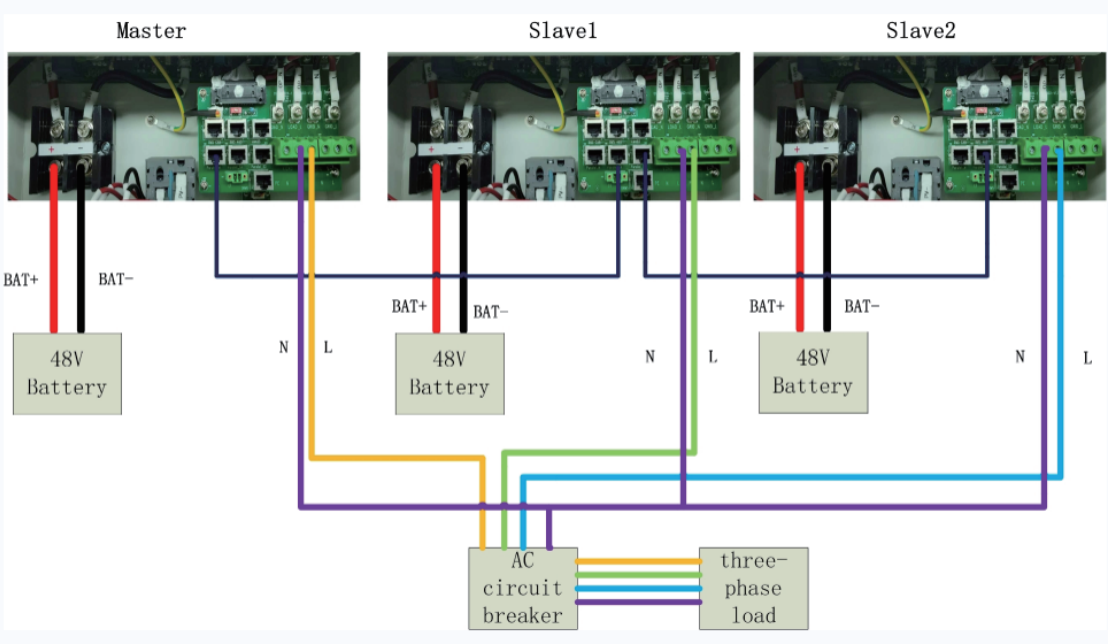




For group three-phase connections, please refer to the images below:

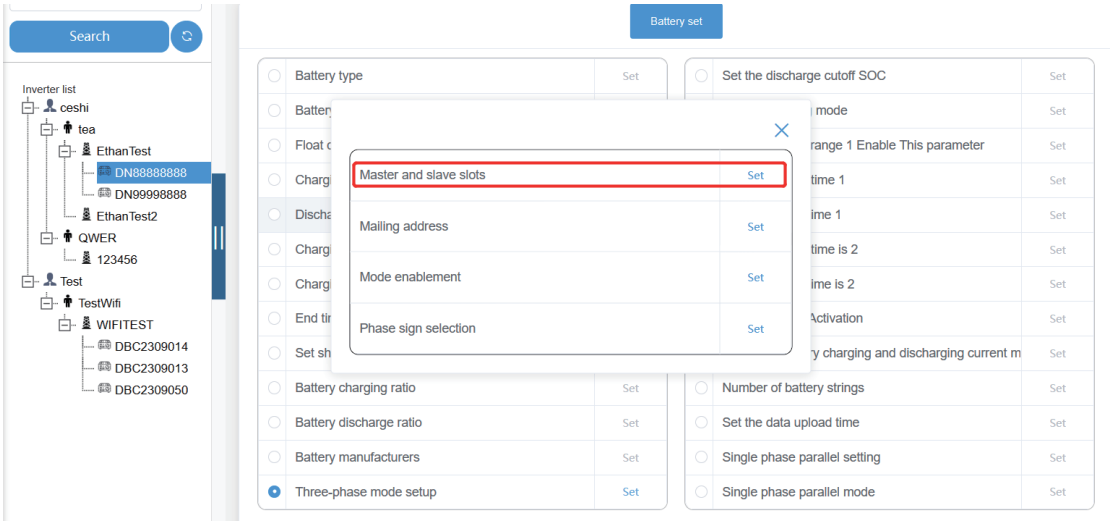
NOTE: Each inverter must be connected to a separate energy storage battery.

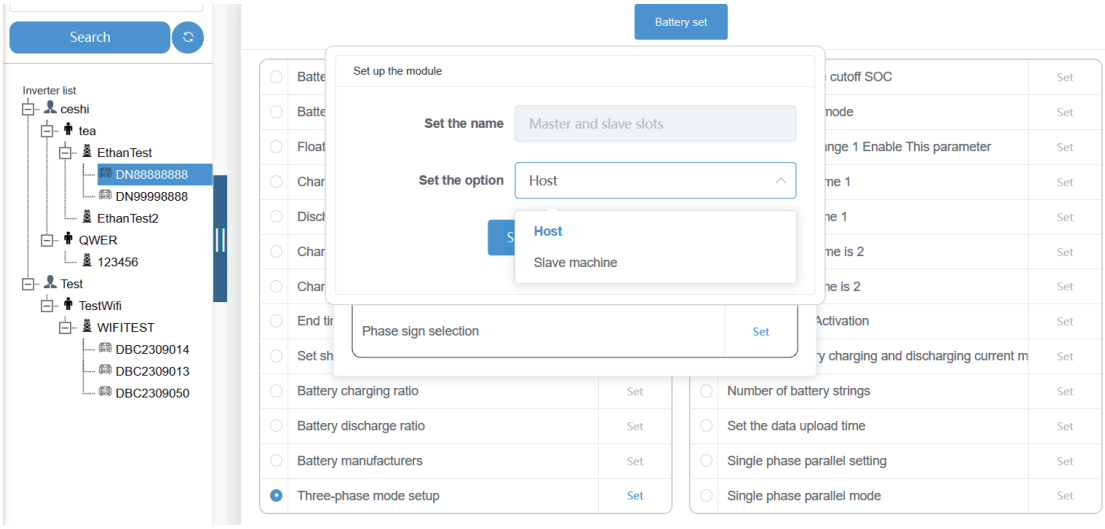
Do not connect one battery to multiple inverters.



