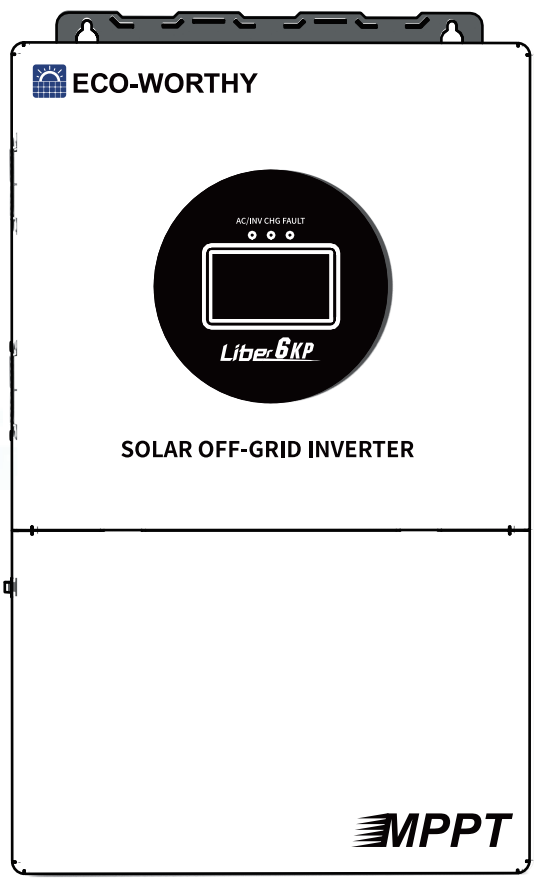
ECO-WORTHY
ENERGY FOR INDEPENDENCE

Version: A-1 V1.01

Solar Powered Off-grid Split-phase Inverter



Model:ECO-INV-48V6000WES01

SUPPORT

If you encounter technical issues and cannot find a solution in this manual, please contact ECO-WORTHY for further assistance.

·Call:+1 713-906-2097(US&CA)
+49 6175-6514-999(DE)
+44 755-340-6988(UK)

·Web:https://www.eco-worthy.com/

·E-mail: essvipsupport@eco-worthy.com.cn

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1. Safety Precautions

1.1 How to Use This Manual

• This manual contains important information, guidelines, operation instructions, and maintenance details for the following models:E-CO-INV-48V6000WES01.

• Installation, layout, electrical wiring, system commissioning, as well as operation, maintenance and overhaul of this inverter must be carried out only by personnel with corresponding professional qualifications. Ordinary non-professional users and individuals without valid and legal operation qualifications are strictly prohibited from conducting unauthorized operations.

• Personnel must strictly comply with current national standards and specifications related to electrical safety, as well as the technical and safety requirements specified in this manual throughout the entire operation process. Any personal safety accidents, equipment damage, and associated derived risks, economic and legal liabilities arising from non-compliant operations or unauthorized work shall be independently borne by the installation entity and responsible party.

• This manual must be properly kept by the user or certified operator to ensure it is available for reference at any time. In the event of loss, the electronic version may be downloaded from the official website, or requested from the service department via email.

1.2 Meanings of Symbols in the Manual

Symbol	Description
	**DANGER:** Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	**WARNING:** Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	**CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
	**NOTICE:** Provides some tips regarding the operation of the product.

Symbol	Description
	DANGER: Indique une situation dangereuse qui, si elle n'est pas évitée, entraînera la mort ou des blessures graves.
	AVERTISSEMENT: Indique une situation dangereuse qui, si elle n'est pas évitée, pourrait entraîner la mort ou des blessures graves.
	ATTENTION: Indique une situation potentiellement dangereuse qui, si elle n'est pas évitée, pourrait entraîner des blessures légères ou modérées.
	AVIS: Fournit quelques conseils concernant le fonctionnement du produit.

1.3 Safety statement

DANGER

• This chapter contains important safety instructions. Please read and keep this manual for future reference.

• Ensure compliance with local requirements and regulations when installing this inverter.

• Live operation is prohibited! Disconnect power before installation, removal, or wiring.

• To achieve optimal performance of the inverter, select appropriate cable sizes and necessary protective devices in accordance with specifications.

• Do not disassemble, connect, or disconnect any cables during operation.

• Strictly follow the sequence when switching on/off the circuit breakers for each inverter interface.

• Do not open the terminal cover while the inverter is in operation.

• Ensure the inverter is properly grounded.

• Do not cause short circuits between AC output and DC input.

• Do not disassemble the unit. All maintenance and repairs must be performed by a professional service center.

• Never charge a frozen battery.

DANGER

• Ce chapitre contient des consignes de sécurité importantes. Veuillez lire ce manuel attentivement et le conserver pour référence ultérieure.

• Veillez à respecter les exigences et réglementations locales lors de l'installation de cet onduleur.

• L'exploitation sous tension est interdite ! Coupez l'alimentation avant toute installation, démontage ou câblage.

• Pour assurer les performances optimales de l'onduleur, sélectionnez des sections de câble adaptées et des dispositifs de protection nécessaires conformément aux spécifications.

• Ne démontez, ne connectez ni ne déconnectez aucun câble pendant le fonctionnement.

• Respectez strictement l'ordre de séquence lors de la mise sous tension ou de la mise hors tension des disjoncteurs de chaque interface de l'onduleur.

• Ne pas ouvrir le capot du terminal pendant le fonctionnement de l'onduleur.

• Veillez à ce que l'onduleur soit correctement mis à la terre.

• Ne provoquez pas de court-circuit entre la sortie CA et l'entrée CC.

• Ne démontez pas l'appareil. Toute maintenance et réparation doivent être effectuées par un centre de service professionnel.

• Ne chargez jamais une batterie gelée.

2. Product Introduction

2.1 Product Description

The series of energy storage hybrid inverters connect, coordinate, and control photovoltaic systems, energy storage batteries, the power grid, and loads. They provide stable, safe, and clean electrical energy for residential, commercial, and industrial users, meeting energy demands in various scenarios

2.2 Product Features

• Supports various types of energy storage batteries, such as lead - acid batteries and lithium - ion batteries.

• Supports single-phase and split-phase pure sine wave output.

• Supports voltage adjustment for each phase within the range of 100 to 130V.

• Supports single-channel photovoltaic input and features the function of simultaneously tracking MPPT maximum power charging/carrying capacity for one channel. The MPPT efficiency reaches up to 99.9%, and the maximum short-circuit current per channel is 27A.

• Features two output modes: mains bypass and inverter output, and has an uninterruptible power supply function.

• Offers two charging modes: photovoltaic only,and hybrid charging.

• Supports timed battery charging and timed battery discharging.

• The single - unit energy - saving mode function reduces no - load energy loss.

• Equipped with multiple protection functions to comprehensively protect the safety of photovoltaic panels, batteries, loads, and the controller itself.

• Features a capacitive intelligent touch - screen, menu - based operation, and intuitive and convenient parameter setting.

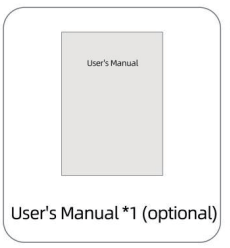
• Supports 256 event records; supports 512 days of historical data storage.

• Built - in Bluetooth and WiFi , providing native cloud - platform access capabilities. It can automatically synchronize time after connection.

2.3 Product Packaging

• Parts List

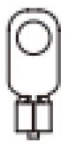
The accessories of this product shall be consistent with those listed herein. (Note: Optional accessories are provided as required and are not included as standard.)Pictures are for reference only; the actual product shall prevail.

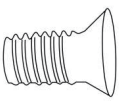


User's Manual *1 (optional)

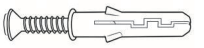


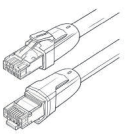
Quick Installation Guide *1 (optional)


SC70-8 Copper Nose*2


M4 Black Phillips Countersunk Screws *4


M6 Metal Expansion Bolts *2


M8 Plastic Expansion Screws *1

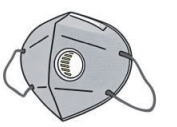

Parallel Connection Cable*1 (optional)

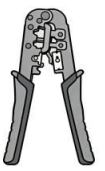
• Installation Tool List


Goggles


Safety Gloves


Safety Shoes


Dust Mask


RJ45 Crimping Tool


Diagonal Pliers


Wire Stripper


DC Terminal Crimping Tool


Hammer Drill


Marker

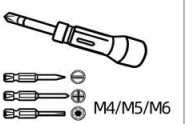

Rubber Hammer


Level


DC Wiring Wrench


Multimeter


Cable Tie



Torque Wrench

2.4 System Connection Diagram

The following figure shows the system application scenarios of this product. A complete system consists of the following parts:

1.Photovoltaic Modules: These convert light energy into DC electrical energy. They can charge the battery through the inverter or be directly inverted into AC power to supply power to the load.

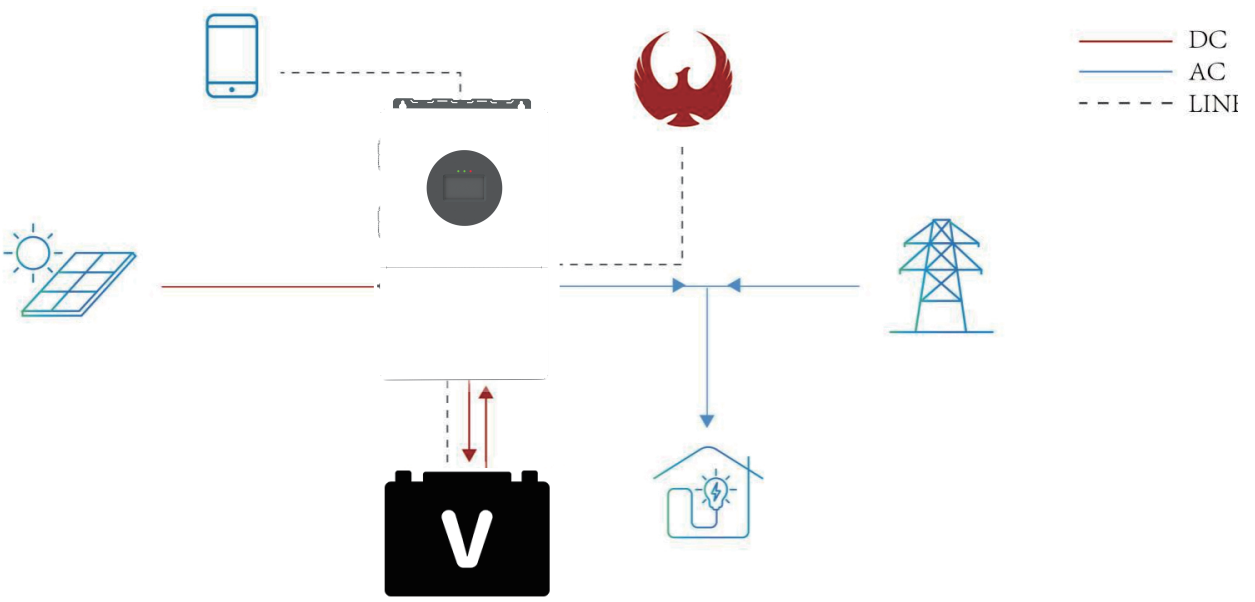
2.Mains Power or Generator: Connected to the AC input, it can supply power to the load and charge the battery simultaneously. When the battery and photovoltaic modules supply power to the load, the system can generally operate without mains power or a generator.

3.Battery: The function of the battery is to ensure the normal power supply to the system load when the photovoltaic power is insufficient or there is no mains power.

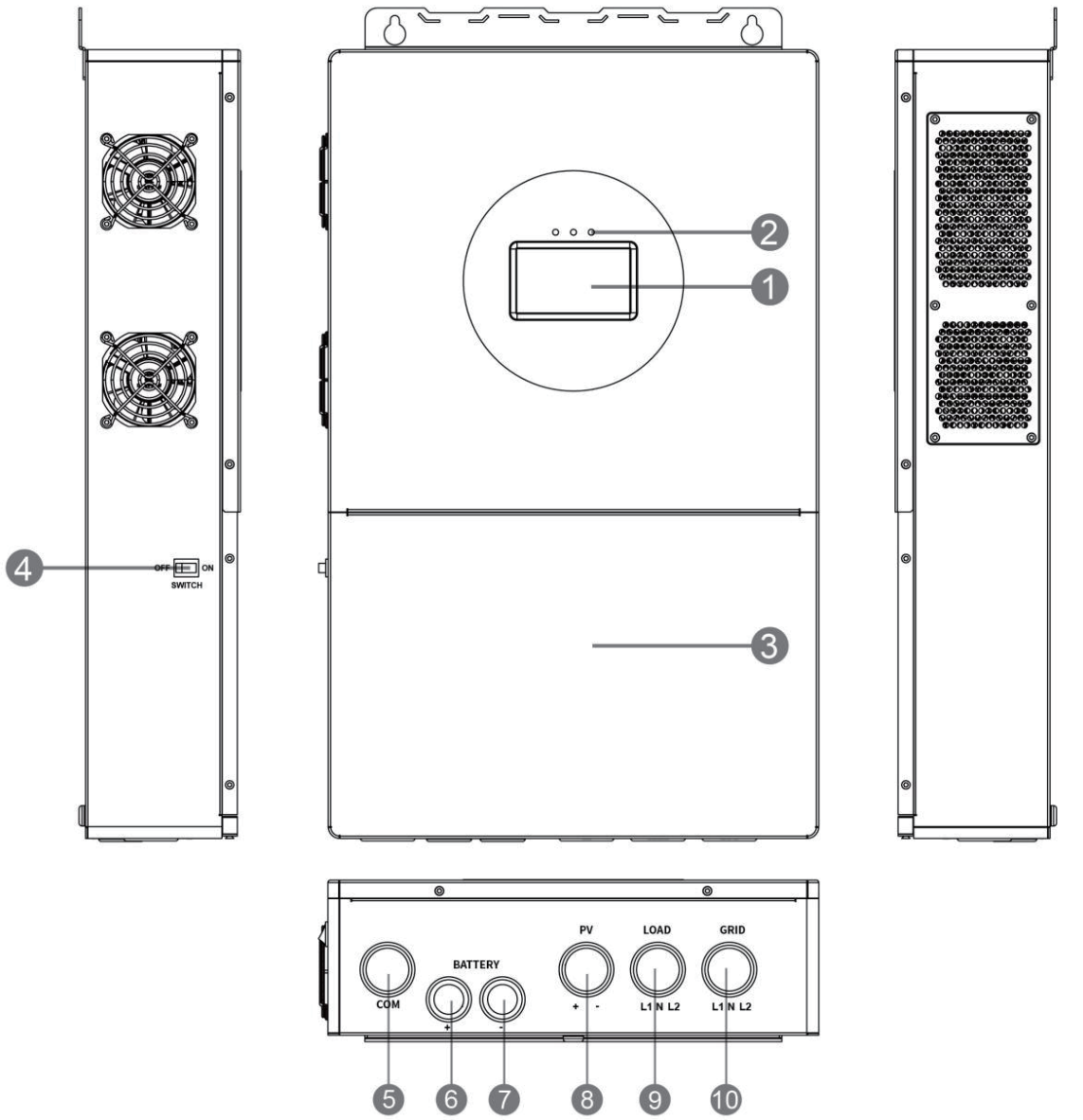
4.Load: Various household and office loads can be connected, including refrigerators, lights, televisions, fans, air conditioners, and other AC loads.

5.Inverter: It is the energy conversion device of the entire system.

Actual application scenario diagram:



2.5 Product Overview



1	Capacitive touch screen	**2**	LED indicator	**3**	Terminal protection cover
4	ON/OFF rocker switch	**5**	Parallel Communication Port	**6**	Battery Interface (Positive)
7	Battery Interface (Negative)	**8**	Photovoltaic Interface	**9**	AC output
10	AC input				

2.6 Product Parameter Table

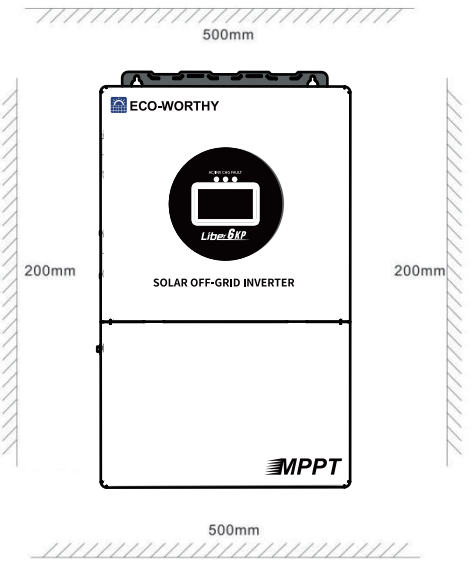
Model	ECO-INV-48V6000WES01
Inverter Output	
Rated Output Power	6,000W
Peak output power	12,000W
Rated Output Voltage	a.c.120/240V,220V (Single-phase/Split-phase)
Operating Frequency Range	a.c.55-65Hz
Output waveform	Pure sine wave
Switching time	10ms (typical value)
Battery	
Battery type	Lithium - ion battery / Lead - acid battery
Rated Battery Voltage	d.c.48V
Voltage range	d.c.40～60V
Max. charge/discharge current	d.c.120A
Photovoltaic Input	
Number of input strings	1
Max. input power	9000W
Max. input current	d.c.22A
Isc PV(absolute maximum)	d.c.27A
Max. PV input voltage	d.c.500V
MPPT voltage range	d.c.125~425V
Mains Power/Generator Input	
Input Voltage Range	a.c.90V~140V
Rated Frequency	60Hz,60Hz
Current(maximum continuous)	a.c.45A
Efficiency	
MPPT Efficiency	99.9%
Maximum Efficiency of Battery Inversion	93%
General	
Dimensions(W*H*D)	412*662*130mm (Without Bracket)
Weight	18.7 (Net weight)
Ingress protection	Type 1, For indoor use only
Operating ambient temperature	-10~55°C,>45°C Derating
Noise Level @ 1m	⩽45dB @ 25°C (77°F)
Type of Cooling	Intelligent Air Cooling
Warranty	1 Year
Communication	
Communication method	RS485/CAN//WiFi/Bluetooth/4G (Optional)
Certification	
Overview	UL 1741, CSA-C22.2 No.107.1-16, FCC SDOC Part 15B

3. Installation

3.1 Selecting the Installation Location

This product is for indoor use only (protection level IP20). Before choosing an installation location, users should consider the following factors:

· Select a sturdy wall for inverter installation.
· Install the inverter at a height level with the line of sight.
· Ensure sufficient clearance around the inverter: ⩾200mm on both sides and ⩾500mm at the top.
· Ambient temperature: -10~55°C; avoid direct sunlight, humidity, and dust! To ensure optimal operation.



DANGER

- Do not install the inverter near highly flammable materials.
- Do not install the inverter in potentially explosive areas.
- Do not install the inverter and lead - acid batteries in an enclosed space.

WARNING

- Do not install the inverter in direct sunlight.
- Do not install or use the inverter in a humid environment.

DANGER

- Ne pas installer l'onduleur à proximité de matières hautement inflammables.
- Ne pas installer l'onduleur dans des zones à risque d'explosion.
- Ne pas installer l'onduleur et les batteries au plomb-acide dans un espace fermé.

AVERTISSEMENT

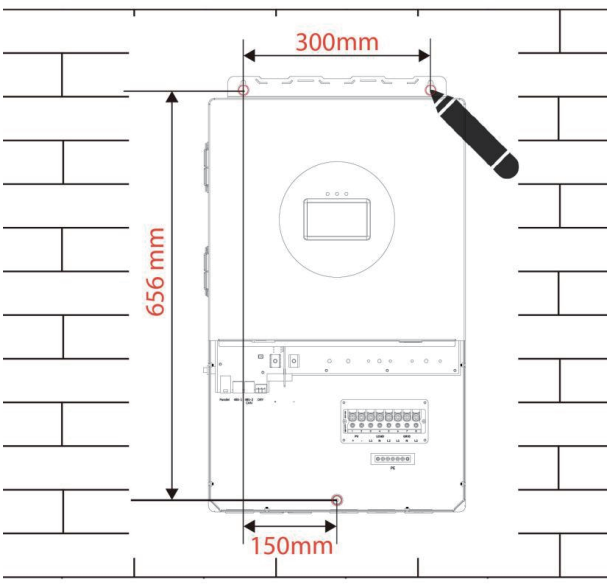
- Ne pas installer l'onduleur à la lumière directe du soleil.
- Ne pas installer ni utiliser l'onduleur dans un environnement humide.