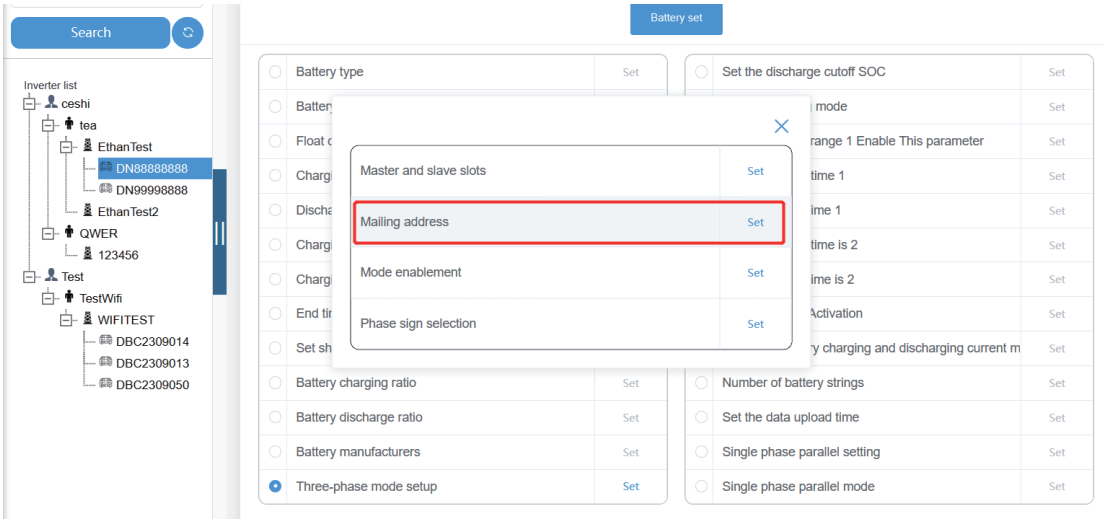
After connecting the power and communication lines, you will need to configure the master and slave settings, enable the group three-phase function, set the communication address, and phase sequence. Follow the steps below to configure these settings (requires monitoring server access).

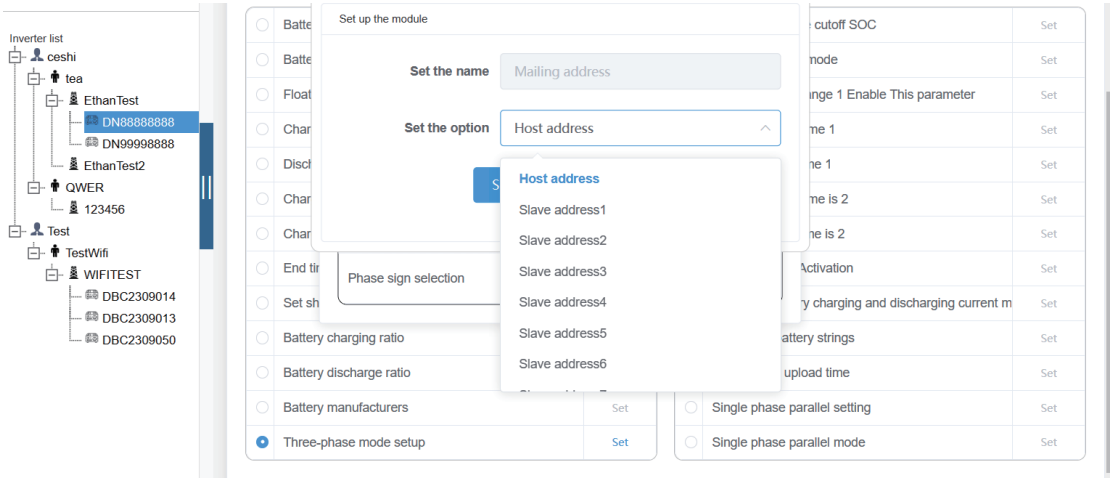
(1) Configure the master and slave settings (there can only be one master in a system, with the remaining being slaves).



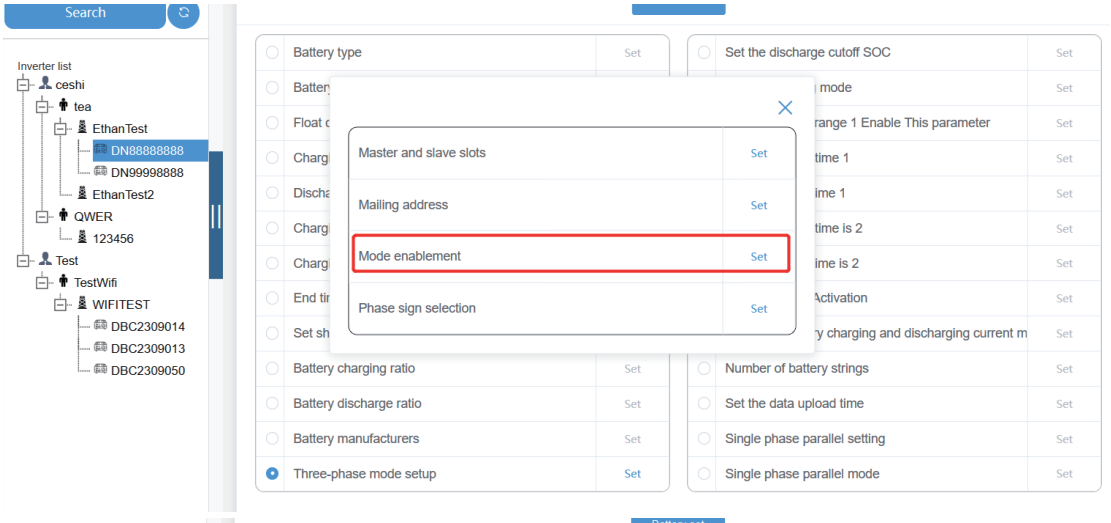


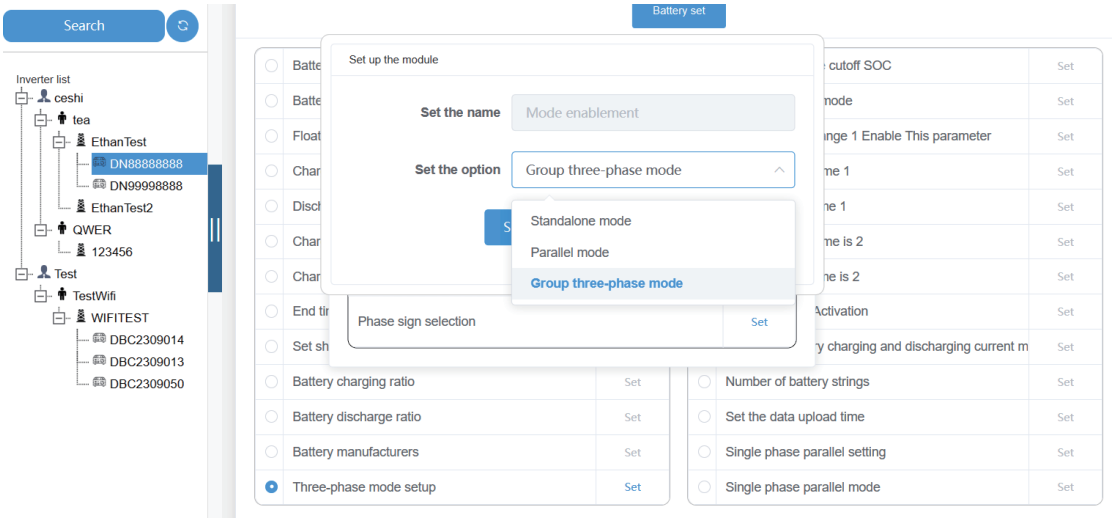
(2) Configure the communication address by setting the host address for the master, slave address 1 for the first slave, and slave address 2 for the second slave.



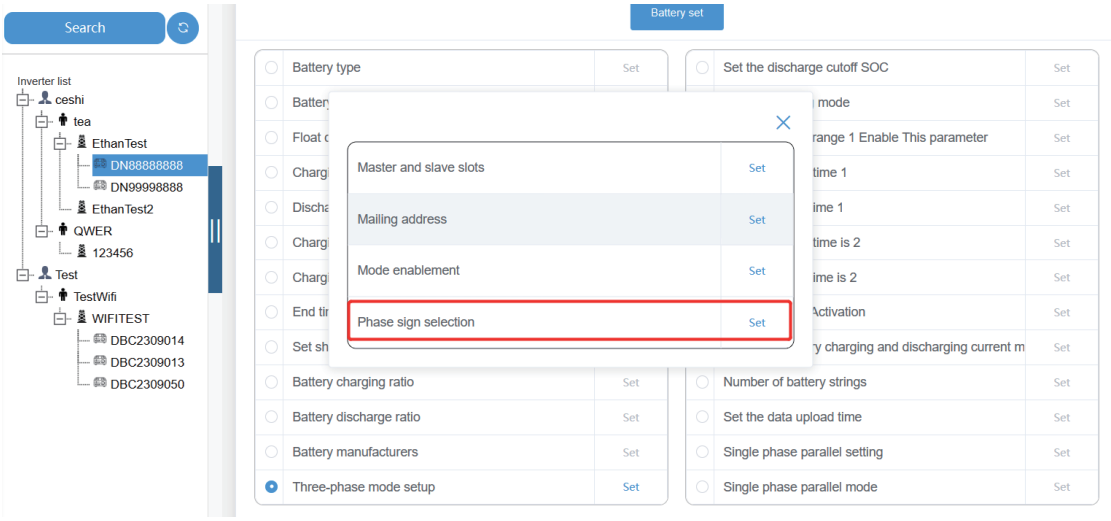


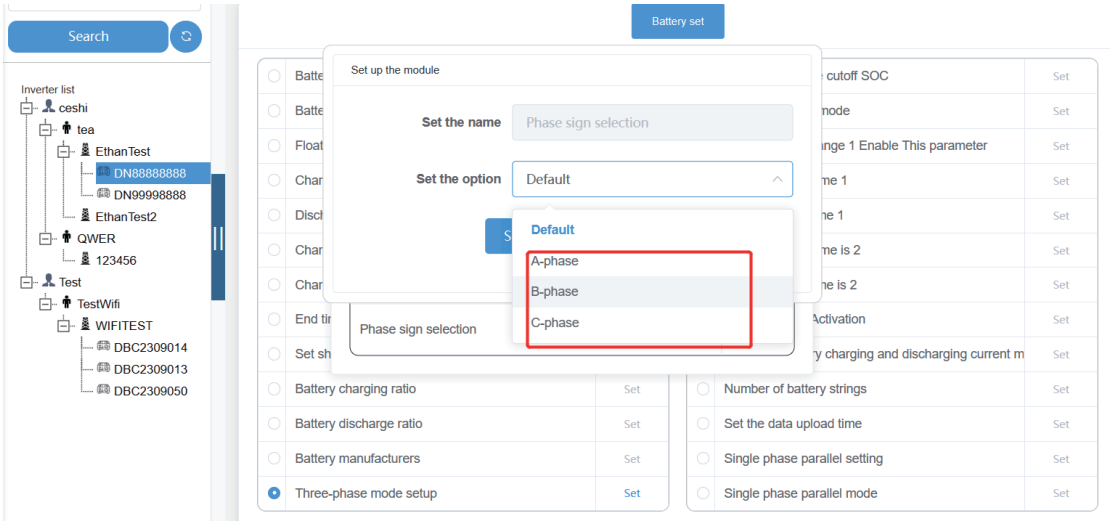
(3) Enable the group three-phase function.



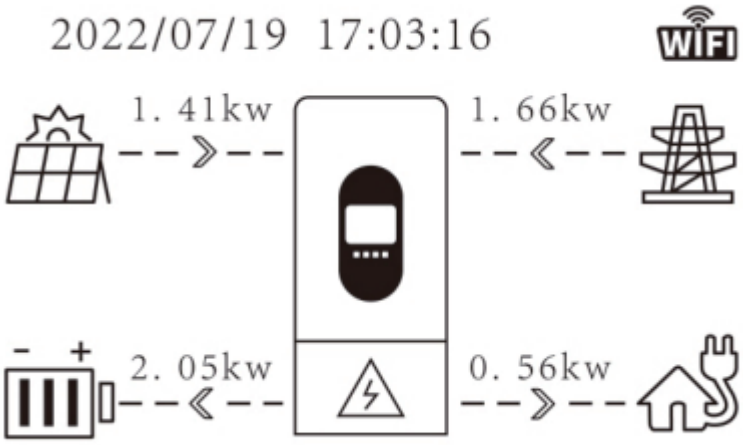


(4)Configure the phase number setting as follows: set the master to A phase, the slave 1 to B phase, and the slave 2 to C phase.