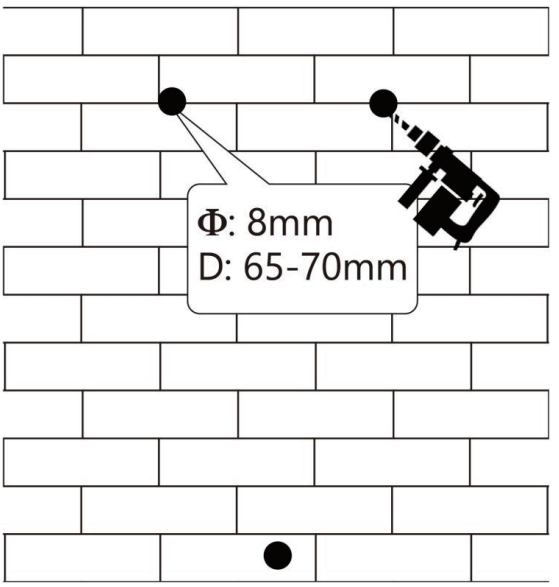
3.2 Install the Machine

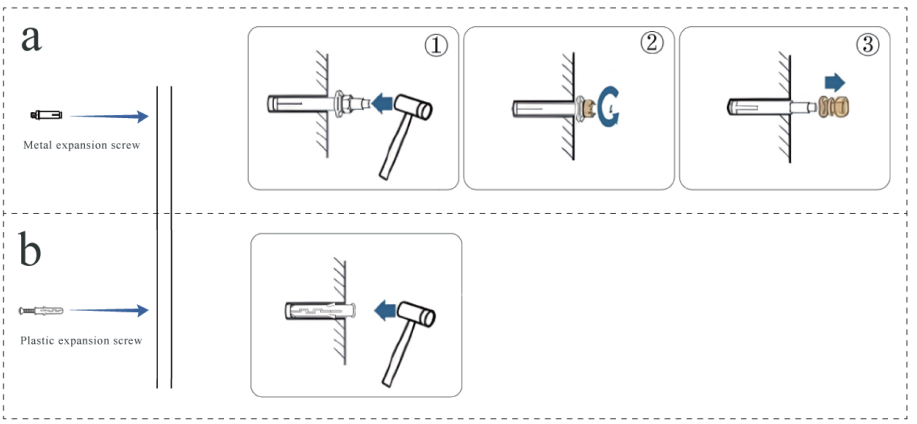
3.2.1 Installing the expansion screws

Drill 3 mounting holes on the wall with an electric drill according to the specified dimensions and the hole positions on the inverter.

a. Tap the metal expansion bolts into the wall, tighten the nuts to expand the expansion feet of the expansion bolts; then remove the washers and nuts.
b. Tap the plastic expansion tubes into the wall.

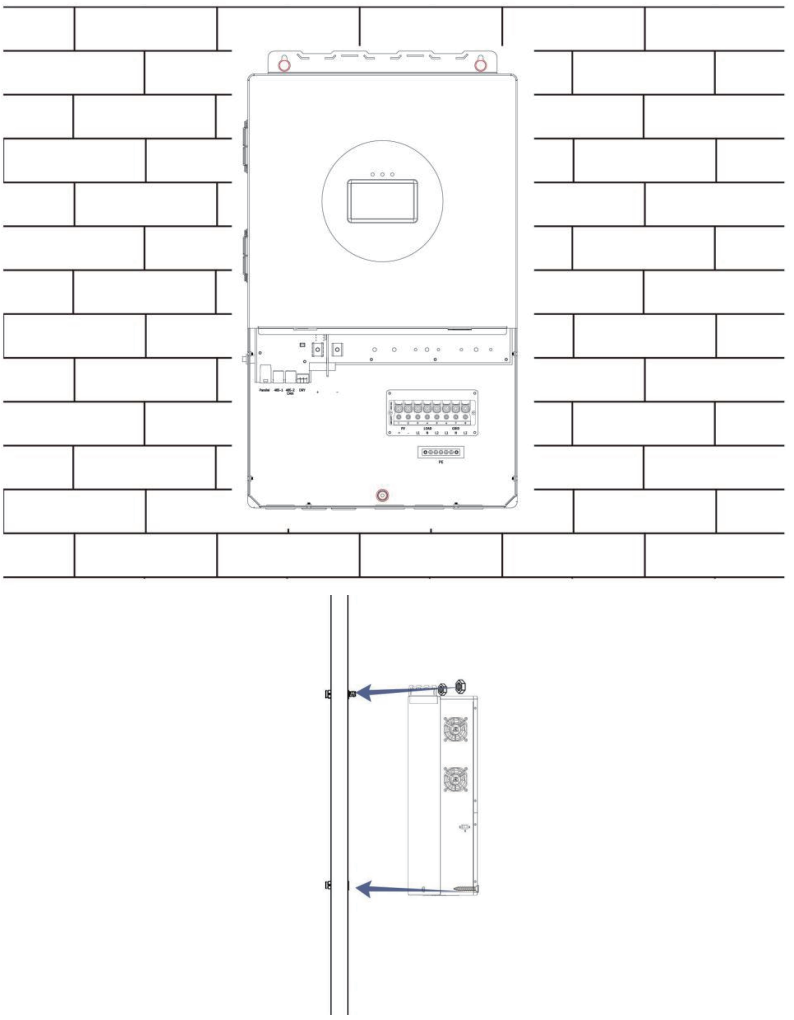






3.2.2 Installing the Inverter

Align the inverter with the pre drilled load bearing wall and fix it in place. Tighten the nuts of the metal expansion bolts, then screw in the plastic expansion screws to ensure firm and reliable installation.



NOTICE

• When using the equipment in areas with poor air quality, the dust - proof net is prone to being blocked by airborne particles. Regularly disassemble and clean the dust - proof net to avoid affecting the internal air flow velocity of the inverter. Otherwise, it may trigger the over - temperature protection fault of components, affecting power supply and the service life of the inverter.

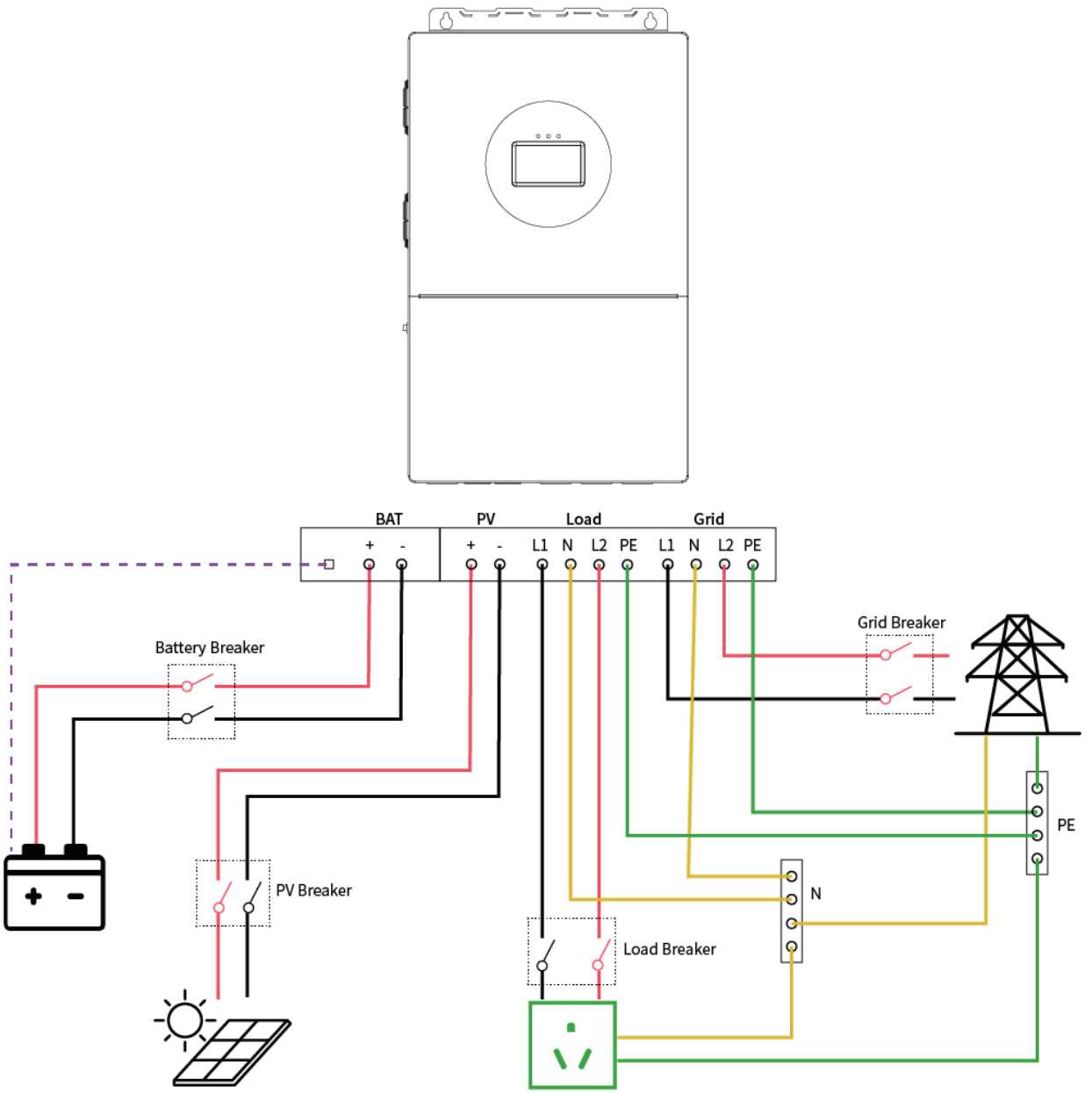
AVIS

• Lors de l'utilisation de l'équipement dans des zones à faible qualité de l'air, le filtre à poussière sera obstrué par les particules présentes dans l'air. Veuillez démonter et nettoyer régulièrement le filtre à air afin d'éviter de perturber le débit d'air interne de l'onduleur, ce qui pourrait entraîner un dysfonctionnement de la protection contre la surchauffe de l'appareil, nuire à l'alimentation électrique et réduire la durée de vie de l'onduleur.

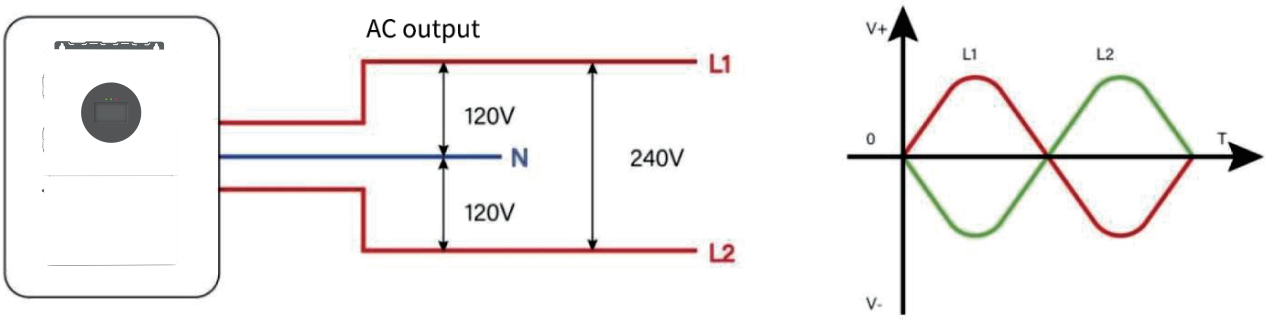
4. Wiring

4.1 Single Unit Split-Phase Wiring Diagram

⚠ Do not reverse the positive and negative battery!

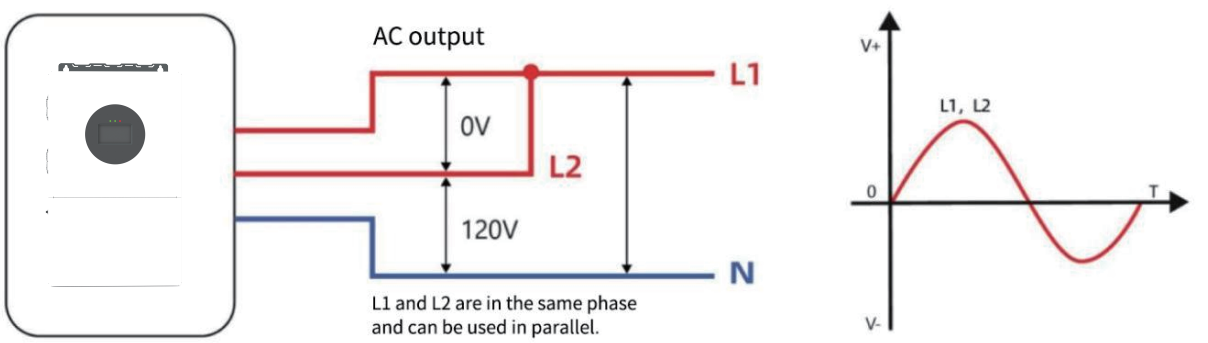


4.2 Split-phase Mode



Item	Description
Applicable Models	ECO-INV-48V6000WES01
AC Output Phase Voltage (L - N)	100~130V, 120V default
AC Output Line Voltage (L1 - L2)	200~260V, 240V default

4.3 Single-phase mode



Item	Description
Applicable Models	ECO-INV-48V6000WES01
AC Output Phase Voltage (L - N)	100~130V, 120V default

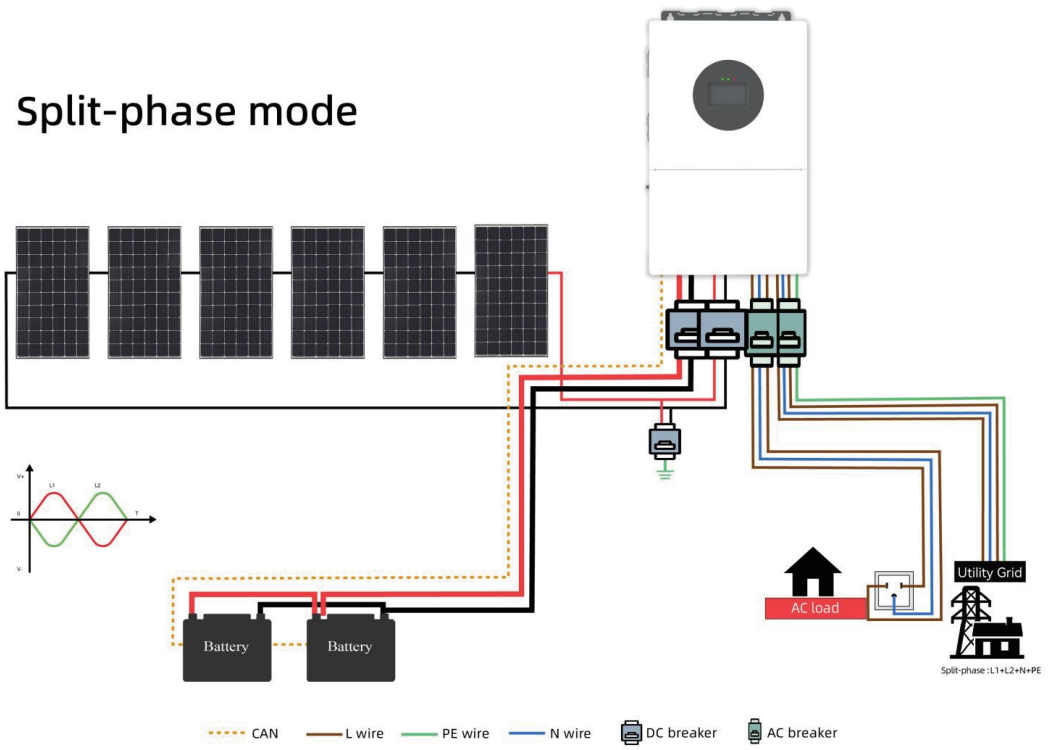
NOTICE

- Users can change the output voltage through the setting menu.
- The output voltage can be set within the range of100V to 130V.

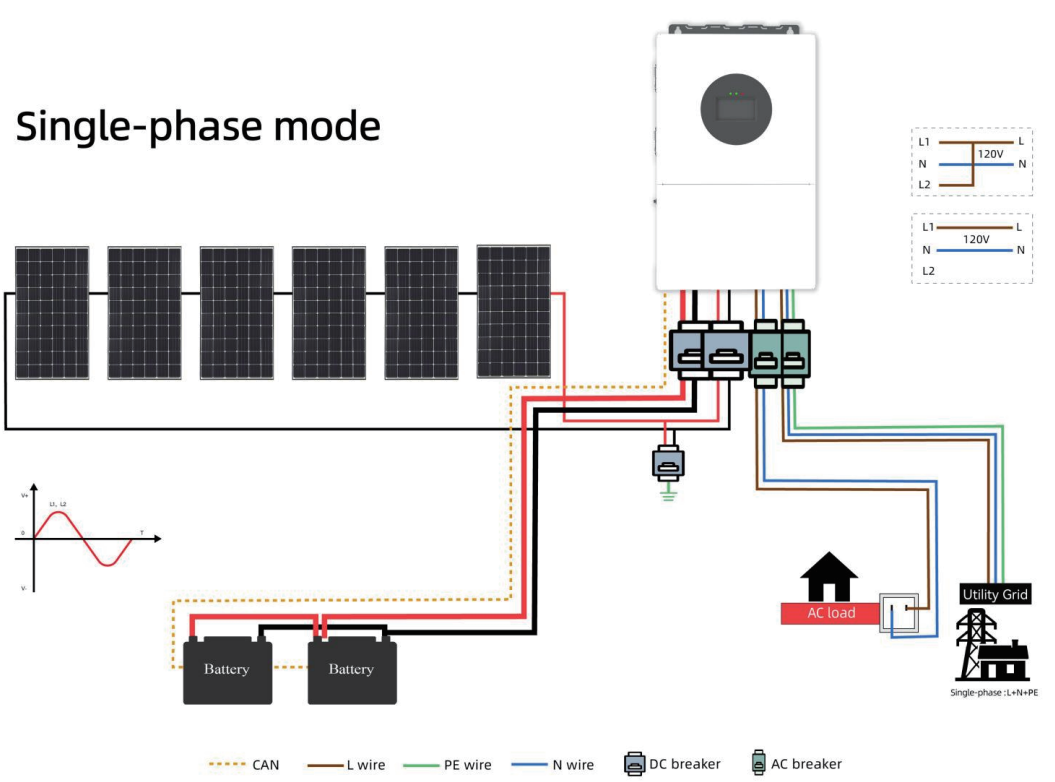
AVIS

- L'utilisateur peut modifier la tension de sortie via le menu de paramètres..
- La tension de sortie peut être réglée dans la plage de 100 V à 130 V.

Split-phase mode



Single-phase mode



4.4 Cable and Circuit Breaker Selection

- **Photovoltaic input**

Model	Wire Diameter	Maximum Input Current	Circuit Breaker Specification
ECO-INV-48V6000WES01	6mm²/ 10 AWG	27A	2P-32A

- **AC Input**

Model	Output Mode	Maximum Current	Wire Diameter	Circuit Breaker Specification
ECO-INV-48V6000WES01	Split-phase/ Single-phase	45A (L1/L2/N)	10mm²/ 8 AWG (L1/L2/N)	3P-50A

- **Photovoltaic input**

Model	Wire Diameter	Maximum Input Current	Circuit Breaker Specification
ECO-INV-48V6000WES01	50mm²/ 1 AWG	120A	2P-125A

- **AC Output**

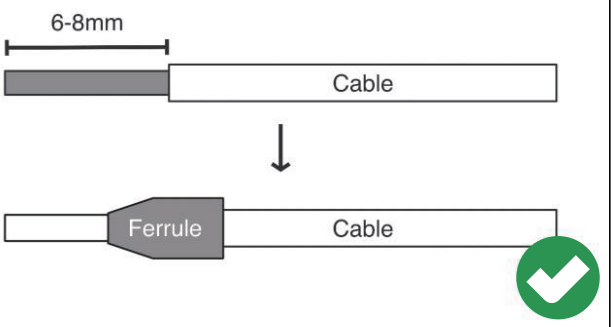
Model	Output Mode	Maximum Current	Wire Diameter	Circuit Breaker Specification
ECO-INV-48V6000WES01	Split-phase/ Single-phase	45A (L1/L2/N)	10mm²/ 8 AWG (L1/L2/N)	3P-50A

NOTICE

• For the photovoltaic input, AC input, and AC output terminals.