5. LCD Display



Panel keyboard introduction

Up	Previous ↑
Down	Next ↓
Enter	Confirm ✓
Esc	Exit ↺

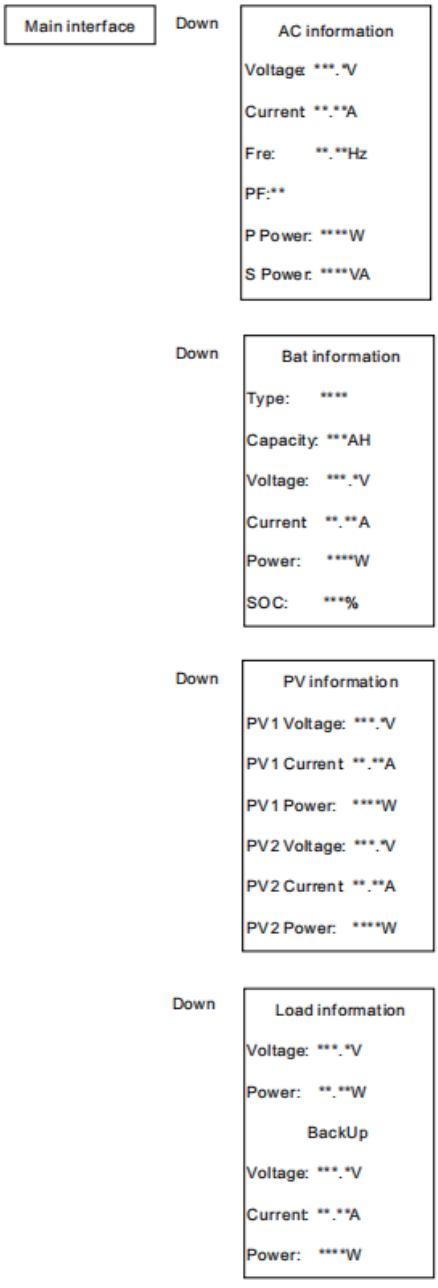
5.1 LED indicators and their respective status

Status	Grid connection status (blue)	Off-grid status (blue)	Warning light (red)
On grid	always on	/	/
Waiting for on grid	flashing	/	/
Off grid	/	always on	/
waiting for off grid	/	flashing	/
Alarm	/	/	always on

5.2 Menu Introduction

5.2.1 Operating parameters

On the main interface, press the "Down ↓ " key to access the grid, battery, PV, and load information screen.



5.2.2 On the main interface, press the "Up ↑ " key to access the main menu interface, which offers the following 5 options:

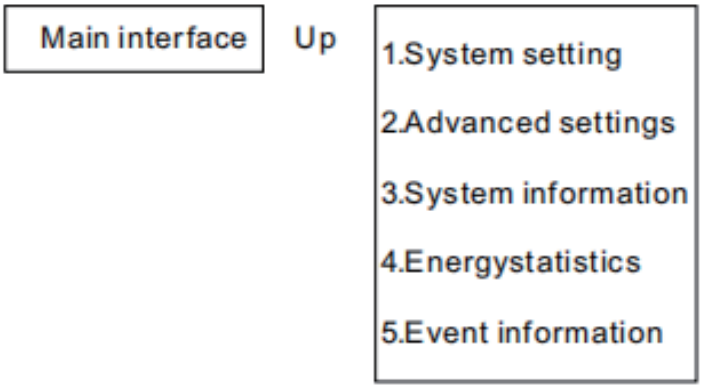
1. System setting;

2. Advanced settings;

3. System information;

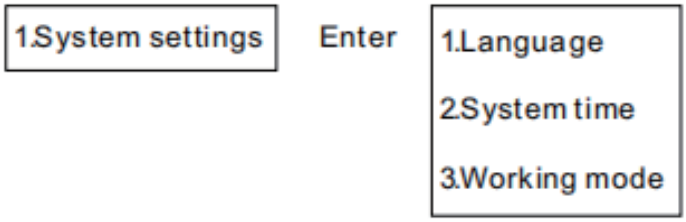
4. Energy statistics;

5. Event information



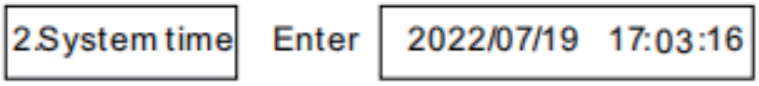
5.2.3 System settings

In the system settings, press “Enter ✓" to access the sub menu interface, which displays the following 3 options.

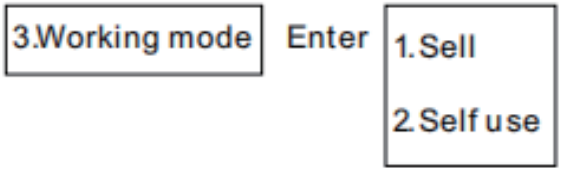


(1) Language Settings

(2) System Time Settings



(3) Working Mode Settings



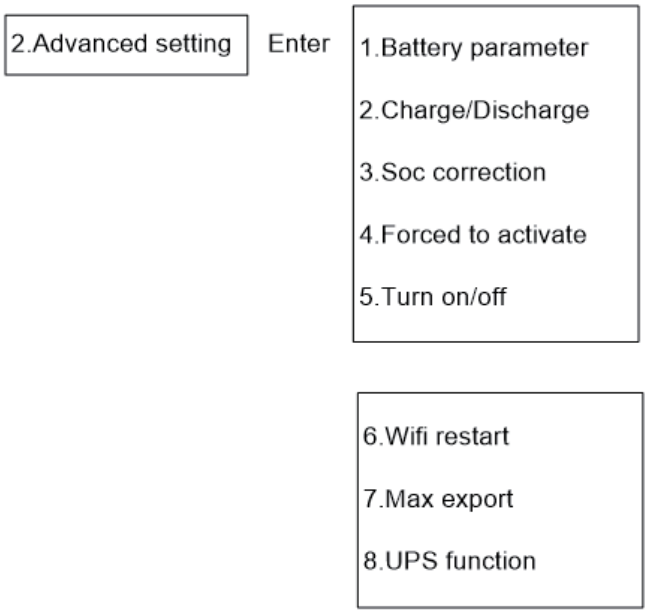
a. Electricity selling mode: Energy storage batteries and photovoltaic power generation can sell power to the grid during a set time period.

b. Self-Generation and Self-Usage Mode: When photovoltaic energy meets the load demand, any excess energy charges the battery.

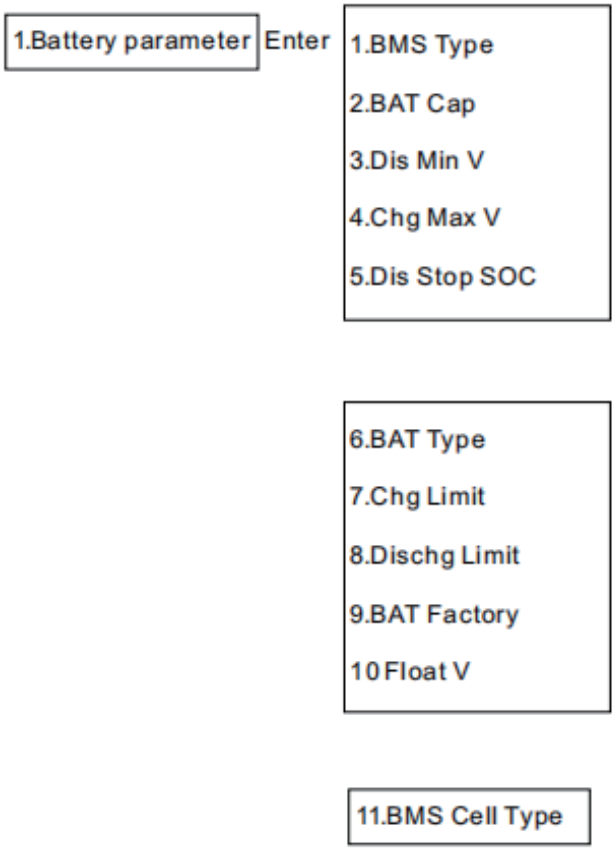
5.2.4 Advanced Settings

In "Advanced Settings", press "Enter ✓ " to enter the submenu interface.

This submenu interface offers 8 options, which are displayed across 2 pages.



1.Battery parameter settings. This submenu interface contains 11 options divided into 3 pages.



1) BMS Type: Battery charging and discharging maximum current mode(0: Default 1: Battery Control Charging Maximum Charging Current; 2: Battery Control Charging and Discharging Maximum Current).

2) BAT Cap setting: This parameter is used to set the capacity (in Ah) of the battery. This setting is only applicable in lead-acid battery mode.

3) Dis Min V setting: This parameter is used to set the minimum discharge cut-off voltage.

4) Chg Max V setting: This parameter is used to set the maximum charging shutdown voltage.

5) Dis Stop SOC Setting: This parameter is used to set the stop discharge state of charge(SOC) for the battery.

6) BAT Type: Set the battery type (0: lead-acid battery; 1: lithium battery)

7) Chg Limit: Set the maximum charging rate for the battery.

8) DisChg Limit: Set the maximum discharge rate for the battery.

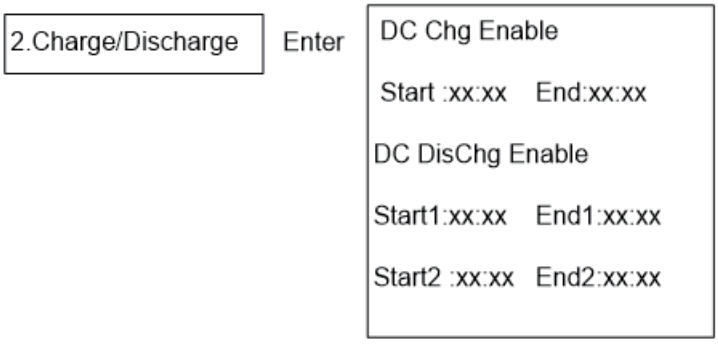
9) BAT Factory: BMS Protocol Selection. This parameter is used to set the communication protocol of the battery management system(BMS) for the inverter.
(0: Donnergy CAN; 1: PYLON CAN)

10) Float V Setting: This parameter is used to set the float charge voltage for the battery.

11) BMS cell type: Set the number of battery cells (0: Custom; 1: 16 strings; 2: 15 strings. the default is 16 strings.)

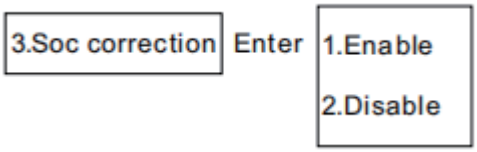
A. Charge/Discharge Time Setting

Can set: 1 Charging time; 2 Discharging times

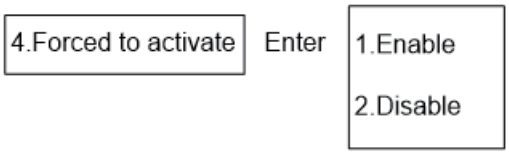


B. SOC correction / SOC Calibration

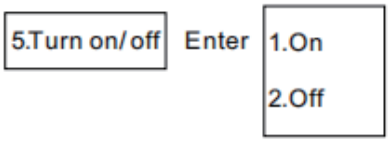
This feature can be used to calibrate the state of charge (SOC) of a lithium battery by fully charging and discharging the battery one time. Please note that this feature requires elevated permissions to be enabled.



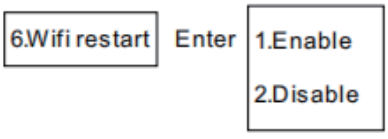
C. Forced to activate / Forced Battery Activation



D. Turn/Switch the inverter on and off

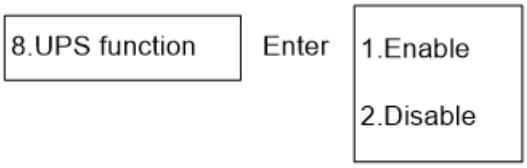


E. Restart the WiFi



F. Set the maximum power for the grid port

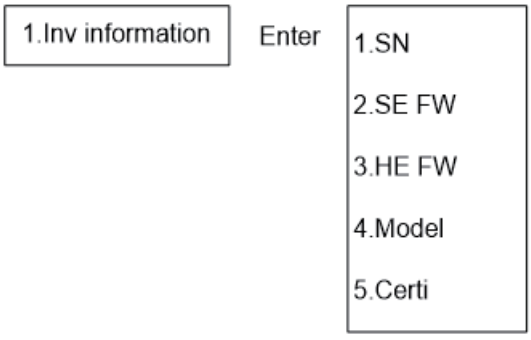
G. 7. UPS function (This function is disabled by default.)