1. Use a wire stripper to remove 6 - 8mm of the insulation layer of the cable.

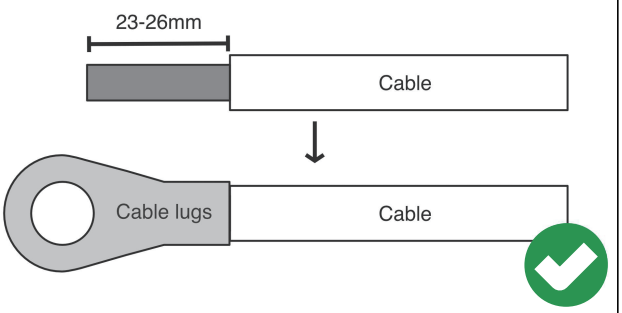
2. Fix a ferrule at the end of the cable (the ferrule needs to be prepared by the user).



• Battery Terminal

1. Use a wire stripper to remove 23 - 26mm of the insulation layer of the cable.

2. Fix the cable lugs (provided with the box) at the end of the cable.

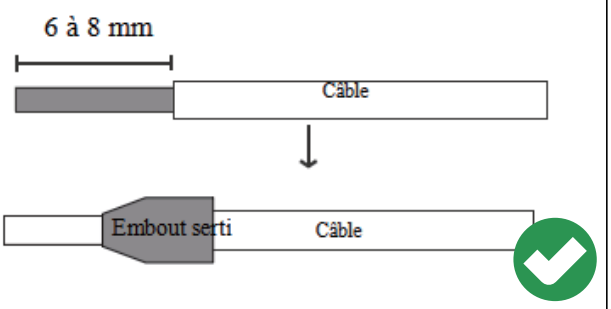


AVIS

• Pour les bornes d'entrée photovoltaïque, d'entrée CA et de sortie CA.

1. Utilisez un décapant de fils pour retirer 6 à 8 mm de la gaine isolante du câble.

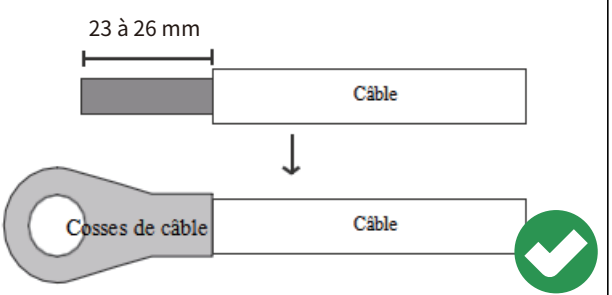
2. Fixer un embout serti à l' extrémité du câble (l' embout serti doit être fourni par l' utilisateur).



• Borne de batterie

1. Utilisez un décapant de fils pour retirer 23 à 26 mm de la gaine isolante du câble.

2. Fixer les cosses de câble (fournies avec le coffret) à l' extrémité du fil.

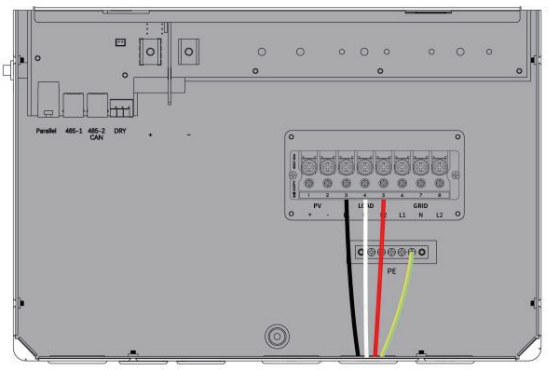


4.5 AC Input and Output Wiring

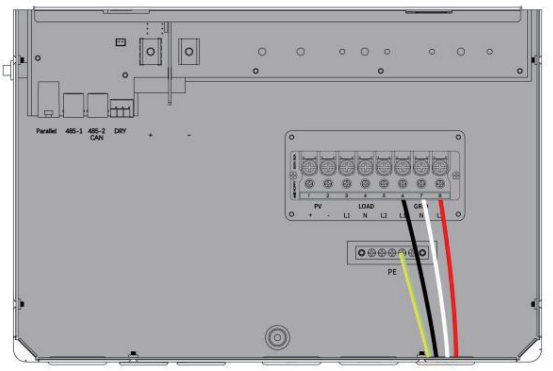
Connect the live wire, neutral wire, and ground wire according to the cable position and sequence shown in the figure below.

4.5 AC Input and Output Wiring

Connect the live wire, neutral wire, and ground wire according to the cable position and sequence shown in the figure below.



AC Output



AC Input

DANGER

- Only one neutral-to-earth bond is permitted in the system.
- Reversing the L/N wires will cause faults or equipment damage.
- Incorrect connection between grid input and load output may result in faults or damage.
- It is strictly prohibited to leave any interface disconnected or improperly connected.
- Before connecting AC input and output, the circuit breaker must be turned off to avoid electric shock hazards. Live working is strictly forbidden.

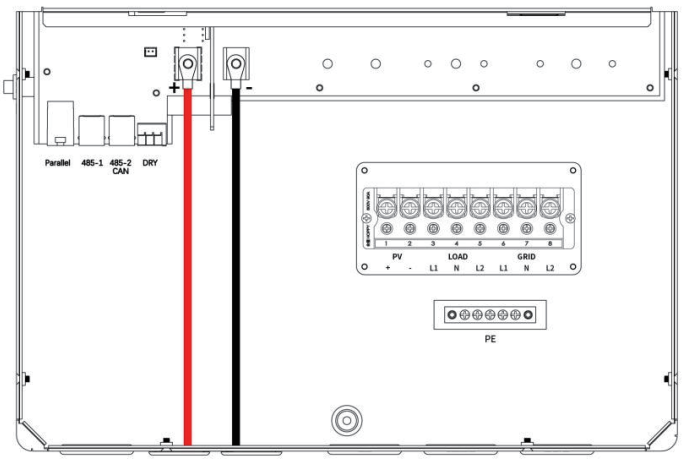
Ensure the cables used meet the requirements. Undersized or poor-quality cables pose serious safety risks

DANGER

- Une seule liaison neutre-terre est autorisée dans le système.
- L'inversion des câbles phase/neutre entraînera des défauts ou des dommages à l'équipement.
- Une connexion incorrecte entre l'entrée au réseau et la sortie de charge peut entraîner des défauts ou des dommages.
- Il est strictement interdit de laisser une interface déconnectée ou mal connectée.
- Avant de connecter l'entrée et la sortie CA, le disjoncteur doit être ouvert afin d'éviter tout risque d'électrocution. L'intervention sous tension est strictement interdite.
- Veillez à ce que les câbles utilisés satisfassent aux exigences. Des câbles de section insuffisante ou de mauvaise qualité présentent des risques de sécurité graves.

4.6 Battery Wiring

Connect the positive and negative cables of the battery according to the cable position and sequence shown in the figure below.



DANGER

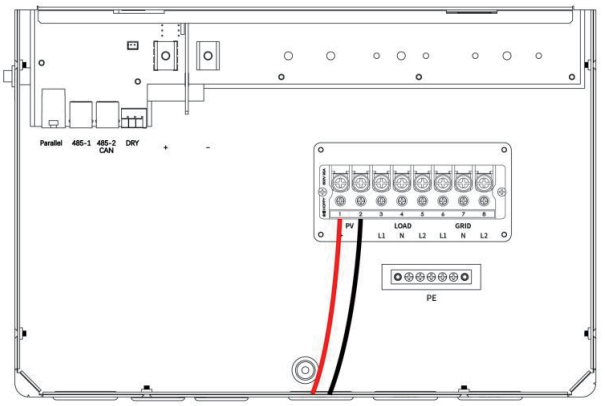
• Successful communication between the lithium-ion battery and the inverter is mandatory.
• Before connecting the battery, the circuit breaker must be disconnected to avoid the danger of electric shock. Do not operate with electricity.
• Please ensure that the positive and negative poles of the battery are connected correctly. Do not reverse the connection, otherwise, it may damage the inverter.
•Please check whether the cable used is sufficient to meet the requirements. Cables that are too thin or of poor quality may pose serious safety hazards.

DANGER

• Une communication réussie entre la batterie lithium-ion et l'onduleur est obligatoire.
• Avant de connecter la batterie, le disjoncteur doit être ouvert afin d'éviter tout risque d'électrocution. Ne pas intervenir sous tension.
• Veuillez vous assurer que les pôles positif et négatif de la batterie sont correctement connectés. Ne pas inverser la polarité, sinon l'onduleur risque d'être endommagé.
• Veuillez vérifier que la section du câble utilisé est conforme aux exigences. Des câbles trop fins ou de mauvaise qualité peuvent présenter des risques de sécurité graves.

4.7 Photovoltaic Wiring

Connect the positive and negative wires of the one photovoltaic circuits according to the cable position and sequence shown in the figure below.



DANGER

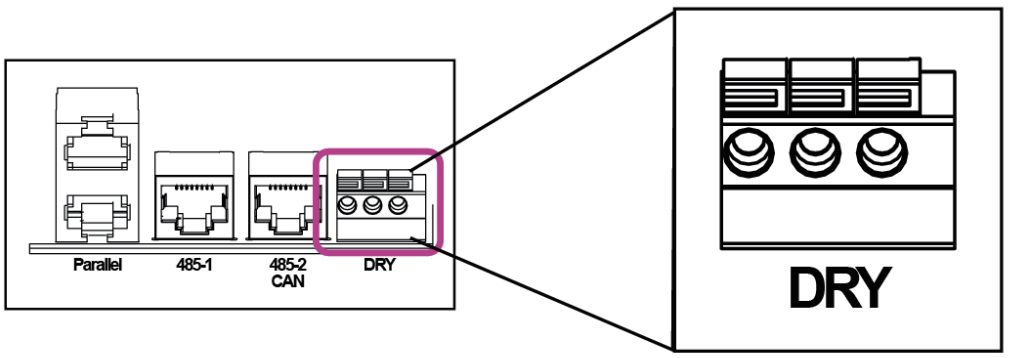
- Before connecting the PV, the circuit breaker must be disconnected to avoid the danger of electric shock, and live operation is not allowed.
- Make sure that the open circuit voltage of the PV module in series does not exceed the maximum open circuit voltage of the inverter (this value is 500V), otherwise the inverter may be damaged.
- Measure the PV voltage first (must be ⩽ the inverter' s maximum input voltage) before turning on the PV interface circuit breaker.
- For the same MPPT tracker, ensure the PV modules have consistent orientation, tilt angle, and specifications.
- The number of PV modules per MPPT channel shall be the same.
- PV interfaces and PV arrays must be used independently. Under no circumstances shall PV arrays or PV interfaces be shared.

DANGER

- Avant de connecter les panneaux photovoltaïques, le disjoncteur doit être ouvert afin d'éviter tout risque d'électrocution, et l'intervention sous tension est interdite.
- Vérifiez que la tension en circuit ouvert des modules photovoltaïques en série ne dépasse pas la tension en circuit ouvert maximale de l'onduleur (cette valeur est de 500 V), sinon l'onduleur risque d'être endommagé.
- Mesurez d'abord la tension photovoltaïque (elle doit être ⩽ la tension d'entrée maximale de l'onduleur) avant de fermer le disjoncteur de l'interface photovoltaïque.
- Pour un même suiveur MPPT, assurez-vous que les modules photovoltaïques présentent une orientation, un angle d'inclinaison et des spécifications concordantes.
- Le nombre de modules photovoltaïques par canal MPPT doit être identique.
- Les interfaces photovoltaïques et les groupes photovoltaïques doivent être utilisés de manière indépendante. En aucun cas, les groupes photovoltaïques ou les interfaces photovoltaïques ne doivent être partagés.

4.8 Dry Contact Wiring

Use a small-sized screwdriver to push in the direction indicated by the arrow, and then insert the communication cable into the dry contact port. (The cross-sectional area of the communication cable is 0.2~1.5mm^2)



4.9 Final Installation

After ensuring that the wiring is reliable and the wire sequence is correct, restore the terminal protection cover to its original position.

4.10 Inverter Start-up

• Step 1: Close the battery circuit breaker.
• Step 2: Press the boat switch at the bottom of the inverter, and the screen and indicator light up, indicating that the inverter has been activated.
• Step 3: Close the circuit breakers of photovoltaic, AC input and AC output in turn.
• Step 4: Start the load one by one in order of power from small to large.

4.11 Parallel Wiring Connection

4.11.1 Introduction

· Ensure the inverter software is updated to the latest version before parallel operation.
· A maximum of 6 inverters can be connected in parallel.
· When using the parallel operation function, correctly, firmly and reliably connect the parallel communication cables.
· Recommended specifications for parallel cables: RJ45 connector (8-pin crystal head), length 2 meters, Cat6 shielded network cable (with ferrite core shielding). The cable connection diagram is as follows:

Parallel line *1



4.11.2 Precautions for connecting parallel connection Wires

1)PV Wiring:

When connecting inverters in parallel, different units must be connected to separate PV arrays or PV sources. Do not connect the same PV source to multiple inverters.

2)Battery Wiring:

When connecting for split-phase parallel operation or split-phase to three-phase parallel operation, all inverters must be connected to the same battery bank. The BAT+ terminals must be interconnected, and the BAT- terminals must be interconnected. Ensure the connections are correct before powering on, and that the wiring length and gauge are identical. Avoid connection errors to prevent abnormal output in the parallel system.

3)AC OUT Wiring:

a)Split-Phase to Split-Phase Parallel Connection Cable

When connecting for split-phase parallel operation, all inverters must have their L terminals interconnected, N terminals interconnected, and PE terminals interconnected. Ensure the connections are correct before powering on, and that the wiring length and gauge are identical. Avoid connection errors to prevent abnormal output in the parallel system.

b)Split-Phase to Three-Phase Parallel Connection Cable

When connecting for split-phase to three-phase parallel operation, all inverters must have their N terminals interconnected and their PE terminals interconnected. The L lines of all units sharing the same phase must be connected together, but the AC output L lines of different phases must not be connected together. Other precautions are the same as those for split-phase parallel inverter connections.

4)AC IN Wiring:

When connecting for split-phase parallel operation,all inverters must have their L terminals interconnected, N terminals interconnected, and PE terminals interconnected. Ensure the connections are correct before powering on, and that the wiring length and gauge are identical. Avoid connection errors to prevent abnormal output in the parallel system. Additionally, do not connect multiple different AC input sources to prevent damage to the inverters or external electrical equipment. Ensure the AC input source is consistent and singular.Split-Phase to

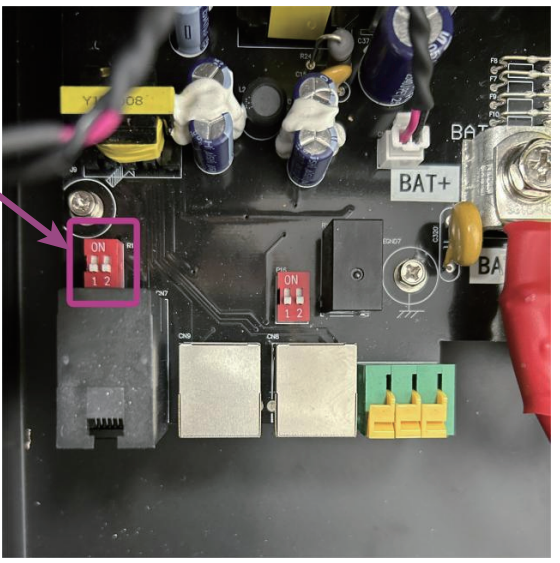
When connecting for split-phase to three-phase parallel operation,all inverters must have their N terminals interconnected and their PE terminals interconnected. The L lines of all units sharing the same phase must be connected together, but the AC input L lines of different phases must not be connected together.

5)Parallel Communication Cable Wiring：

The communication cables are used for split-phase parallel or split-phase to three-phase parallel connections. When connecting the units, follow a daisy-chain approach: the male connector (output) of one unit must connect to the female connector (input) of the unit requiring parallel operation. Do not connect a unit's male connector to its own female connector. Additionally, ensure that all parallel communication cables are securely tightened with screws to prevent loose connections or poor contact, which could lead to abnormal system output or damage.

Reminder: Set the parallel communication pins of the first and last inverters to the ON position, and set the inverters between them to the OFF position.The two switches in the "ON" position correspond to address 1.The switches in the "OFF" position correspond to their respective addresses 0.

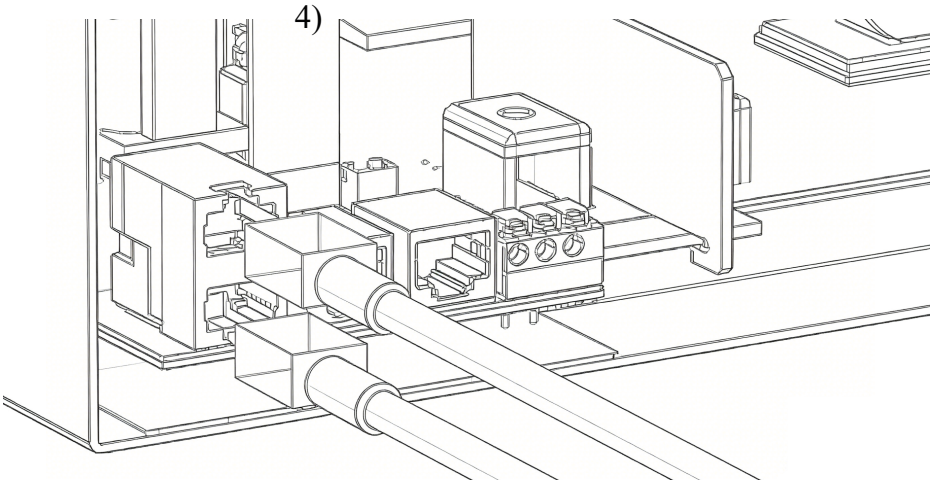
Paralleling communication port DIP switch



4.11.3 Split-phase parallel connection

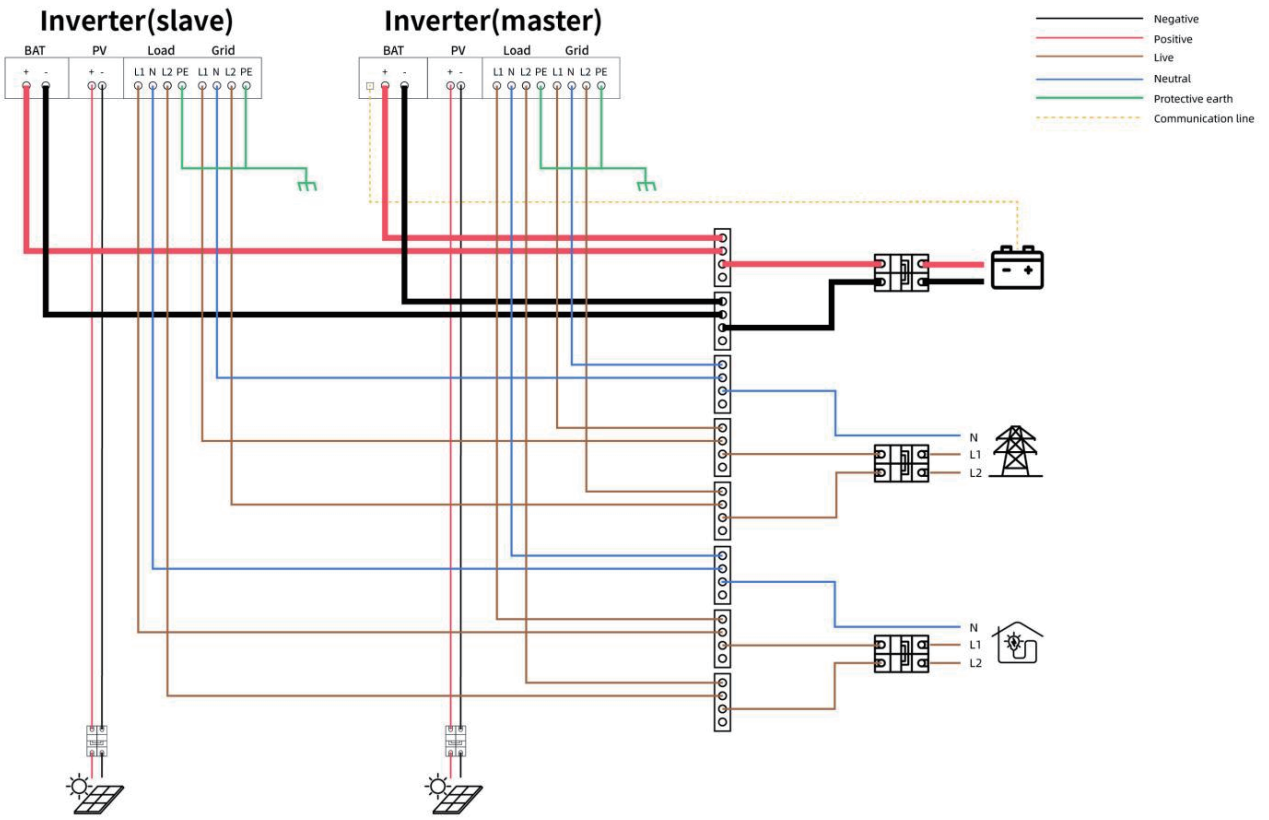
1.The diagram for the connection of communication cables for inverter parallel operation is as follows:

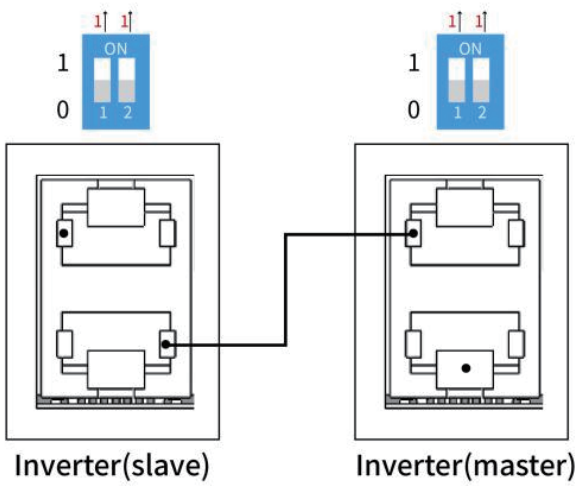
4)



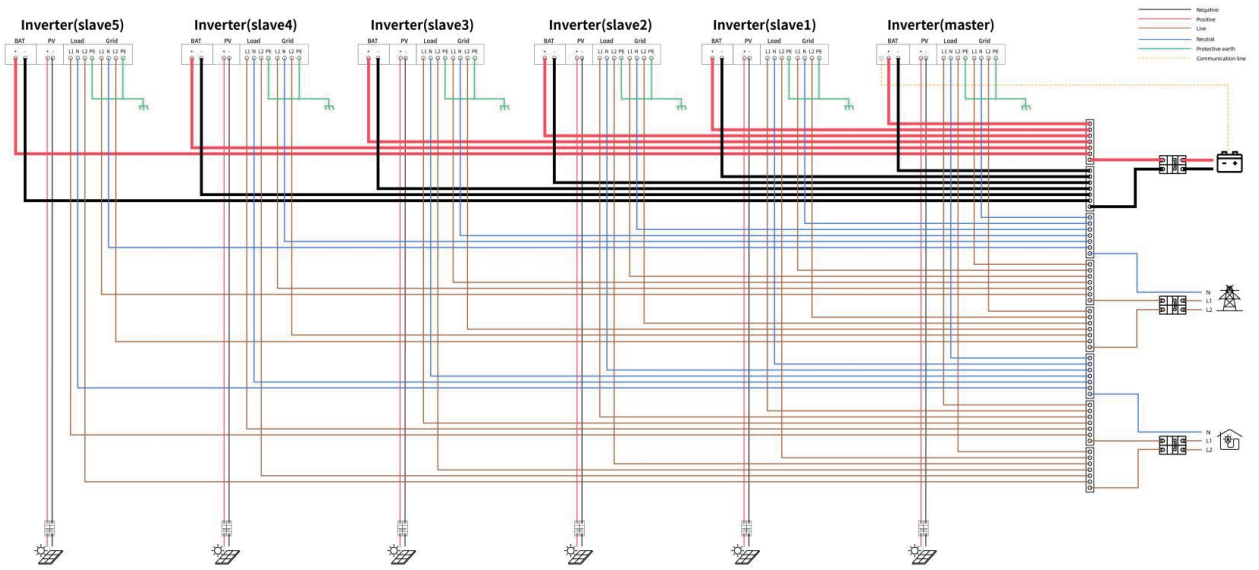
2. When multiple units are connected in parallel, the connection diagram is as follows:

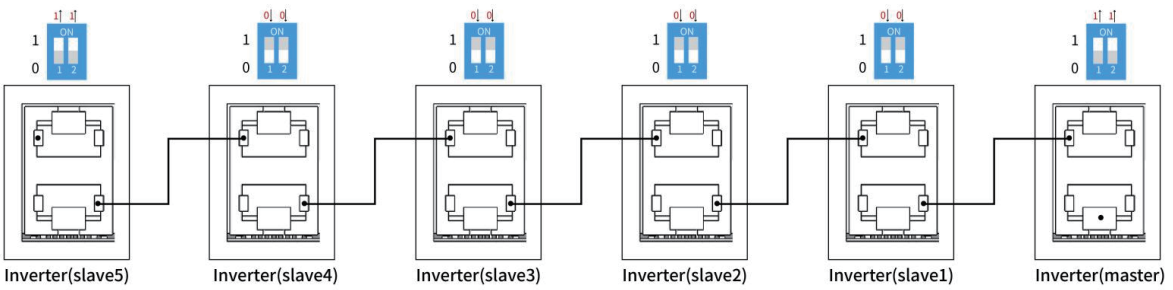
a) Parallel Connection System with Two Inverters:





b) Parallel Connection System with Six Inverters:





DANGER

• Read the instruction manual carefully and follow the guidelines strictly before parallel connection!

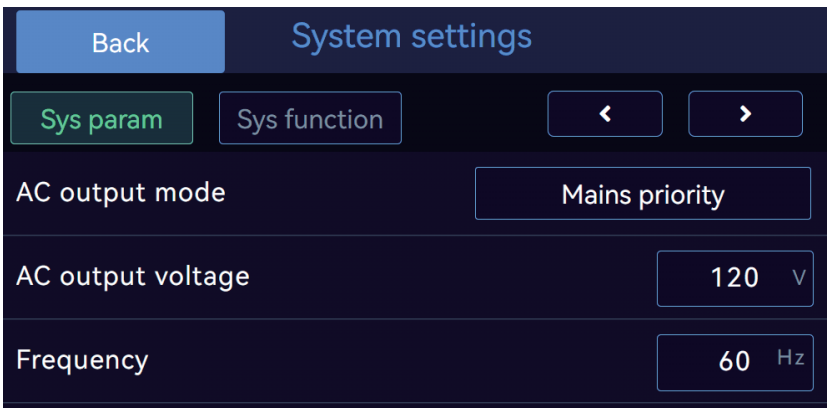
DANGER

• Veuillez lire attentivement le manuel d' instructions et respecter strictement les consignes avant la connexion parallèle !

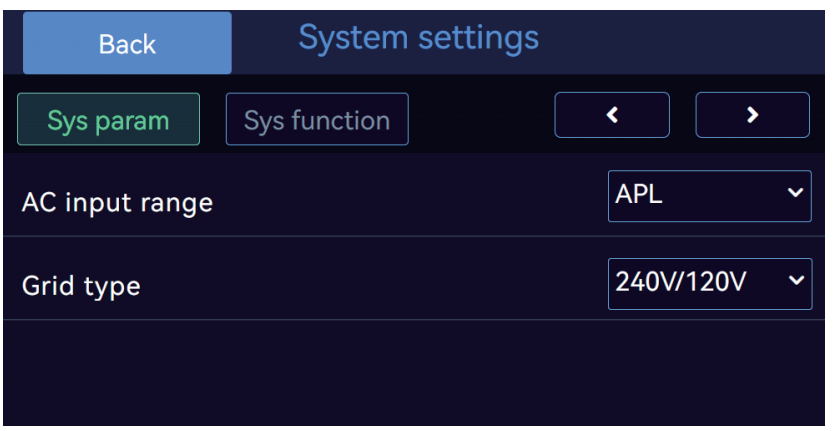
3.Split-Phase Parallel Connection UI Operation Steps:

The following operations must be performed using only battery power after all cables are connected.All other circuit breakers must remain off. First,turn on the master unit's rocker switch while keeping the slave units off to configure the parallel settings on the master.

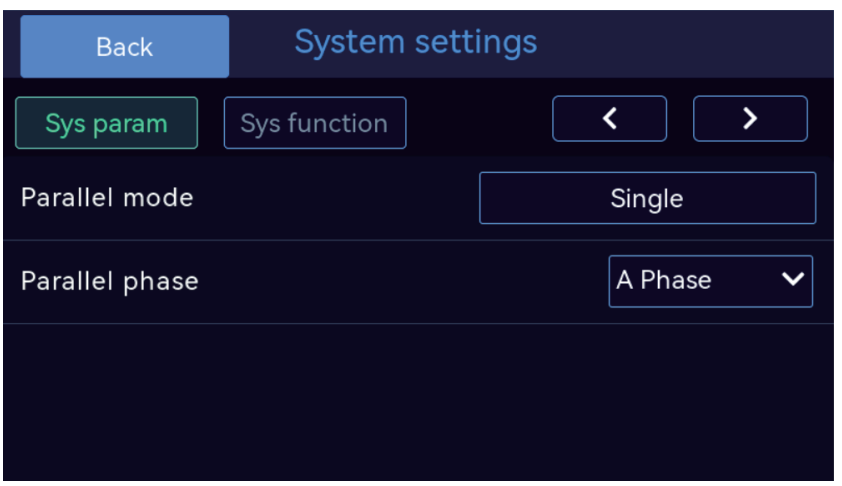
1) Verify that both the UI and software versions are the latest.
2) Ensure the AC output voltage and frequency match the local utility grid.



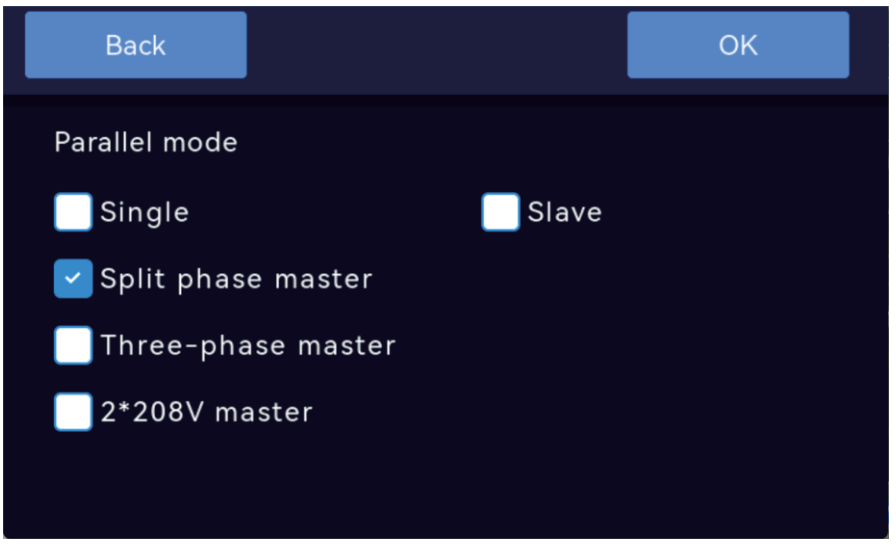
3) Set Grid Type to 240V/120V



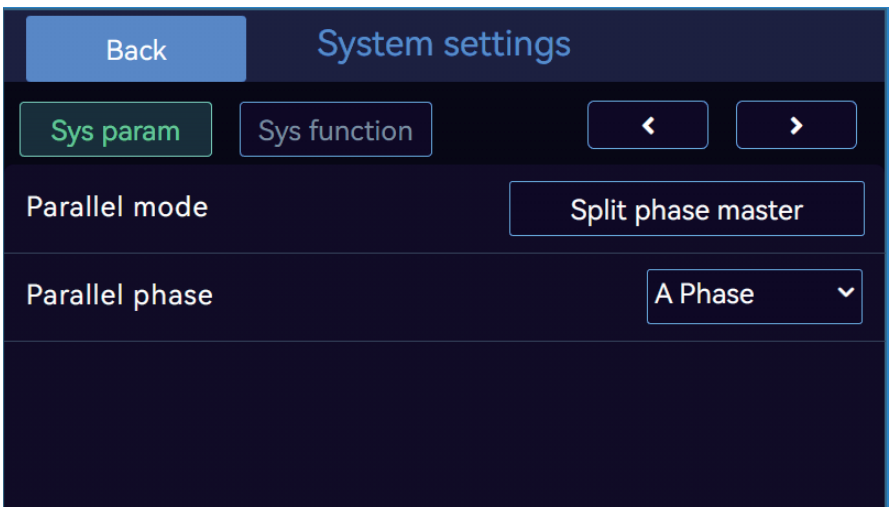
4) To change the parallel mode and phase
navigate to: Settings > System Settings > System Parameters



Navigate to: Settings > System Settings > System Parameters > Parallel Mode, and select 'Split Phase Master'.



Navigate to: Settings > System Settings > System Parameters > Parallel Phase, and select 'A Phase'.



NOTICE

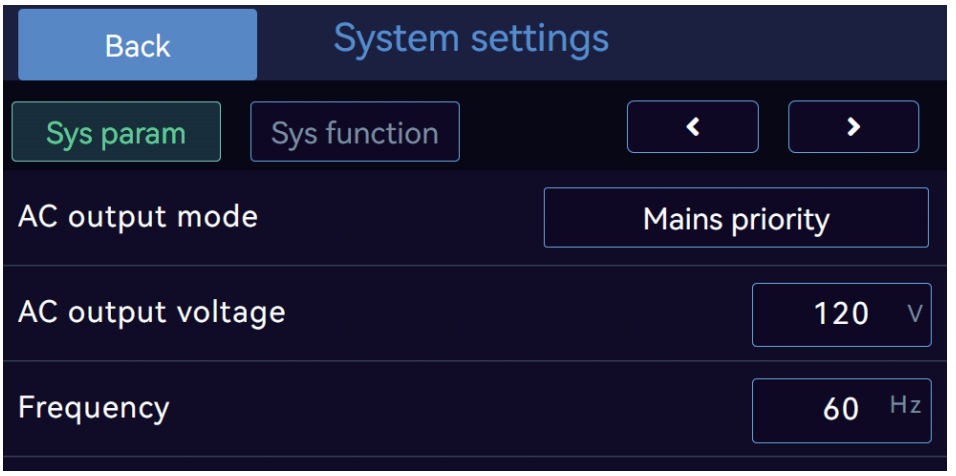
After completing the above steps and returning to the main interface, if the inverter reports a parallel fault, this is normal because the other parallel units are not powered on. No action is required.

AVIS

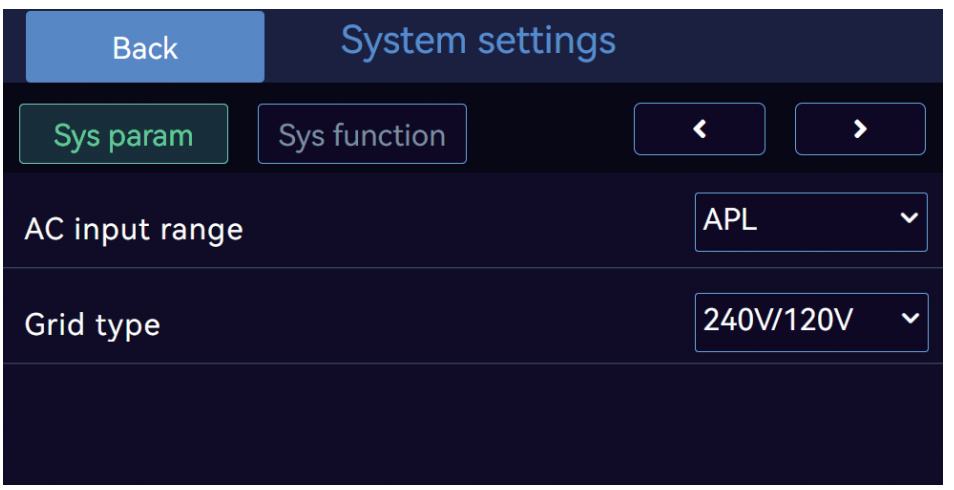
Après avoir effectué les étapes ci-dessus et revenu à l' interface principale, si l' onduleur signale un défaut de parallèle, c' est normal car les autres unités parallèles ne sont pas alimentées. Aucune intervention n' est nécessaire.

Turn off the master unit, power on a slave unit, and then configure the parallel settings for the slave unit.

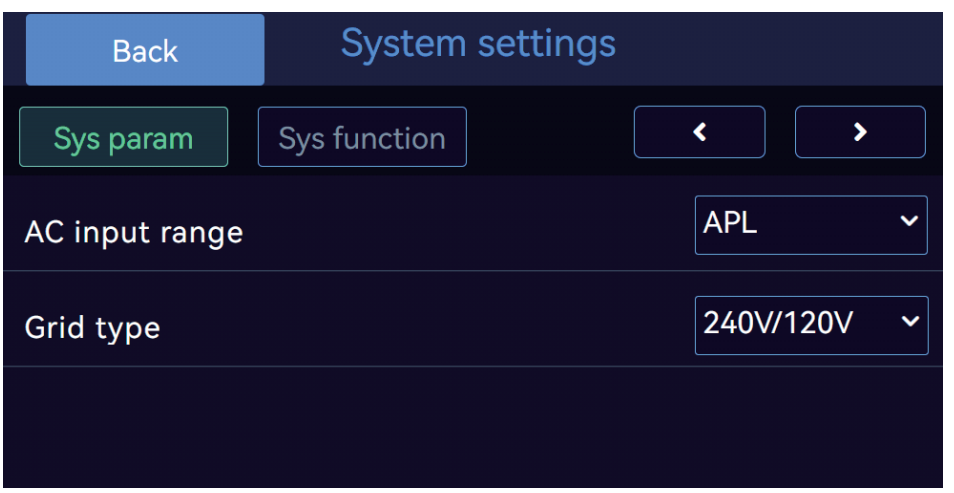
1) Verify that the UI and software versions are the latest and consistent with the master unit.
2) Ensure the AC output voltage and frequency match the local utility grid.



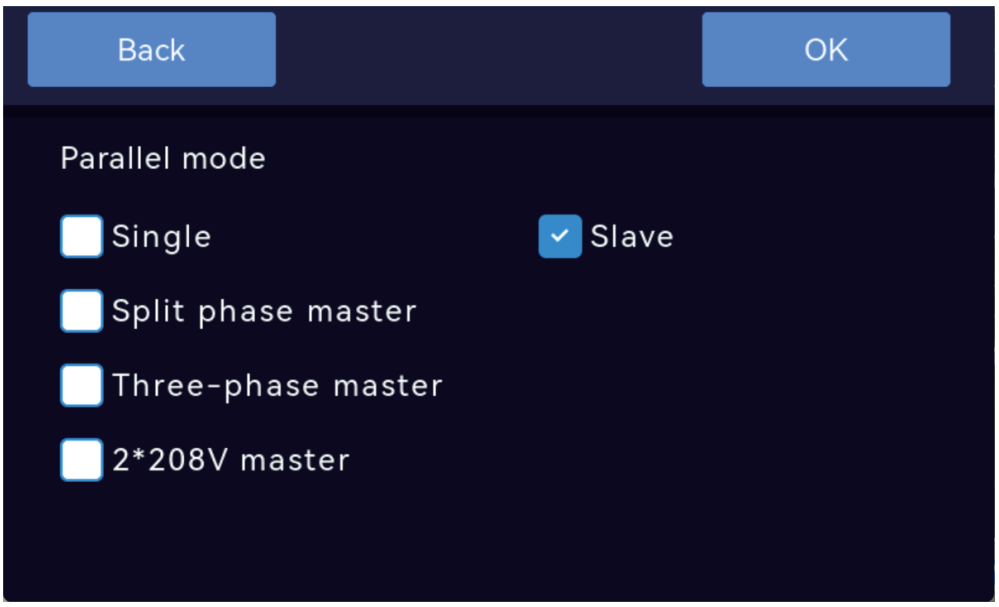
3) Set Grid Type to 240V/120V



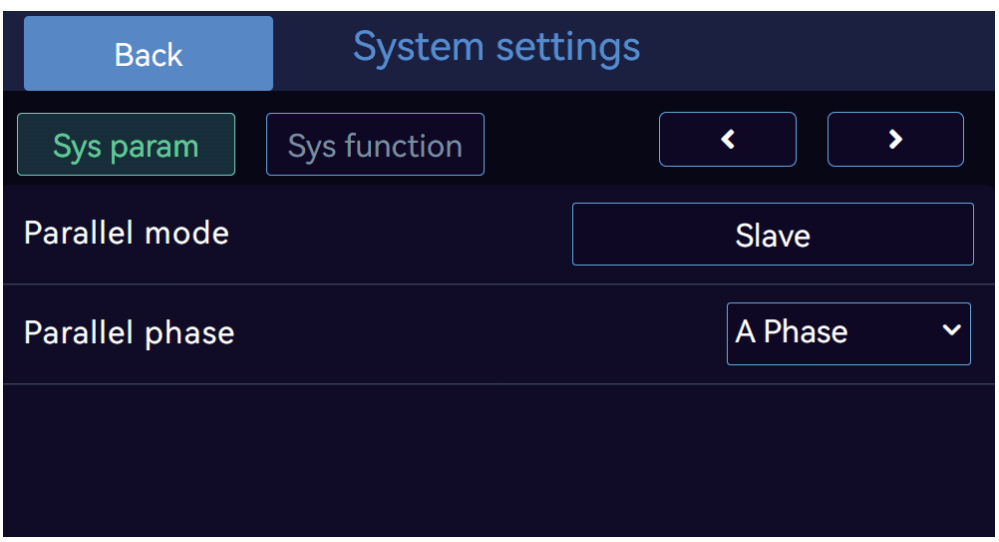
4) Change the parallel mode and parallel phase.
Path: Settings > System Settings > System Parameters



Navigate to: Settings > System Settings > System Parameters > Parallel Mode, and select 'slave'.