5.2.5 System information

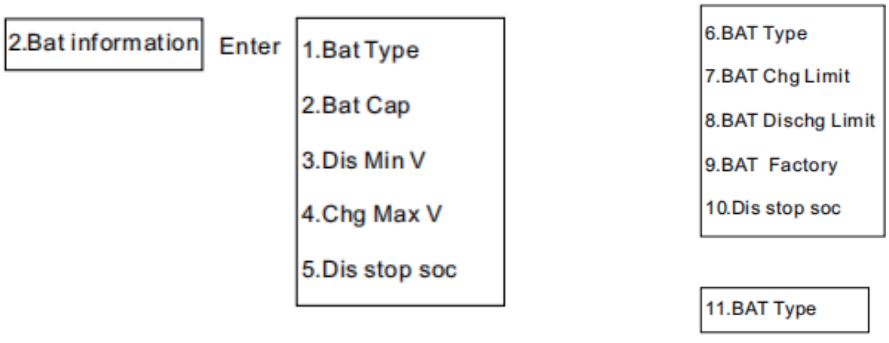
In the system information setting column, press "Enter ✓ " to access the submenu interface. The following 3 options will be displayed:

① INV Information

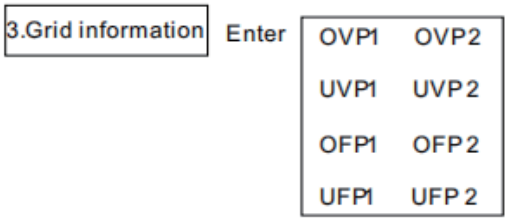


② Bat/Battery information

This section is divided into 3 screens. Use the "Down ↓" or "Up ↑ " key to switch between screens. The Battery Information is mainly used to display battery-related parameters.

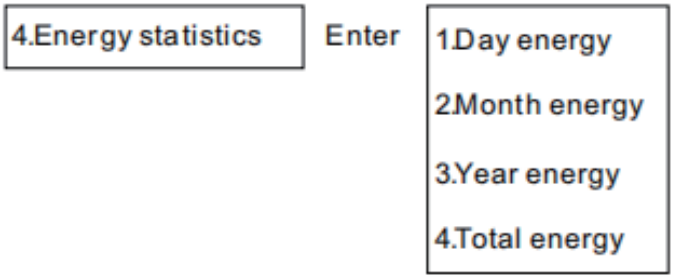


③ **Grid Information**



5.2.6 Energy statistics

Press "Enter ✓ " to access the submenu interface, where the following 4 options will be displayed:



(1) Daily Energy Production: This page displays the daily energy production in numerical values and histograms.

Note:

PV Exp --- Photovoltaic output energy

AC Exp --- AC output energy

AC Imp --- AC input energy

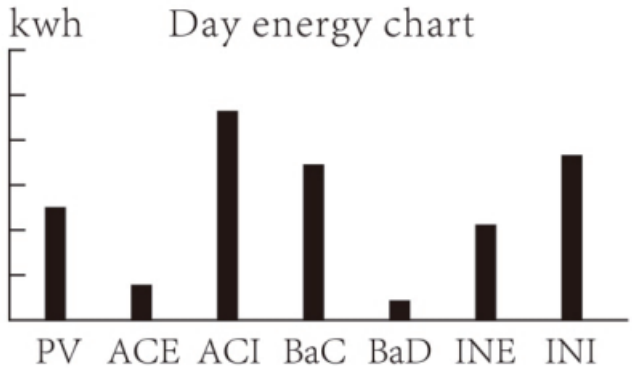
Bat Chg --- Battery charging energy

Bat Dis --- Battery discharge energy

INV Exp --- -Inverter output energy

INV Imp ----Inverter input energy

1.Day Energy	Enter	Day Energy Information 1.PV Exp: 2.AC Exp: 3.AC Imp 4.Bat Chg 5.Bat Dis 6.INV Exp 7.INV Imp	Down	as shown below



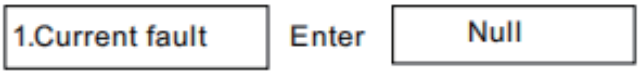
Monthly energy production, annual energy production, and cumulative energy production are also displayed in numerical values and histograms.

5.2.7 Event information

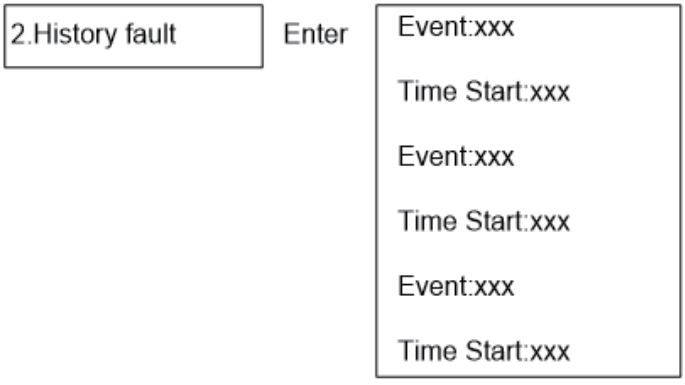
In the event information setting, press "Enter ✓ " to access the submenu interface, which displays the following 2 options.

5.Event information	Enter	1.Current fault 2.History fault

1) Current Error Message: Displays the current error message, which will be empty when no error is reported.



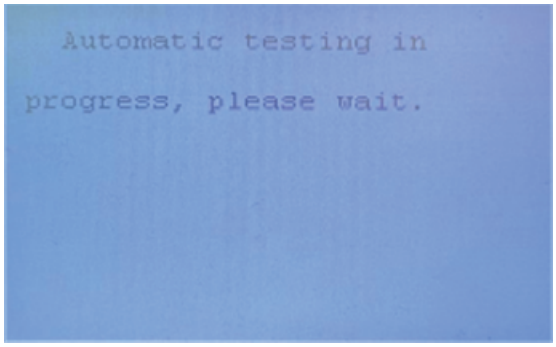
2) Historical Error Information: Displays the history of error messages. There are a total of 3 pages, and you can switch between pages using the the "Down ↓" or "Up ↑" keys. Each page displays 3 historical error messages. When there are no error currently reported, the display will be empty.