Navigate to: Settings > System Settings > System Parameters > Parallel Phase, and select 'A Phase'.



NOTICE

If there are multiple slave units, repeat the above steps for each. During the setup process, one and only one unit must be powered on at a time. After completing the above steps and returning to the main interface, if the inverter reports a parallel fault, this is normal because the other parallel units are not powered on yet; no action is required. Once all units have been configured, power them on simultaneously, and the parallel fault will clear.

AVIS

Si plusieurs unités esclaves sont présentes, répéter les étapes ci-dessus pour chacune d' elles. Pendant le paramétrage, une et une seule unité doit être alimentée à la fois.
Après avoir effectué les étapes ci-dessus et revenu à l' interface principale, si l' onduleur signale un défaut de parallèle, cela est normal car les autres unités parallèles ne sont pas encore alimentées ; aucune intervention n' est requise.
Une fois toutes les unités configurées, les alimenter simultanément : le défaut de parallèle disparaîtra automatiquement.

Note: Please follow the power-on sequence below:

1. Turn on the battery switch and wait for 30 seconds to confirm the battery is operating stably with no errors. Then, turn on the DC breaker.

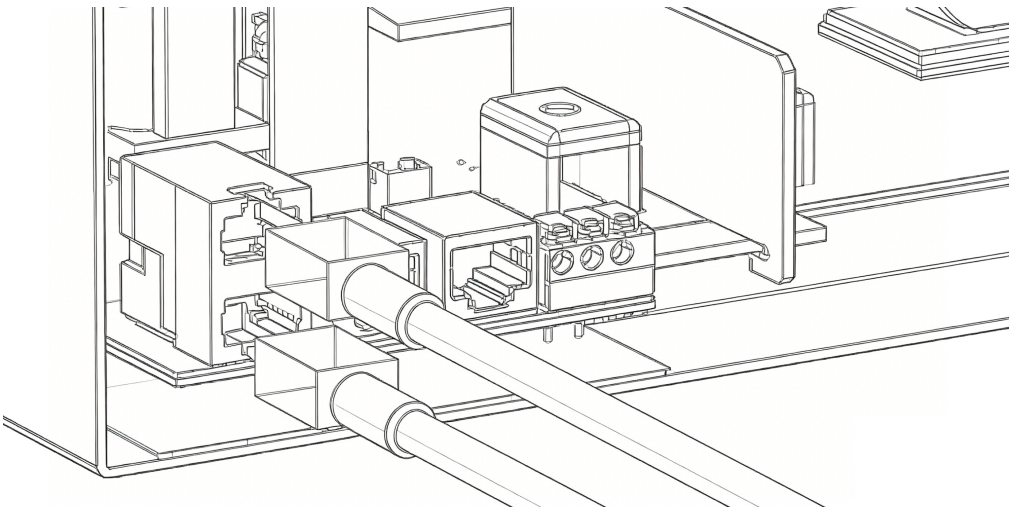
2. Turn on the inverter switch and wait for the unit to stabilize.
3. Before turning on the AC breaker, use a multimeter to measure the utility voltage and verify that the two utility lines (L1/L2) are balanced.

4. Before turning on the PV breaker, use a multimeter to measure the open-circuit voltage to ensure it does not exceed the MPPT input open-circuit voltage rating (500V for this model). After all breakers are turned on, allow the system to run with no load for ten minutes. Confirm there are no alarms, the voltage is normal, and the system is operating stably.

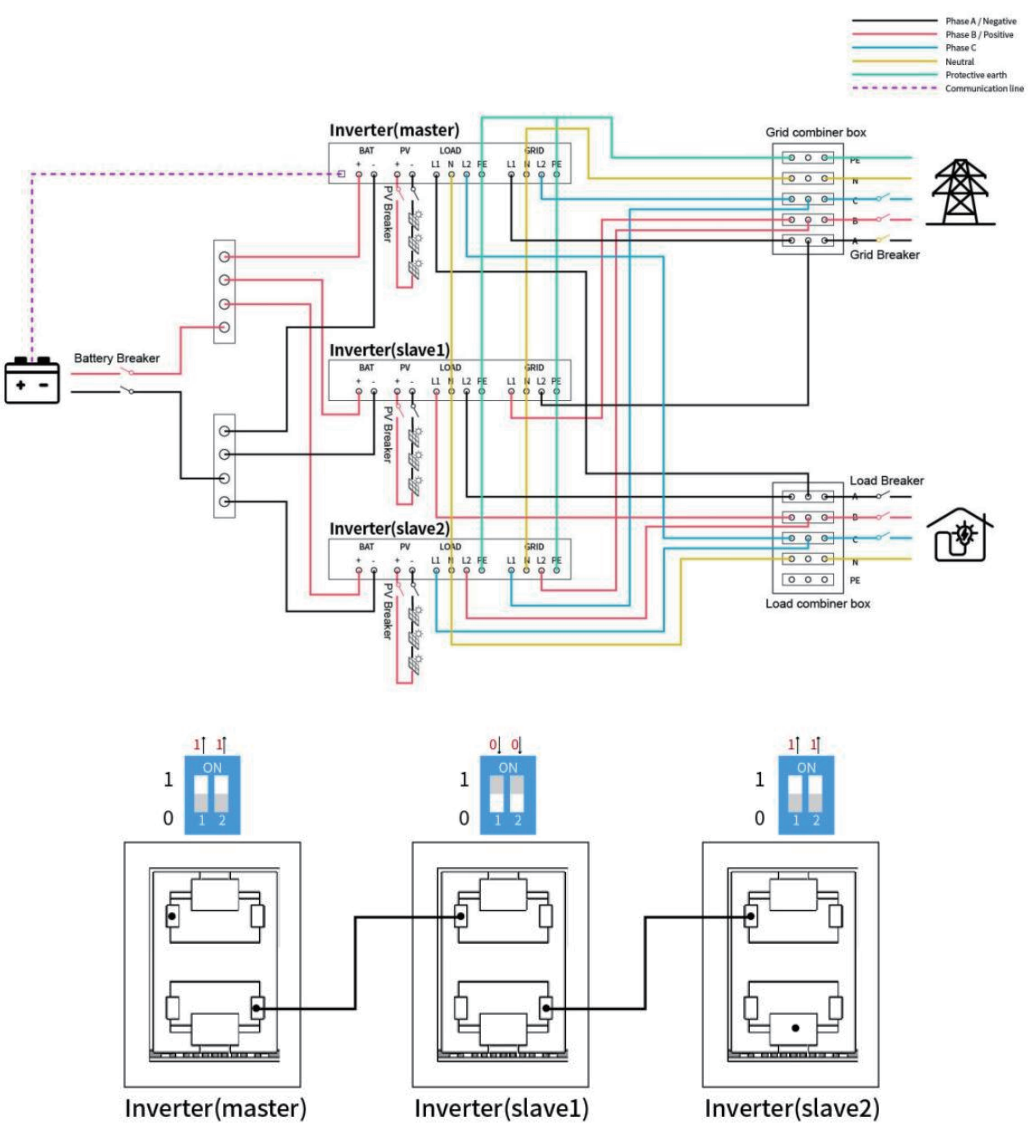
5. Gradually turn on the loads in order from smallest to largest power rating. Observe whether the L1/L2 voltage and current are stable and balanced. Ensure the system runs stably for at least 30 minutes.

4.11.4 Split-phase to three - phase parallel connection

1.The diagram for the connection of communication cables for inverter parallel operation is as follows:



2. Wiring Diagram for Three-Unit Split-Phase to Three-Phase Parallel Connection



DANGER

• Read the instruction manual carefully and follow the guidelines strictly before parallel connection!

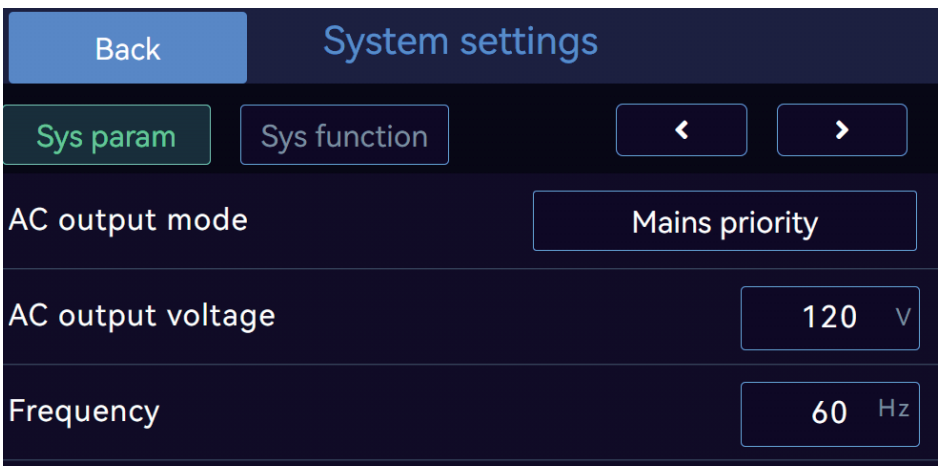
DANGER

• Veuillez lire attentivement le manuel d' instructions et respecter strictement les consignes avant la connexion parallèle !

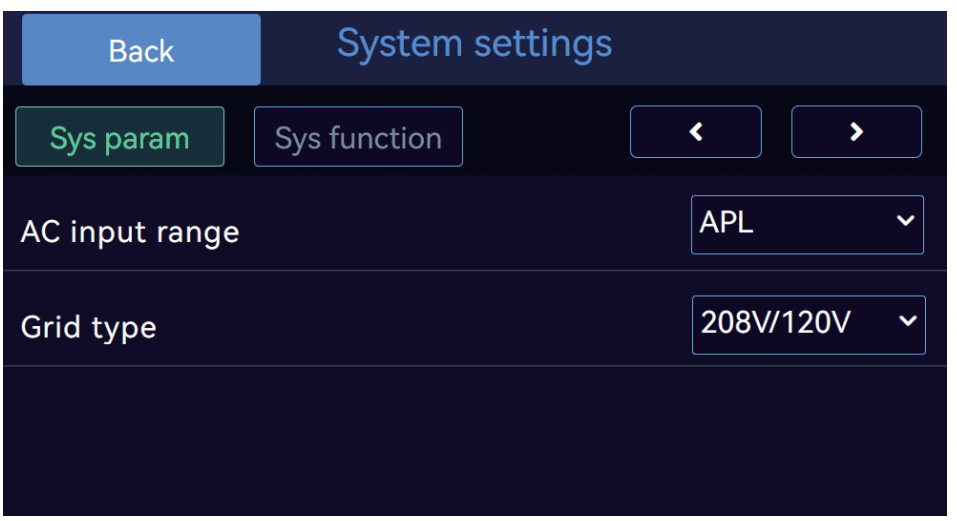
UI Operation Steps for Three-Unit Split-Phase to Three-Phase Parallel Connection:

The following operations must be performed using only battery power after all cables are connected. All other circuit breakers must remain off. First, turn on the master unit's rocker switch while keeping the slave units off to configure the parallel settings on the master.

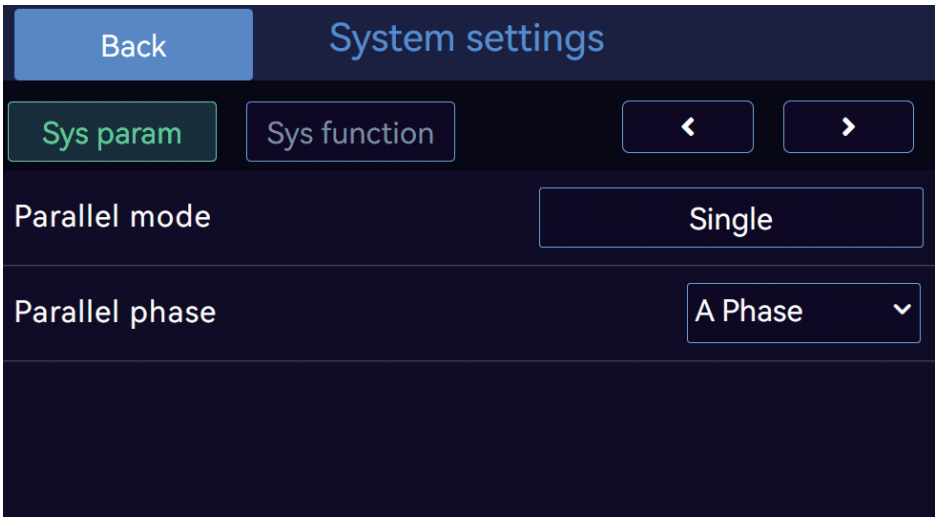
1) Verify that the UI and software versions are the latest.
2) Ensure the AC output voltage and frequency match the local utility grid.



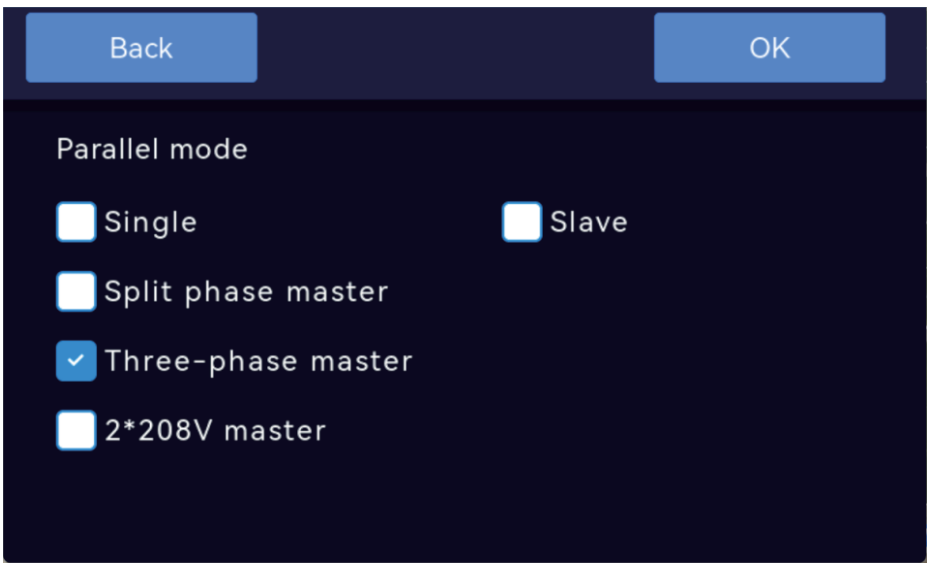
3) Set the grid type to 208V/120V.



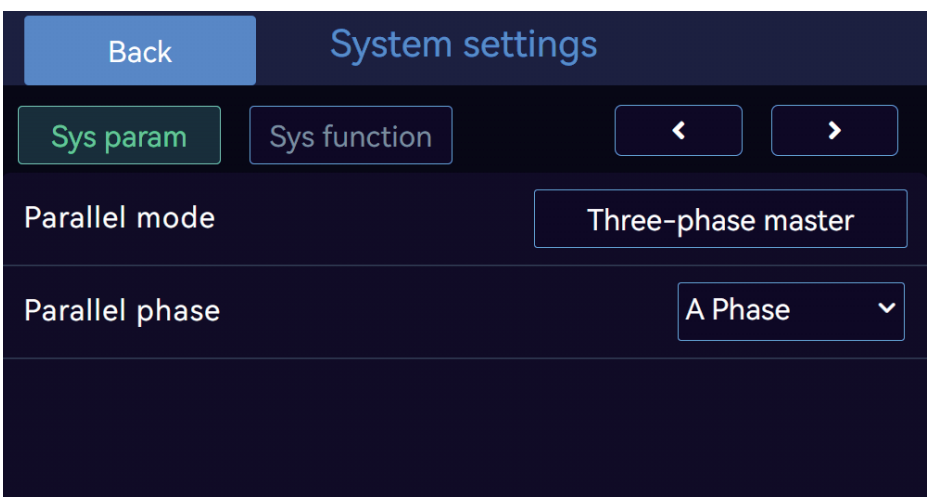
4) To change the parallel mode and phase, navigate to: Settings > System Settings > System Parameters



Navigate to: Settings > System Settings > System Parameters > Parallel Mode, and select 'Three-Phase Master'.



Navigate to: Settings > System Settings > System Parameters > Parallel Phase, and select 'A Phase'.



NOTICE

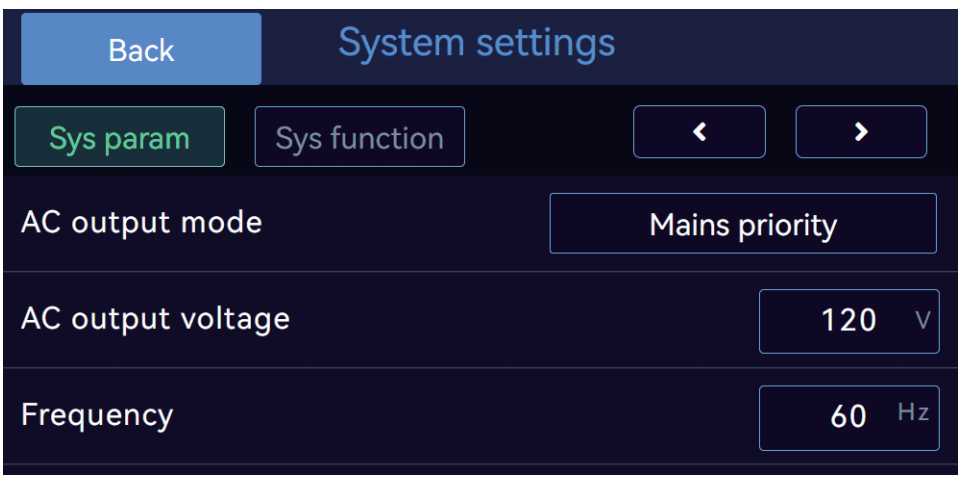
After completing the above steps and returning to the main interface, if the inverter reports a parallel fault, this is normal because the other parallel units are not powered on. No action is required.

AVIS

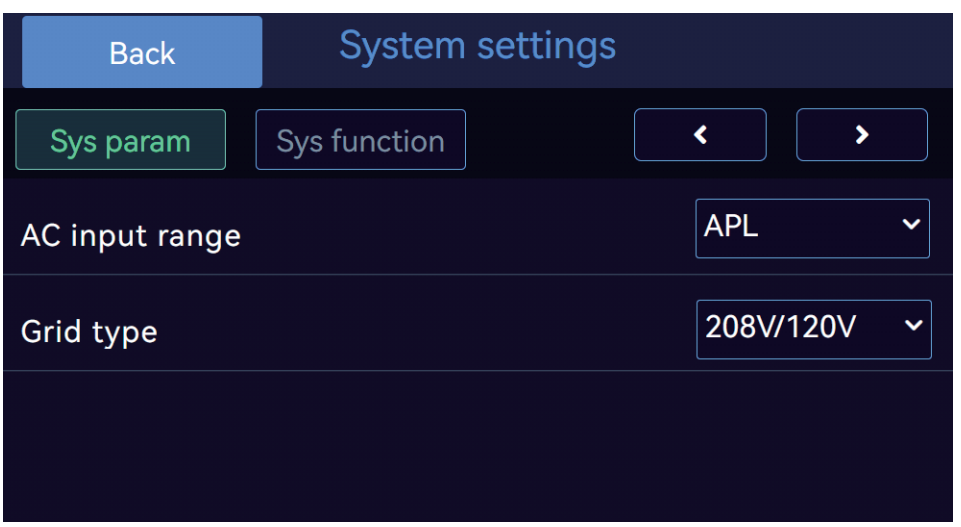
Une fois les étapes ci dessus terminées et revenu à l' interface principale, si l' onduleur signale un défaut de parallèle, cela est normal car les autres unités parallèles ne sont pas alimentées. Aucune intervention n' est nécessaire.