5.3 Auto-test function

1. Press and hold the Enter ✓ and ESC ↺ key at the same time for 3 seconds to enter the Auto-test function.

2. Wait about 15 minutes for the inverter to automatically check and return to the main screen.



6. Turn On/Off the Inverter

6.1 Turning On the Inverter

(1) Turn on the AC circuit breaker

(2) Turn on the PV DC switch

(3) Turn on the battery breaker

(4) When the photovoltaic voltage is higher than 150V or the battery voltage is higher than 42V, the inverter will automatically start (the screen light up, and it will enter standby mode)

6.2 Disconnecting the Inverter

(1) Disconnect the AC circuit breaker to prevent the inverter from being reactivated.

(2) Disconnect the battery breaker to ensure the inverter cannot be reactivated.

(3) Turn off the PV switch

(4) Verify the inverter's running status

(5) Wait for the LCD screen to turn off before assuming the inverter shuts down completely.

7. Maintenance and Cleaning

7.1 Thermal check

If the inverter often frequently reduces output power due to high temperature, please check whether the inverter is covered or clean the radiator to improve heat dissipation. You may also need to adjust the inverter's heat dissipation environment.

7.2 Inverter cleaning

If the surface of the inverter is dirty, please turn off the inverter before cleaning the shell.

7.3 DC Switch Inspection

Regularly check inspect the circuit breaker and the cable for ant abnormalities. If you notice any signs of damage, such as visible discoloration or physical damage to the cable or the circuit breaker, please contact the installer for assistance.

WARNING

It is recommended to operate it once a year [turn the rotary switch of the DC switch from "on" to "off" continuously for 5 times]. This cleans the rotary switch and the contact points of the switch, which increases the electrical withstand time of DC disconnection.

8. Precautions for the Repairing

8.1 Disassemble the Inverter

(1) Disconnect the inverter according to the instructions

(2) Unplug all connecting wires from the inverter

(3) Remove the inverter from the bracket, and unscrew the bracket screws

DANGER

Risk of burns from the shell of inverter during operation!
Please wait for 20 minutes after shutting down, and then disassemble the shell after it cools down!

8.2 Packaging the Inverter

If possible, pack the inverter in its original carton and secure it with adhesive tape. If the original packaging is no longer available, please use a packaging box that can fully support the weight and size of the inverter. Ensure that the carton is completely closed for safe transportation.

8.3 Storing the Inverter

Store the inverter in a dry place with an ambient temperature between -25°C and +60°C.

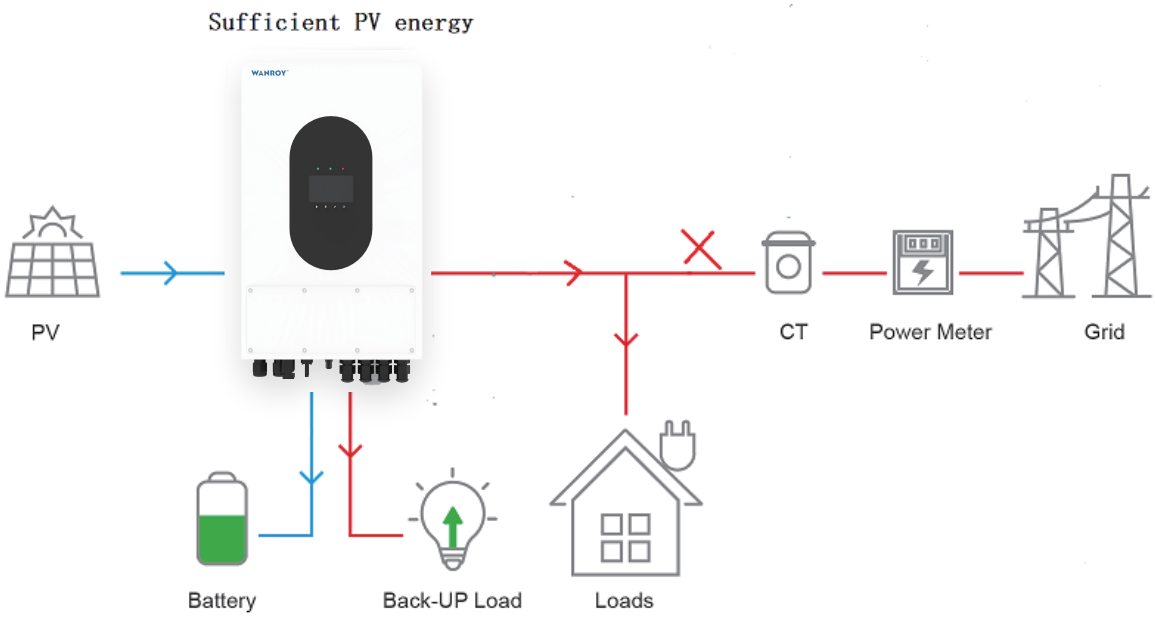
9. Working Modes

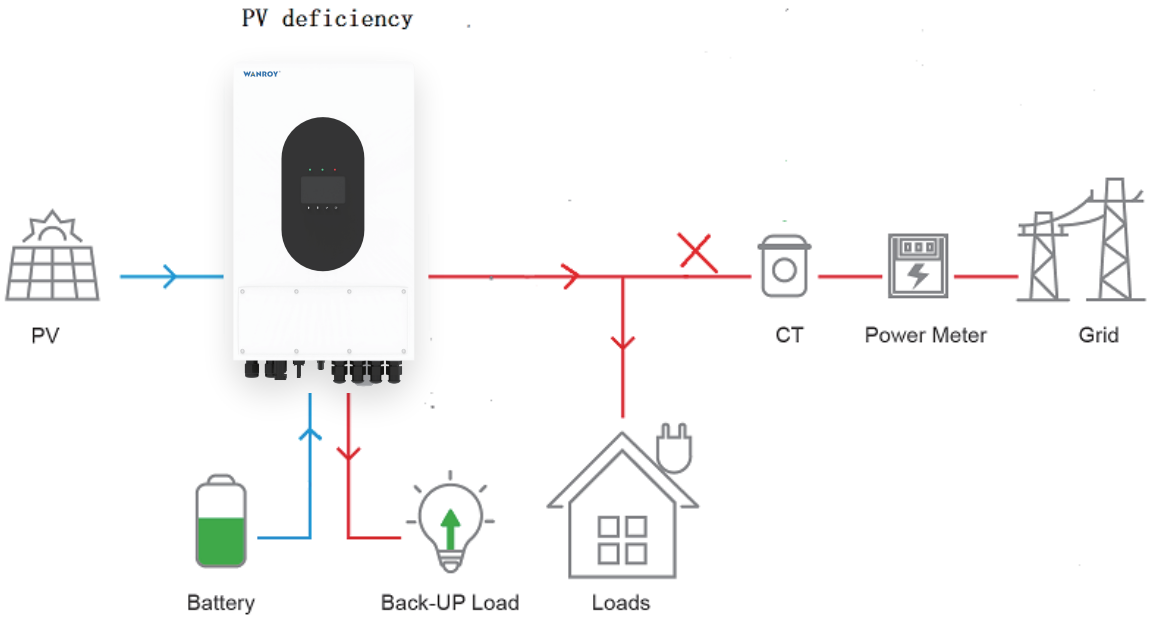
This series of hybrid inverters has the following main working modes:

9.1 Self-Generation and Self-Consumption Mode:

PV energy is given priority for meeting load demand. When PV energy is insufficient to meet the load demand, the battery is discharged to provide power. When PV energy exceeds the load demand, excess energy charges the battery.