Power off the master unit, power on Slave 1, and configure the parallel settings for Slave 1.

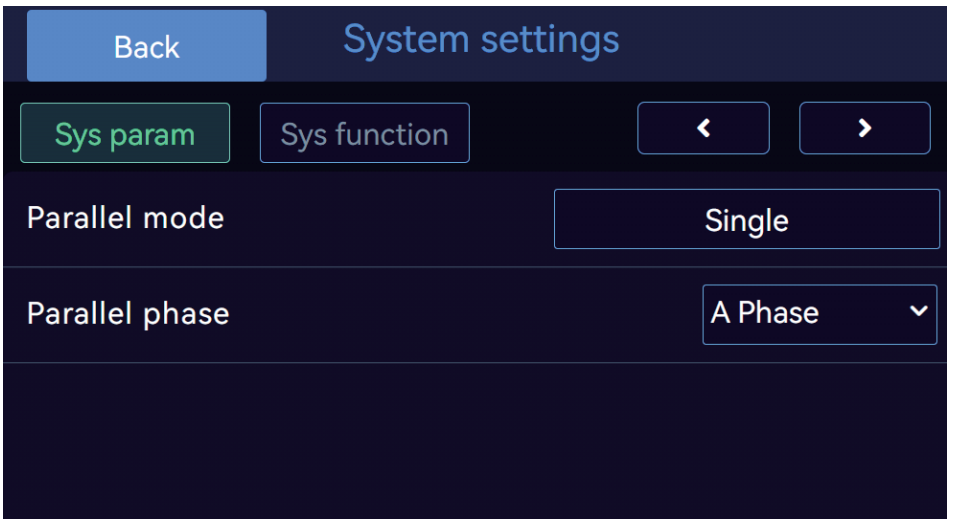
1) Verify that the UI and software versions are the latest and consistent with the master unit.
2) Ensure the AC output voltage and frequency match the local utility grid.



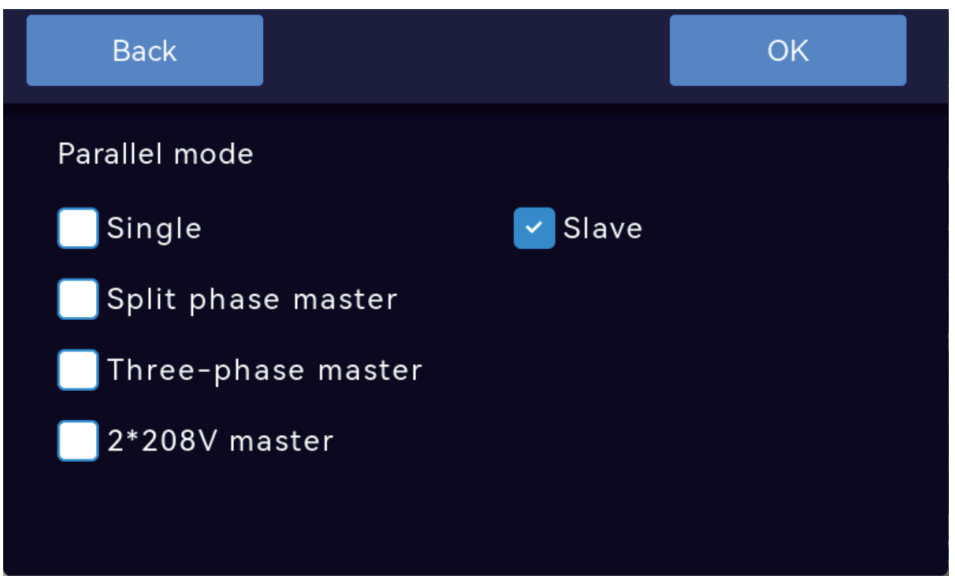
3) Set the grid type to 208V/120V.



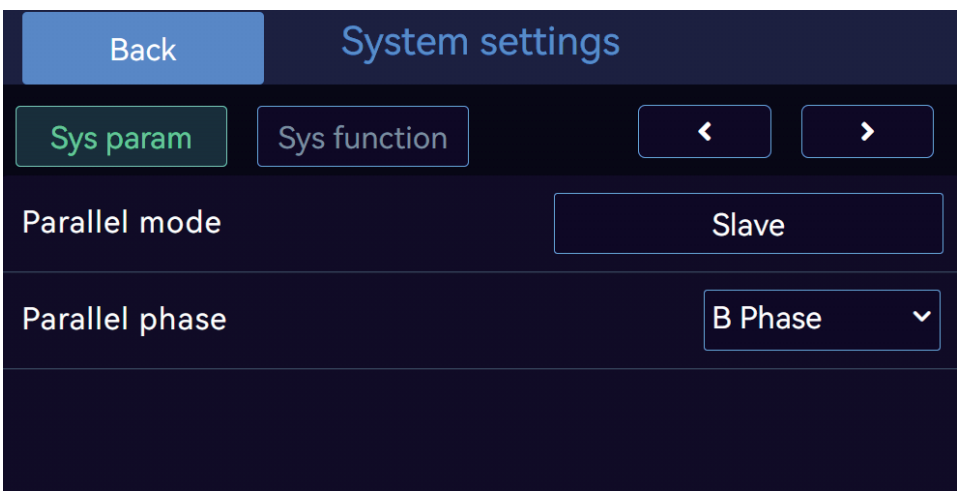
4) Change the parallel mode and parallel phase.
Path: Settings > System Settings > System Parameters



Navigate to: Settings > System Settings > System Parameters > Parallel Mode, and select 'Slave'.



Navigate to: Settings > System Settings > System Parameters > Parallel Phase, and select 'B Phase'.



NOTICE

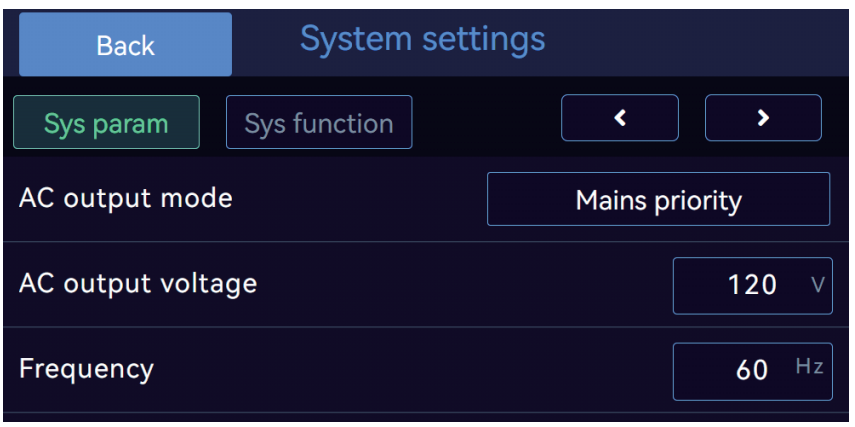
After completing the above steps and returning to the main interface, if the inverter reports a parallel fault, this is normal because the other parallel units are not powered on yet. No action is required. Once all units are powered on simultaneously, the parallel fault will clear.

AVIS

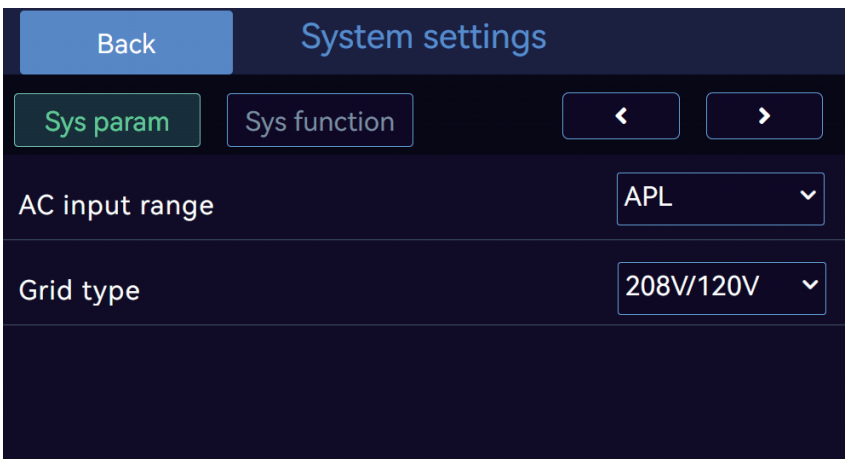
Une fois les étapes ci-dessus terminées et revenu à l' interface principale, si l' onduleur signale un défaut de parallèle, cela est normal car les autres unités parallèles ne sont pas encore alimentées. Aucune intervention n' est nécessaire.
Lorsque toutes les unités sont alimentées simultanément, le défaut de parallèle disparaît.

Power off Slave 1, power on Slave 2, and configure the parallel settings for Slave 2.

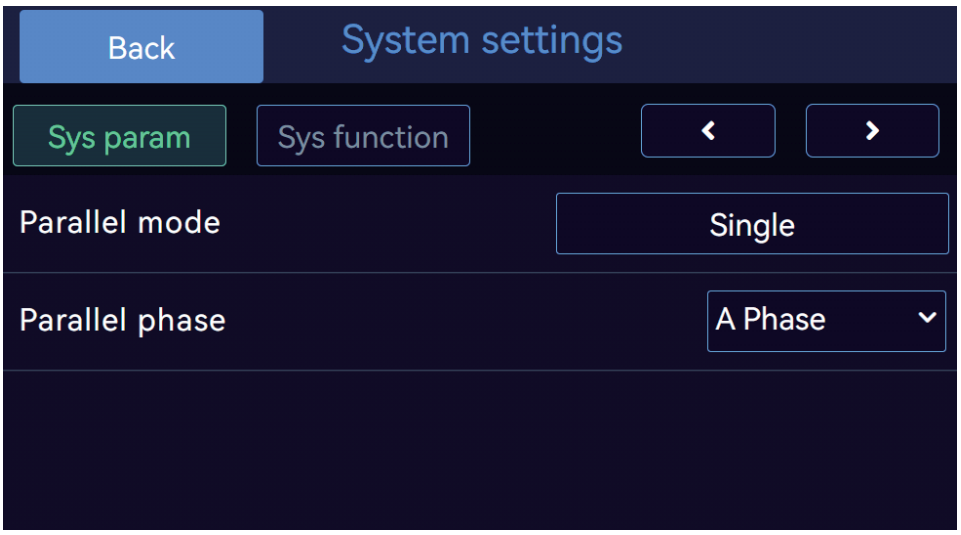
1) Verify that the UI and software versions are the latest and consistent with the master unit.
2) Ensure the AC output voltage and frequency match the local utility grid.



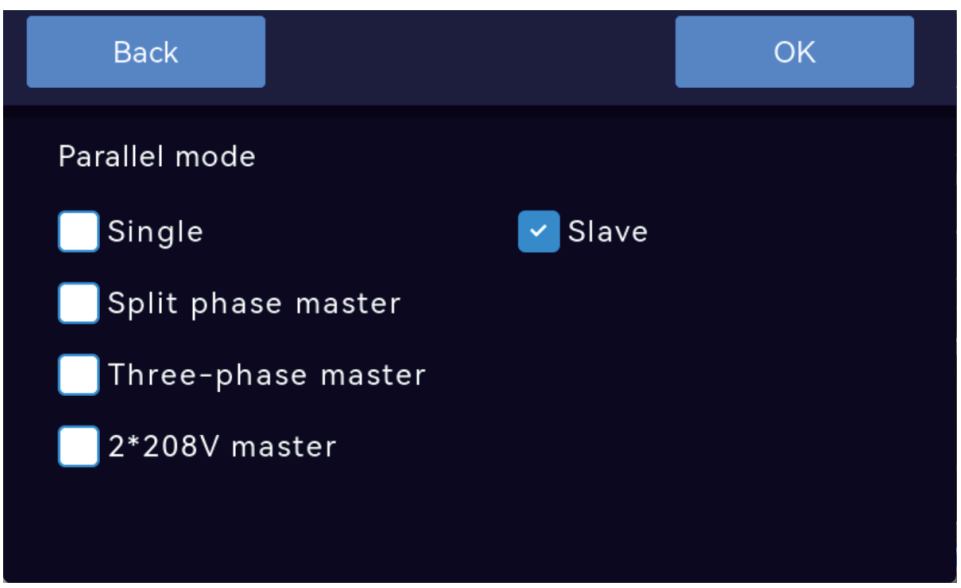
3) Set the grid type to 208V/120V.



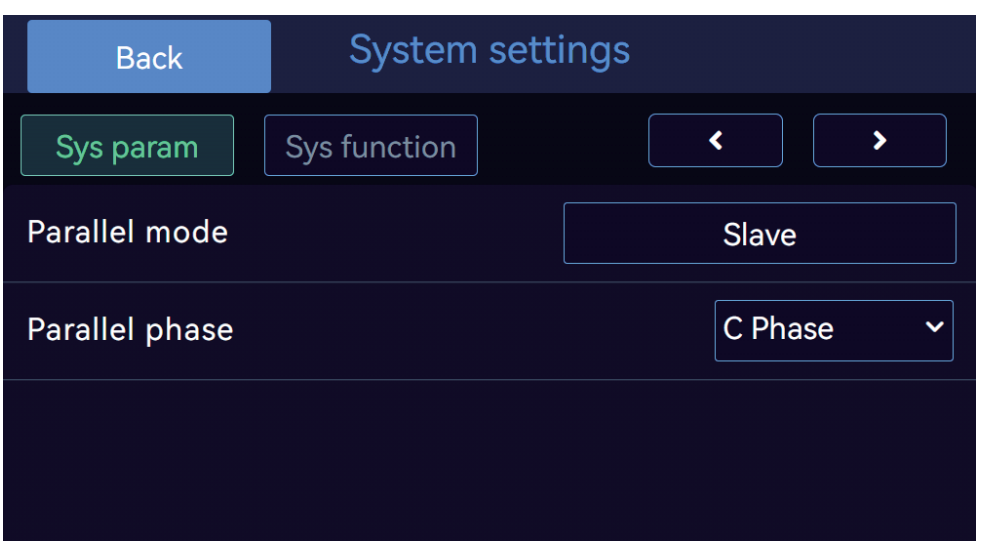
4) Change the parallel mode and parallel phase.
Path: Settings > System Settings > System Parameters



Navigate to: Settings > System Settings > System Parameters > Parallel Mode, and select 'Slave'.



Navigate to: Settings > System Settings > System Parameters > Parallel Phase, and select 'C Phase'.



NOTICE

After completing the above steps and returning to the main interface, if the inverter reports a parallel fault, this is normal because the other parallel units are not powered on yet. No action is required. Once all units are powered on simultaneously, the parallel fault will clear.

AVIS

Une fois les étapes ci-dessus terminées et après retour à l' interface principale, si l' onduleur signale un défaut de parallèle, cela est normal car les autres unités parallèles ne sont pas encore alimentées. Aucune intervention n' est nécessaire. Lorsque toutes les unités sont alimentées simultanément, le défaut de parallèle disparaîtra.

Note: Please follow the power-on sequence below:

1. Turn on the battery switch and wait for 30 seconds to confirm the battery is operating stably with no errors. Then, turn on the DC breaker.

2. Turn on the inverter switch and wait for the unit to stabilize.

3. Before turning on the AC breaker, use a multimeter to measure the utility voltage and verify that the two utility lines (L1/L2) are balanced.

4. Before turning on the PV breaker, use a multimeter to measure the open-circuit voltage to ensure it does not exceed the MPPT input open-circuit voltage rating (500V for this model). After all breakers are turned on, allow the system to run with no load for ten minutes. Confirm there are no alarms, the voltage is normal, and the system is operating stably.

5. Gradually turn on the loads in order from smallest to largest power rating. Observe whether the L1/L2 voltage and current are stable and balanced. Ensure the system runs stably for at least 30 minutes.

Note:

1) Before powering on the unit to illuminate the screen, verify that all wiring is correct according to the wiring diagram above to prevent system issues.

2) Ensure all connections are securely fastened to prevent loose wires, which could lead to system malfunctions.

3) When connecting AC output wiring to loads, follow the requirements of the electrical load equipment to avoid damaging the load equipment.

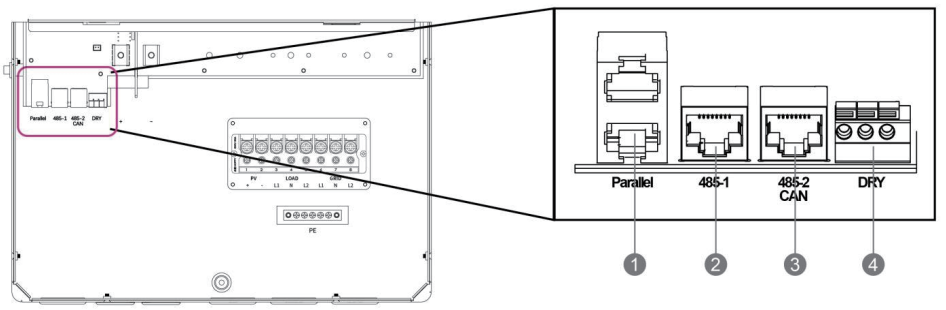
4) The AC output voltage must be set consistently across all units, or configured only on the master unit. During parallel operation, the voltage setting on the master unit takes precedence, and the master will automatically overwrite the settings on all slave units to ensure consistency. This option can only be configured in standby mode.

5) The factory default setting is single-unit mode. To use parallel or three-phase functionality, the parallel mode must be configured via the display interface. The configuration procedure is as follows:
Power on one unit at a time, ensuring all other units are powered off. Then, set the parallel mode and phase according to the site system operation mode.For split-phase parallel connections, configure the units sequentially as split-phase parallel master, slave, and slave.For split-phase to three-phase parallel connections, configure the units sequentially as three-phase parallel master, slave, and slave, with phases set to A phase, B phase, and C phase respectively.After successfully configuring a unit, power it off and wait for it to completely shut down. Then proceed to configure the remaining units one by one. Once all units are configured, power them on simultaneously to enter operational mode.

6) After the system is operational, measure and confirm the output voltage is correct before connecting loads.

5. Communication

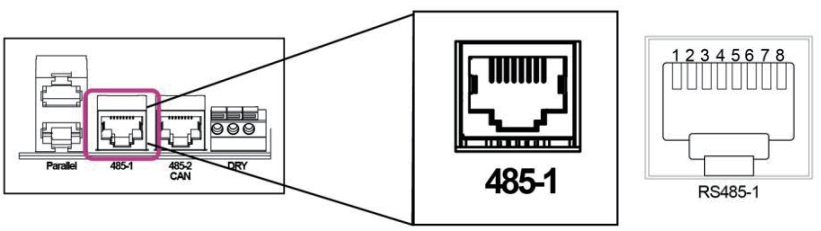
5.1 Overview



1	Parallel Port	**2**	LED indicator	**3**	CAN/RS485-2 Port	**4**	Dry Contact

5.2 RS485-1 Port

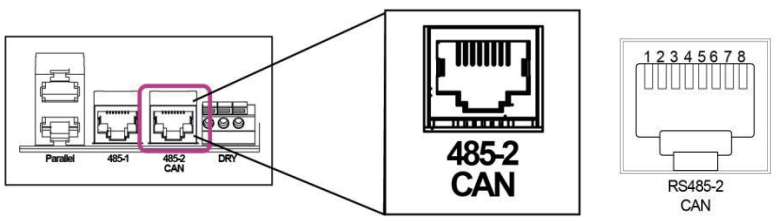
Port RS485-1 is a data expansion port.



RJ45	Definition
Pin 1	5V
Pin 2	GND
Pin 3	/
Pin 4	/
Pin 5	/
Pin 6	/
Pin 7	RS485-A
Pin 8	RS485-B

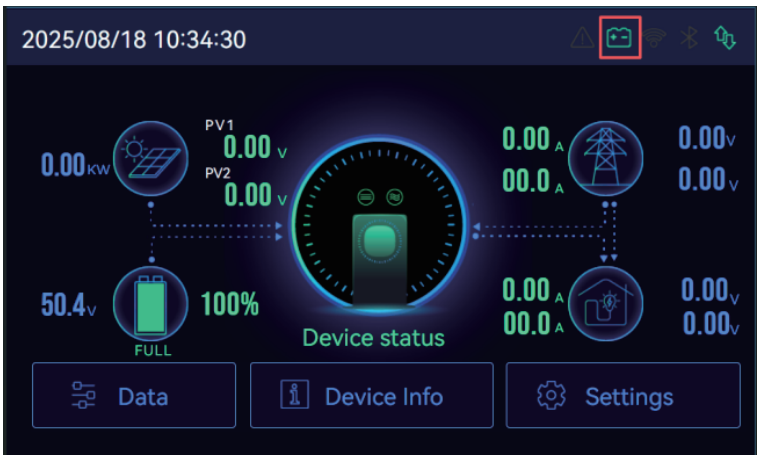
5.3 CAN/RS485-2 Port

The CAN/RS485-2 port can be used to connect to the BMS (Battery Management System) of lithium-ion batteries.

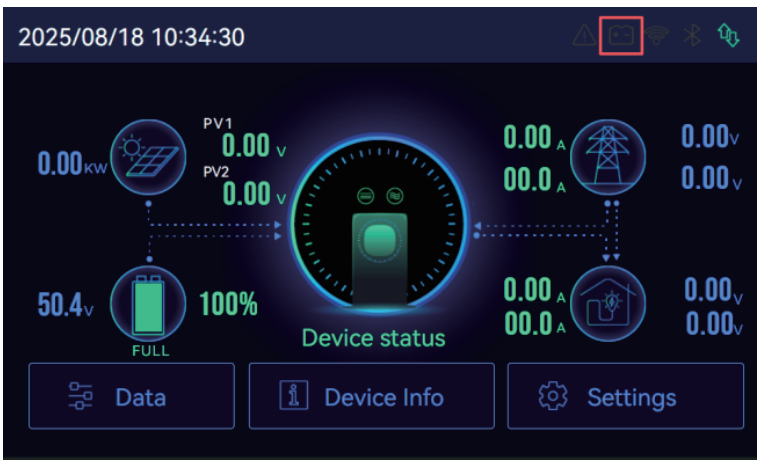


RJ45	Definition
Pin 1	5V
Pin 2	GND
Pin 3	/
Pin 4	CANH
Pin 5	CANL
Pin 6	/
Pin 7	RS485-A
Pin 8	RS485-B

When the communication cable is properly connected and the protocol is matched, the communication is successful, and the battery icon in the upper right corner of the inverter's display screen is illuminated, as shown in the figure:



When the communication cable is not connected, incorrectly connected, or disconnected after being connected, or the communication protocol is mismatched, the communication fails, and the communication icon in the upper right corner remains unlit, as shown in the figure:



NOTICE

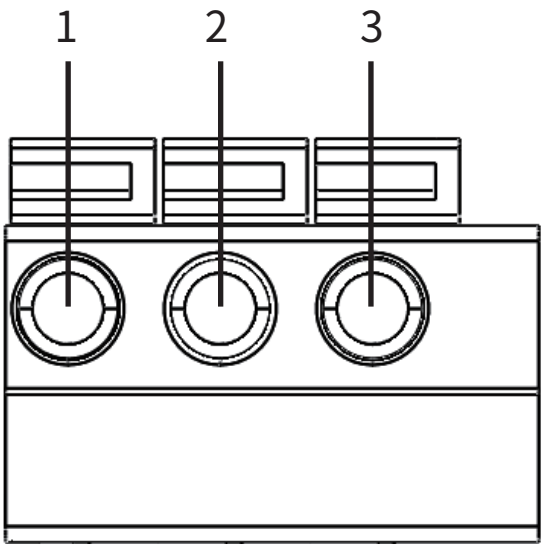
If you need the inverter to communicate with the lithium battery BMS, please contact us to learn about the communication protocol or upgrade the inverter to the corresponding software program.
If you use a common RJ45 network cable, please check the pin definition. Pins 1 and 2 typically need to be cut off for normal operation.

AVIS

Si vous souhaitez que l'onduleur communique avec le système de gestion de batterie (BMS) de la batterie lithium-ion, veuillez nous contacter pour obtenir des informations sur le protocole de communication ou faire mettre à jour le programme logiciel de l'onduleur vers la version correspondante.
Si vous utilisez un câble réseau RJ45 standard, veuillez vérifier la définition des broches. Les broches 1 et 2 doivent généralement être coupées pour assurer un fonctionnement normal.

5.4 Dry Contact Port

Dry Contact Signal



Function	Description
Generator Remote Start/Stop	When the battery voltage reaches the undervoltage alarm voltage or the voltage point for switching from battery to mains power, pins 2 to 1 are in a normally open state, and pins 3 to 1 are in a normally closed state. When the battery voltage reaches the voltage point for switching from mains power to battery or the battery is fully charged, pins 2 to 1 are in a normally closed state, and pins 3 to 1 are in a normally open state. (Output specifications for pins 1/2/3: 125V/1A, 230V/1A, 30V/1A)

NOTICE

If you need to use the remote start/stop function of the generator with dry contacts, please ensure that the generator is equipped with an ATS and supports remote start/stop.

AVIS

Si vous souhaitez utiliser la fonction de démarrage/arrêt à distance du générateur via des contacts secs, veuillez vous assurer que le générateur est équipé d'un ATS et prend en charge la fonction de démarrage/arrêt à distance.

5.5 Bluetooth

The inverter is equipped with a built-in Bluetooth module, which can be connected and used through the Yijia Energy /Enerwise APP (the Enerwise APP can be downloaded by scanning the QR code below, or from the official website or by contacting us to obtain the installation package).

ios

Android

5.6 WIFI

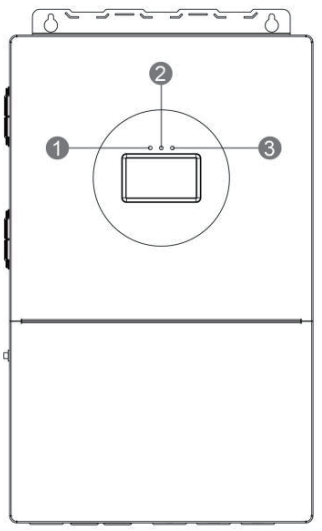
After setting up the internet access APP, it can be connected to the Yijia Energy /Enerwise cloud platform.

Note: When setting the WIFI name within the app, the Wi-Fi name must consist of English letters and numbers (name length < 32 characters) and cannot contain Chinese characters or special symbols. The password must consist of English letters and numbers (password length ⩾ 8, < 16 characters) and cannot contain Chinese characters or special symbols.

For stable communications, ensure the home Wi-Fi operates on 2.4GHz and supports WPA2 protocol.**5GHz is not supported!!!**

6. Interface Operation (Based on UI version 1.3.0.14)

6.1 LED Indication



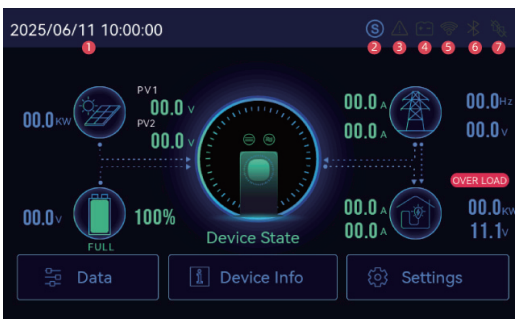
Pilot lamp	Pigment	Description
1.AC/INV	Green	Steady on: Mains bypass output
		Flashing: Inverter output
2.CHARGE	Green	Steady on: Charging completed
		Flashing: Charging in progress
3.FAULT	Red	Flashing: A fault has occurred

6.2 Liquid Crystal Display and Operation

(1)Home Page

Correspond to the sequence in the diagram

① Display the current time on the device.
② This icon will not be displayed when the device is operating as a single unit; it only appears when the device is in parallel mode.If the device is the master unit, the "M" icon will be shown;If the device is the slave unit, the "S" icon will be shown.
③ Equipment failure: gray when the equipment is not faulty, red when the equipment is faulty.
④ Battery BMS communication connection status,when connected to the battery and BMS communication is normal, the icon is green, not connected is gray.
⑤ WIFI, connection status, when the device is connected to 2.4G-WIFI, it is green, and gray when not connected.
⑥ Bluetooth connection status. When the APP connects to the device through Bluetooth, the icon is green and gray when not connected.
⑦ Equipment communication status: green when the equipment is normal, otherwise gray (Note: When the equipment is gray, contact the staff for processing).

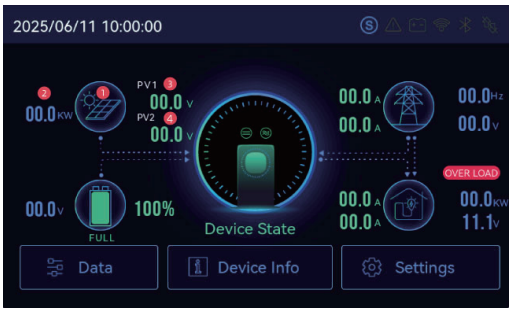


Long press the large icon in the middle of the inverter to set whether to manually shut down the machine. After the machine stops, if you need to continue running, long press this icon in the prompt box to confirm.

D

Correspond to the sequence in the diagram

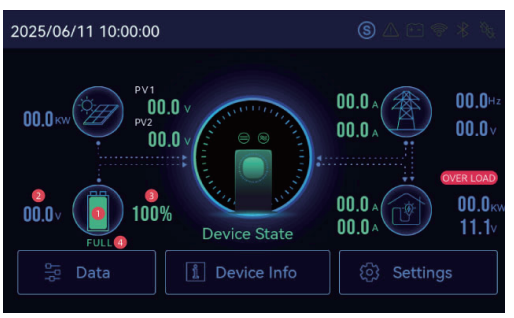
① Long press this icon for about 1s to enter the detailed PV data interface.
② Real-time PV total power.
③ Real-time voltage of PV1.
④ If the device supports two PV channels, this data shows the real-time voltage of PV2. If the device only supports one PV channel, this data is not available.



① Long press for about 1s to enter the detailed data interface of the power grid.
② If the equipment is single-phase, this data is not available,If the device is a split phase, the data shows the real-time current of the grid L1.
③ If the device is single-phase, this data shows the grid current.
If the device is a split-phase , the data will show the real-time Current of the grid L2.
④ If the device is single-phase, this data shows the grid frequency
If the device is a split -phase, the data shows the real-time voltage of the grid L1.
⑤ If the device is single-phase, this data shows the grid voltage.
If the device is a split -phase, the data shows the real-time voltage of the grid L2.



① Long press this icon for about 1s to enter the detailed battery data interface.
② Battery real-time voltage.
③ Percentage of battery capacity.
④ When this text is displayed, it means that the battery is full.

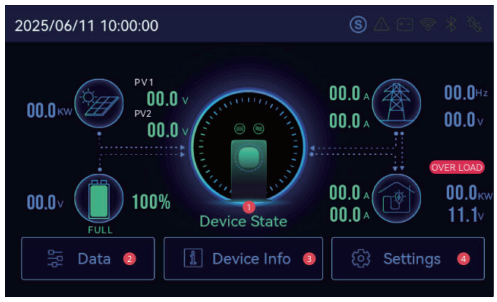


① Long press for about 1s to enter the load detailed data interface.
② If the device is a single phase, this datashows the real-time load current. If the device is a split -phase, this data shows the real-time load L1 current.
③ If the device is a single -phase, this data is not displayed.
If the device is a split -phase, this data shows the real-time current of load L2.
④ If the device is a single -phase, this data shows the real time power of load .
If the device is a split -phase, this data shows the real-time voltage of load L1.
⑤ If the device is a single phase, this data is real-time voltage of load.
If the device is a split -phase, this data shows the real-time voltage of load L2.
⑥ When the device is a split -phase, this icon will be displayed.



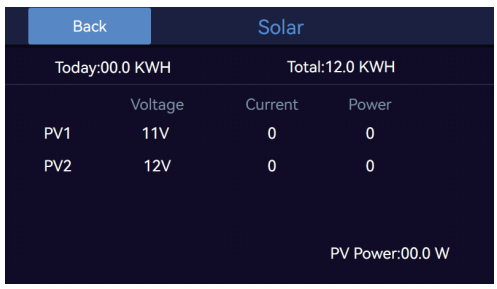
Correspond to the sequence in the diagram

① The running status of the device
② Click this icon to enter the viewable data menu interface
③ Click this icon to enter the device information interface
④ Click this icon to enter the device Settings data menu interface



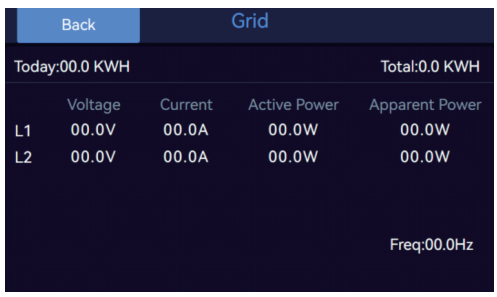
(2) PV Data Interface

In this interface, the upper part shows the daily PV solar panel's PV power gegegeneration and total power generation, while the lower part shows the PV voltage, current and power respectively.



(3) Grid Data Interface

The data of the power grid will vary according to the equipment model. If it is a split-phase inverter,the right interface will be displayed:
The data shown are the voltage, current, active power and apparent power of L1 and L2 respectively.

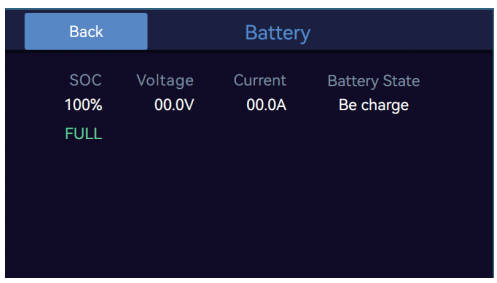


If it is a single phase, the right interface will be displayed:
Above the interface are the daily and total grid-connected electricity of the power grid.



(4) Battery Data Interface

The data displayed on the battery interface are:
Battery capacity, voltage, current and battery charging status. When "FULL" is displayed, it means the battery is full.

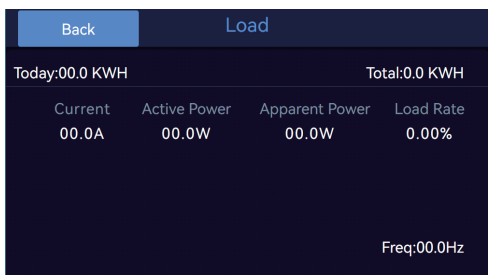


(5) Load Data Interface

The data on the load side, like the grid, varies by model
If it is a split-phase inverter, the right side of the interface will be displayed:
The data shown are the current, active power, apparent power and load rate of the loads L1 and L2.

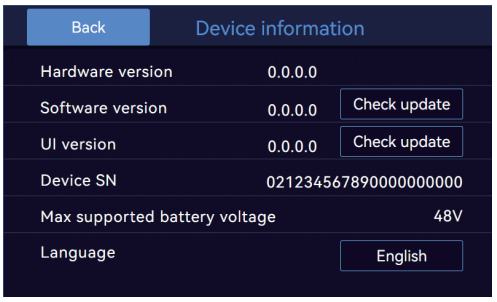


If it is a single-phase inverter, the interface on the right is displayed:
The data shown here are the current, active power, apparent power and load rate of the load. The data above are the daily electricity consumption and total electricity consumption of the load.



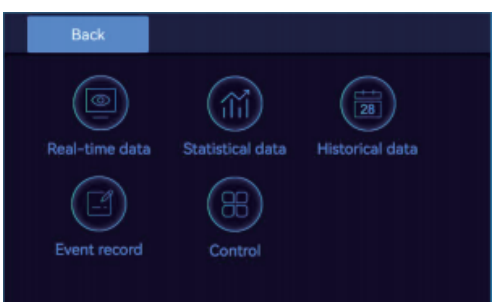
(6) Equipment Information Interface

Display text	Description
Hard-ware-version	Current machine hardware version number
Software version	Current software version of the device (To check whether the device is running the latest version, ensure that the device is in the manual shutdown state. After the device has been connected to Wi-Fi, tap the Check for Updates option on the side panel. If an update is available, the user may choose to update the current version.)
Display the screen UI version	Current display UI version of the device(To check whether the device is running the latest version, ensure that the device is in the manual shutdown state. After the device has been connected to Wi-Fi, tap the Check for Updates option on the side panel. If an update is available, the user may choose to update the current version.)
Equipment SN	The current machine's SN number
Maximum support voltage of battery	The maximum supported battery voltage of the current machine
Language	After clicking, users can choose the language setting of UI on the inter-face.



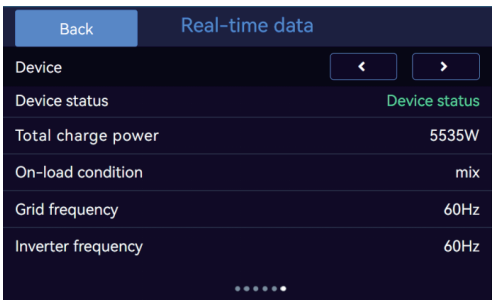
(7) Read Only Category Menu and Control Interface

Icon	Description
	Click to enter the real-time data interface
	Click to enter the statistics interface
	Click to enter the historical data interface
	Click to enter the event log data interface
	Click to enter the control function options interface



(8) Real-Time Data Interface

Click “<” and " >" to flip pages. The circle below the interface represents which page you are currently on,When the user enters the interface, the last page is displayed.

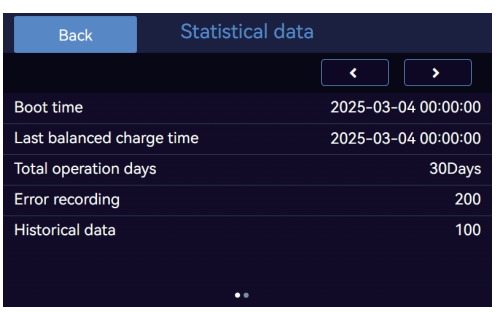


The interface is divided into six pages, displaying the following:

Page 1 (Equipment)
Parameter name: Equipment status, total charging power, load state, grid frequency, inverter frequency
Page 2 (Fault)
Parameter name: Fault information 1, Fault information 2, Fault information 3, Fault information 4
Page 3 (Current)
Parameter name: parallel load average current, PV charging current, mains charging current
Page 4 (Temperature)
Parameter name: PV radiator temperature, inverter radiator temperature, battery radiator temperature
Page 5 (Voltage)
Parameter name: total bus voltage, positive bus voltage, parent bus voltage (It depends on the machine. Some models have high and low busbars, while others have high and low busbars plus main, positive and negative terminals)
Page 6 (Communication status)
Parameter name: Bluetooth status, WI FI status, cloud platform link status, RS485-1 communication status, RS485-2 communication status, BMS communication status

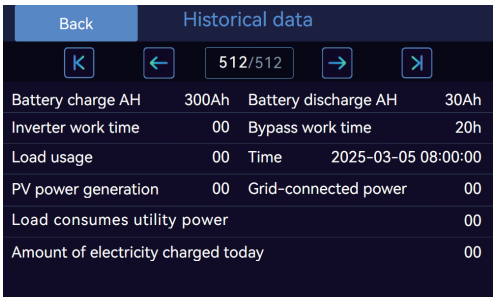
(9) Statistical Data Interface

	Order number	Parameter name
Page 1	1	Charging ampere-hours capacity
	2	Discharging ampere-hours capacity
	3	Inverter working time
	4	Bypass working time
	5	Charging capacity
	6	Electricity consumption
Page 2	7	Boot time
	8	Last balanced charge time
	9	Total operation days
	10	Error recording
	11	Historical data



(10) Historical Data Interface

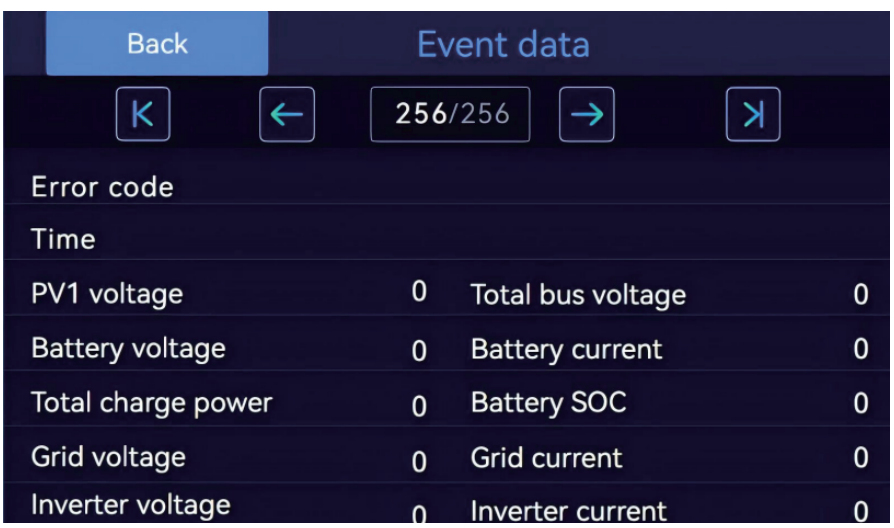
Order number	Parameter name
1	Battery charging ampere-hours capacity
2	Battery discharging ampere-hours capacity
3	Inverter working time
4	Bypass working time
5	Load power consumption
6	Time
7	PV power generation
8	Grid-connected power
9	Load consumes utility power
10	Amount of electricity charged today



If there is a large amount of historical data, you can click the current page number and use the interface keyboard to input the number of items you want to view, and then jump to that item.