Priority order: Load > Battery > Grid

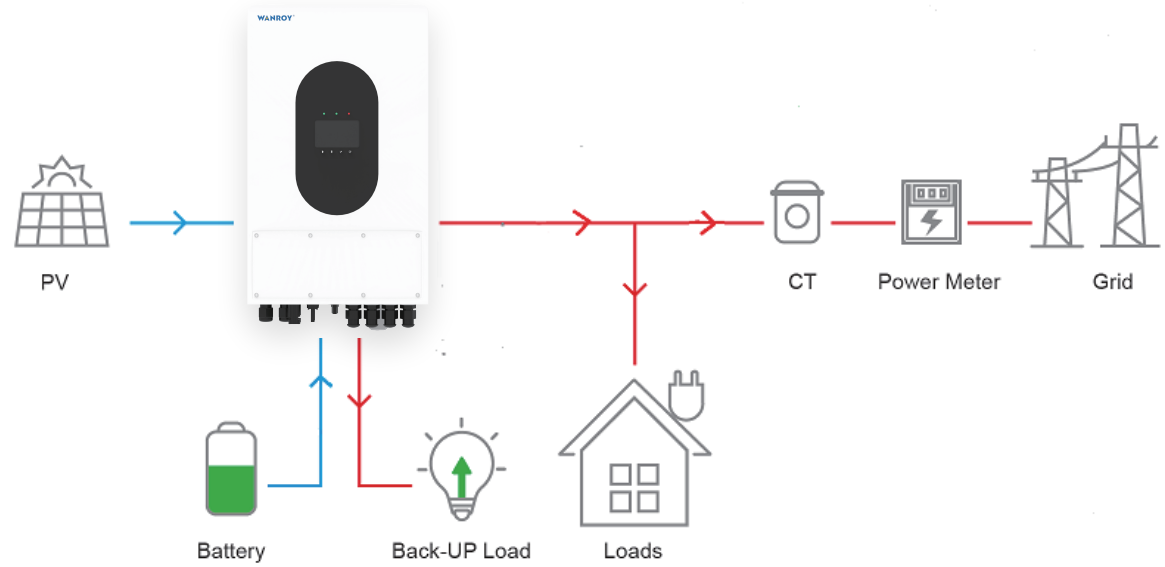




9.2 Electricity Selling Mode:

Energy storage batteries and photovoltaic power generation can sell power to the grid during a set time period.

Priority order: Load > Grid > Battery



10.Technical Parameters

Model	WYIN5K	WYIN46	WYIN36
PV Input (DC)			
Max input power(W)	7000W	6600W	5200W
Max input voltage(V)	500V		
Starting voltage	150V		
PV input voltage range	150V ~ 500V		
MPPT voltage range	120V ~430V		
MPPT quantity	2		
Number of Strings per MPPT	1		
Max. Input Current per MPPT (A)	15A		
AC Output Data			
Model	WYIN5K	WYIN46	WYIN36
Nominal Apparent Power Output to Utility Grid (W)	5000W	4600W	3600W
Rate Power（Charge）	5000W	4600W	3600W
Rate Power(Discharge)	5000W	4600W	3600W
Max. Apparent Power Output to Utility Grid (VA)	5500VA	4600VA	3960VA
Max. AC Current Output to Utility Grid (A)	23.9A	20A	17.2A
Nominal Output Voltage (V)	230V		
Nominal AC Grid Frequency (Hz)	50Hz		
Max. Total Harmonic Distortion	<3%		
Power Factor （cos ）	~0.99 (Adjustable from 0.8 leading to 0.8 lagging)		

AC Output Data (Back-up)			
Model	WYIN5K	WYIN46	WYIN36
Back-up Nominal Apparent Power (W)	4500W	4500W	3600W
Nominal Output Voltage (V)	230V		
Nominal Output Freqency (Hz)	50Hz (60Hz optional)		
Switch Time	<20ms (capacitive load); <10ms (resistive load)		
Total Harmonic Distortion (Linear Load)	<3%		
Overload Capacity	110% 30s / 120% 10s / 150% 80ms		
Battery			
Model	WYIN5K	WYIN46	WYIN36
Battery Voltage Range (V)	41.6~ 58.5		
Max. Continuous Charging Current (A)	95A(PV&AC hybrid charging)	95A(PV&AC hybrid charging)	80A(PV&AC hybrid charging)
Max. Continuous Discharging Current (A)	100A	100A	85A
Battery Type	Lithium / Lead-Acid		
Communication Way	RS485/CAN		

Conversion Efficiency	
Model	WYIN5K
Max. Efficiency	97.8%
EU Efficiency	97%
Max. Battery to AC Efficiency	95%
MPPT Efficiency	99.99%
IP Rate	IP65
Noise	<35dB
Operating Temperature Range (°C)	-25°C~+60°C
Cooling Method	Free Convection
Relative Humidity	0 to 95 %, non-condensing
Installation Altitude above Sea Level	Up to 2000 m above sea level
Self-consumption at Night (W)	<10W
Display	LCD
Communications	USB/RS485/CAN
Warranty	5 years
Dimensions (H x W x D mm)	580 x 350 x 230mm
Weight	25kg

WANROY

WANROY TECHNOLOGY COMPANY LIMITED

WANROYTECH.COM

WhatsApp: +86 189 2675 1724

E-Mail: support@wanroytech.com

Address: ROOM 13, 27/F,
HO KING COMMERCIAL CENTRE,
2-16 FA YUEN STREET,
MONGKOK,KOWLOON,
HONGKONG