(11) Event Log Interface

The above is the event recording interface, which can be viewed by swiping up and down the screen. Likehistorical data, users can select and input a specific one to jump. (The following pictures only show some parameters)



Order	Parameter name	Order	Parameter name
1	Error code	15	Average current of parallel load
2	Time	16	Device status
3	PV1 voltage	17	Total bus voltage
4	Battery voltage	18	Battery current
5	Total charge power	19	Battery SOC
6	Grid voltage	20	Grid current
7	Inverter voltage	21	Inverter current
8	Load current	22	Load rate
9	Load active power	23	Mains charge current
10	Grid frequency	24	Inverter frequency
11	PV radiator temp	25	BAT charge status
12	Inverter radiator temp	26	PV charge current
13	Battery radiator temp	27	PV total KWH
14	Load apparent power		

(12) Control Function

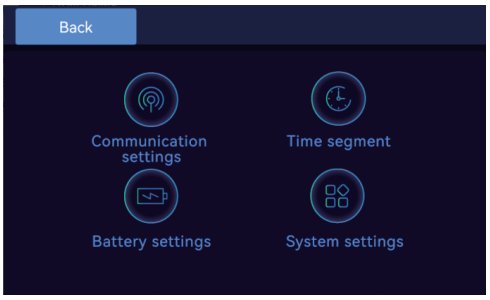
The control functions are as shown in the table above. After clicking the arrow">",except for clicking"Set Time" which will jump to the external interface for setting, other finctions can be executed after clicking confirm.

	Order number	Parameter name
Page 1	1	Immediate equalization charge
	2	Time Settings (When setting the time, pay attention to the time zone setting, as it will affect the synchronization time and time-sharing function of the next startup)
	3	Clear event records
	4	Clear statistics
Page 2	5	Clear historical data
	6	Restore factory settings
	7	Reset



(13) Setting Class Parameters

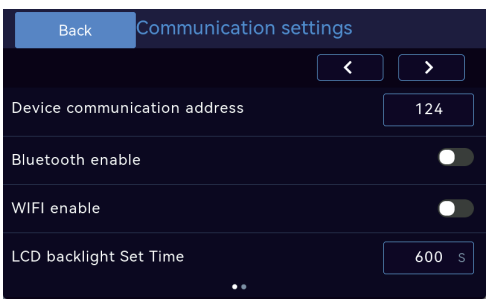
Icon	Description
	After clicking, enter the communication data setting interface
	After clicking, enter the interface of time setting for charging and discharging
	After clicking, enter the battery parameter setting interface
	After clicking, enter the system parameter setting interface



(14) Communication Data Setting Interface

In the setting parameters, clicking the input box can display the keyboard to input data, and clicking the switchicon can open or close.

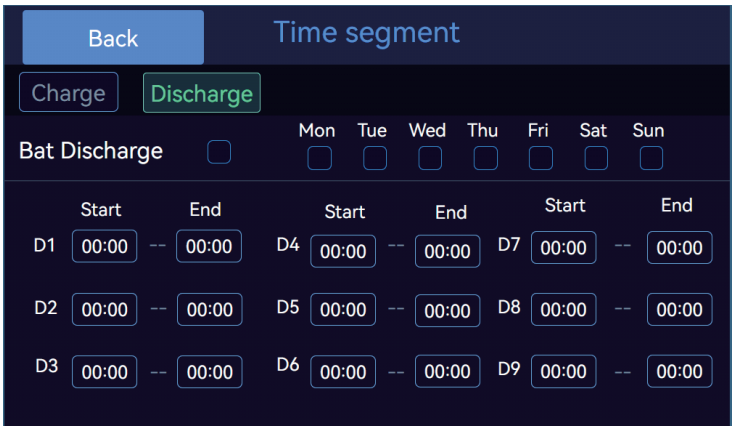
	Order number	Parameter name
Page 1	1	Device address
	2	Bluetooth enabled
	3	WIFI enabled
	4	LCD backlight time
Page 2	1	RS485-1 parameter Settings
	2	RS485-2 parameter Settings



(15)Periodic Charge and Discharge Settings

In the time-of-use charge/discharge setting interface, the time parameters for each charge/discharge period can be set only when the corresponding enable function is active. If the enable function is not turned on, the configured period parameters will not take effect.

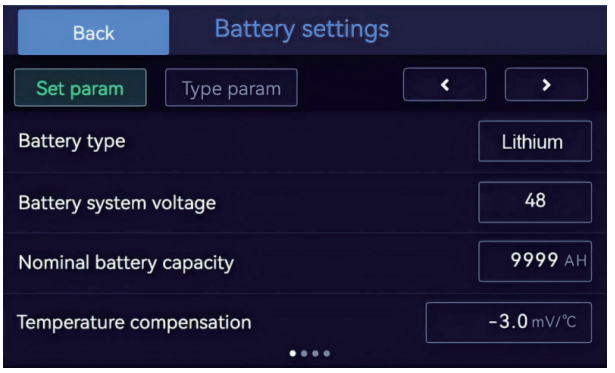
Supports switching between charge and discharge modes. Allows customization of multiple charge/discharge periods for any day of the week: after checking the desired weekday(s), set the start and end times for charging and discharging, and the system will automatically control battery charging/discharging according to the settings.



		Order number	Parameter name
Charge	Weekday check-boxes (Mon–Sun)	1	Time - segmented charging enable
		2	Setting of start and end time f or charging stage 1
		3	Setting of start and end time for charging stage 2
		4	Setting of start and end time for charging stage 3
		5	Setting of start and end time for charging stage 4
		6	Setting of start and end time for charging stage 5
		7	Setting of start and end time for charging stage 6
		8	Setting of start and end time for charging stage 7
		9	Setting of start and end time for charging stage 8
		10	Setting of start and end time for charging stage 9
Discharge	Weekday check-boxes (Mon–Sun)	1	Periodic discharge enable
		2	Setting of start and end time for discharging stage 1
		3	Setting of start and end time for discharging stage 2
		4	Setting of start and end time for discharging stage 3
		5	Setting of start and end time for discharging stage 4
		6	Setting of start and end time for discharging stage 5
		7	Setting of start and end time for discharging stage 6
		8	Setting of start and end time for discharging stage 7
		9	Setting of start and end time for discharging stage 8
		10	Setting of start and end time for discharging stage 9

(16) Battery Parameter Settings

When "Setting Parameters" or "Type Parameters" is displayed in green, it indicates that the interface is in place, and each parameter can be set through drop-down options and input boxes.



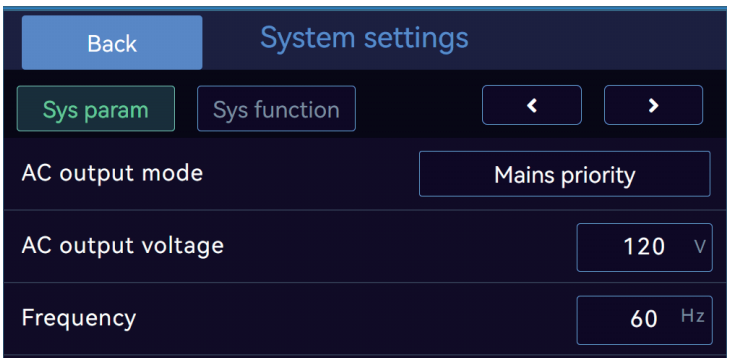
	Page	Main options	Option 2	Description
Setting Pareme-ter	Page 1	Battery type	Lead - acid	Lead - acid battery
			Lithium	Lithium battery
		Battery system voltage	48V	The voltage of the battery system is fixed at 48V and cannot be changed
		Nominal battery capacity	1~9999AH	It can be input in the range of 1~9999AH, and step by 1 AH
		Temperature compensation	-(3~5)M-V/°C/2V	Setting range- (3-5) MV, step 0.1mV, users can set according to the battery parameters, 0: No compensation
	Page 2	Switch mains SOC capacity	0~100%	It can be input in the range of 0~100%, and the step is 1%. Under the inverter priority mode, when the SOC capacity is less than or equal to this value, it switches to mains power.
		Switch battery SOC capacity	1~100%	It can be input in the range of 1 to 100%, with a step of 1%. In the inverter priority mode, the SOC capacity is greater than or equal to this value and switches to inverter.
		Inverter switch-ing mains voltage	36~68V	It can be input in the range of 36~68V with a step of 0.1 V.
		Mains switching inverter voltage	36~68V	It can be input in the range of 36~68V with a step of 0.1 V.
	Page 3	Maximum allowed charge current	0~120A	It can be input in the range of 0~120A, step by 1A, and set to 0 to prohibit the system from charging and discharging
		Stop charge current	0~10A	It can be input in the range of 0~10A and step 1A
		Stop charge SOC	0~100%	It can be input in the range of 0~100%, and the step is 1%

		Equalize the charge timeout	5~900 MIN	It can be input within the range of 5~900 minutes, with a step of 1 minute, and is only valid when the battery type is open lead-acid battery, sealed lead-acid battery.
	Page 4	Activation current of lithium battery	0~20A	It can be input in the range of 0~20A with a step of 0.1 A.
		Charging activation method	OFF	Do not activate (lead-acid batteries only)
			PULSE(Default)	Adopt intermittent control (except for lead-acid batteries)
		Discharge cut-off SOC	0~100%	It can be input in the range of 0~100%, and the step is 1%
		SOC low alarm	0~100%	It can be input in the range of 0~100%, and the step is 1%. An alarm will be given when the set SOC capacity is reached
Type param	Page1	Overvoltage threshold	36~68V	It can be input in the range of 36~68V with a step of 0.1V
		Equalizing charge voltage	36~68V	It can be input in the range of 36~68V with a step of 0.1V and is only valid when the battery type is open lead- acid battery, sealed lead-acid battery.
		Float charge voltage	36~68V	It can be input in the range of 36~68V with a step of 0.1V and is valid for lithium battery type.
		36~68V	36~68V	It can be input in the range of 36~68V with a step of 0.1V. This parameter cannot be set after successful BMS communication
	Page 2	Boost charge recovery voltage	36~68V	It can be input in the range of 36~68V with a step of 0.1V
		Battery over-discharge recovery voltage	36~68V	When the battery pack voltage drops below the"over- discharge protection voltage" during discharge triggering, the inverter re-sets the allowable supply voltage to the preset value when the battery voltage recovers to this level during charging. The input range is 36-68V with a 0.1V step adjustment, and the parameter must exceed the preset "over-discharge voltage"
		Battery under-voltage warning level	36~68V	When the batter voltage is lower than this voltage, the device will give an undervoltage alarm and output without shutdown. It can be input within the range of 36~68V with a step of 0.1V.It is valid for lithium battery type.
		Battery over-discharge voltage	36~68V	When the battery voltage is lower than this judgment point, and the inverter output is turned off after triggering the value of "over discharge delay", it can be input within the range of 36~68V, step by 0.1V, and it is valid for lithium battery type.

	Page 3	Discharge limit voltage	36~68V	When the battery voltage is lower than the value of this parameter, the output is immediately turned off. The input can be in the range of 36~68V, with a step of 0.1V
		0~60sOver-discharge time delay	0~60s	When the battery voltage is lower than the parameter " overcharge voltage", and the inverter output is turned off after triggering the delay time set by this parameter, the input range can be 0~60s, and the step is 1s. It is valid for lithium battery.
		Equalizing charge time	0~300 MIN	Can be input in the range of 0~ 300 MIN, step 1MIN, only when the battery type is open lead-acid battery and sealed lead-acid battery.
		Boost charge time	0~300 MIN	Refers to the continuous charging time when the voltage reaches the parameter "Increase charging volt- age" and the set voltage. It can be input in the range of 0~300 MIN, step by 1 minute, and it is valid for battery type lithium battery.
	Page 4	Equalizing charging interval	0	Set to 0 to be off
			1~300D(-days)	It can be input within the range of 1~300 days, with a step of 1 day, and is only valid when the battery type is open lead-acid battery, sealed lead-acid battery.

(17) System Settings

When "System Parameters" or "System Functions" is displayed in green, it indicates the current interface. All parameters can be set via dropdown options and input fields.



	Page	Main options	Option 2	Description
System Parameter	Page 1	AC output mode	Mains priority	Mains priority: PV supplies power to loads and the battery first. When PV is insufficient, mains power supplements; the battery only supplies power to loads when mains power is unavailable. (The battery can discharge when scheduled discharge function is enabled.) **Priority: Photovoltaic > Mains power > Battery**
			Inverter priority	Inverter priority: Switch to mains power with load only when the battery voltage falls below the set value of parameter [Battery-to-utility voltage point]. When the battery voltage exceeds the set value of parameter [Utility-to-Battery voltage point] or is fully charged, switch back to inverter with load from mains power Inverter first . **Priority: Photovoltaic > Battery > Mains power**
		AC output voltage	100~130V	It can be input in the range of 100~130V with a step of 1V
		Frequency	45~ 65Hz	It can be input in the range of 45~65Hz and step 1Hz
	Page 2	Parallel mode	Single	Users can select the corresponding parameter Settings according to different parallel operation requirements, and the default single machine mode is selected.
			Split phase maste	
			Slave	
			Three-phase master	
			2*208 master (only displayed on the split-phase)	

	Page 3	Parallel phase	Phase A	
			Phase B	
			Phase C	
		Battery charge mode	Hybrid	Give priority to photovoltaic charging. When the photovoltaic power is insufficient, switch to the mains power supply. When performing inversion, only photovoltaic charging can be initiated.
			PV Only	Only photovoltaic charging is allowed, and mains charging is not started
		Charge current limit	SET	The maximum battery charging current shall not exceed the minimum value between the set parameter Battery Maximum Charging Current and the BMS limit value.
			BMS(default)	
			INV	
		Mains charge current limit	0~100A	It can be input in the range of 0~100A and step 1A
	Page 4	BMS protocol	PYLON	This item is set to Pylon by default
		BMS communication fault shutdown	Enable	When this parameter is enabled, the inverter output will be shut down if BMS communication fails.
	Page 5	AC input mode	APL	The input voltage range is 90~140V
			UPS	The input voltage range is 90~140V
		Grid type (only displayed on the split-phase inverter)	240/120	Regular application,select this option for the phase-splitter output of the phase-splitting machine.
			208/120	Select this option when two phase-splitting machines are operated in parallel for three-phase output.
			0/120	Select this option for the phase-splitting machine in single-phase mode with full single-phase power output.
System function	Page 1	NPE ground shorting function	Enable	
			Disable	
		Energy saving mode	Enable	If the energy-saving mode is enabled and the output active power is less than 50W for 5 consecutive minutes, the inverter will enter energy-saving mode, i.e., the inverter output will be turned off. It will then restart the inverter output after 30 minutes and continue monitoring the output power. There are two ways to exit energy-saving mode within these 30 minutes: 1. Disable the energy-saving function; 2. Restart the inverter (power off and then power on).

			Disable
		Automatic restart after overload	Enable
			Disable
		Automatic restart after over-temperature	Enable
			Disable
	Page 2	Buzzer alarm	Enable
			Disable
		Mode shift alerted	Enable
			Disable
		Overload bypass function	Enable
			Disable

Fault code	Description	Fault code	Description
1	Battery voltage low	29	Battery SOC is below the alarm value(Effective after successful BMS communication)
2	Battery over current software	30	Battery SOC is below the discharge cutoff set value(Effective after successful BMS communication)
3	Battery no connect	31	Low battery shutdown(Effective after successful BMS communication)
4	Battery undervoltage stops discharging	32	Parallel control CAN communication failure
5	Battery overcurrent hardware protection	33	Parallel CAN communication failure
6	Battery charge overvoltage protection	34	Parallel communication address setting error
7	Bus overvoltage hardware protection	35	Parallel current sharing fault
8	Bus overvoltage software protection	36	Parallel mode, battery voltage difference is large
9	PV overvoltage protection	37	the mains input source is inconsistent
10	PV Boost overcurrent software protection	38	Parallel mode, hardware sync signal failure
11	PV Boost overcurrent hardware protection	39	Abnormal DC component of inverter voltage
12	SPI communication error	40	Parallel program versions are inconsistent
13	Bypass overload protection	41	Parallel wiring fault
14	Inverter overload protection	42	Serial number is not set at the factory
15	Inverter overcurrent hardware protection	43	Parallel mode setting error
16	Slave chip request shutdown fault	44	Battery voltage is lower than discharge limit voltage
17	Inverter short circuit protection	45	Battery radiator over-temperature protection
18	Bus soft start fault	46	Overload warning
19	PV radiator over-temperature protection	47	Battery discharge current overcurrent
20	Inverter radiator over-temperature protection	48	Leakage current protection
21	Fan fault	49	PV insulation protection
22	Memory fault	58	BMS communication failure
23	Model setting error	59	BMS Error
24	Positive and negative bus voltages are unbalanced	60	BMS low temperature alarm(Effective after successful BMS communication)
25	Bus short circuit	61	BMS over temperature alarm(Effective after successful BMS communication)
26	Inverter AC output is fed back to bypass AC output	62	BMS overcurrent alarm(Effective after successful BMS communication)
27	Mains input phase error	63	BMS undervoltage alarm(Effective after successful BMS communication)
28	Bus voltage low protection	64	BMS overvoltage alarm(Effective after successful BMS communication)

NOTICE



This manual only lists some of the inverter fault codes. As inverter fault diagnosis involves multi-dimensional hardware detection, software logic interaction and operating condition adaptation, certain low-probability faults, deep-seated faults requiring professional diagnostic tools, and associated faults linked with supporting equipment are not included in this manual temporarily.
Troubleshooting and resolution of such faults must be performed by our company' s authorized professional technicians using dedicated diagnostic tools and background systems. Do not attempt any operation by yourself, so as to avoid equipment damage or potential safety hazards.

AVIS



Ce manuel ne liste qu' une partie des codes de défaut de l' onduleur. Étant donné que le diagnostic des défauts de l' onduleur implique une détection matérielle multidimensionnelle, une interaction logique logicielle et une adaptation aux conditions de fonctionnement, certains défauts de faible probabilité, les défauts profonds nécessitant des outils de diagnostic professionnels, ainsi que les défauts associés liés aux équipements auxiliaires ne sont pas temporairement inclus dans ce manuel.
Le diagnostic et la réparation de ces défauts doivent être réalisés exclusivement par des techniciens professionnels agréés de notre société, à l' aide d' outils de diagnostic dédiés et de systèmes centraux. N' effectuez aucune opération vous-même, afin d' éviter tout dommage matériel ou risque de sécurité potentiel.

Notes:

1) OTA Update: The device cannot perform OTA update when it is in the following states: Mains Operation, Inverter Operation, Inverter-to-Mains Switching, Mains-to-Inverter Switching, PV Charging Only, or Fault.
Solution: For UI version 1.3.0.7 and above, long-press the large icon on the main interface to manually shut down the device before proceeding with the update.

2) When Setting Charging Current: The set value of mains charging current must always be less than the set value of maximum charging current.

3) In Fault State: When modifying parameters in general settings, a secondary confirmation is required.

4) US Standard Split-Phase Inverter Parallel Operation Timing: If the parallel operation mode is Three-Phase Master Unit / 2*208 Master Unit, the grid type must be set to 2*208.

5) In Parallel Operation State (Device as Master Unit): The device does not allow parameter modification when it is in the following states: Mains Operation, Inverter Operation, Inverter-to-Mains Switching, Mains-to-Inverter Switching, or PV Charging Only.

6) In Parallel Operation State (Device as Slave Unit): The device does not allow parameter modification when it is in the following states: Mains Operation, Inverter Operation, Inverter-to-Mains Switching, Mains-to-Inverter Switching, or PV Charging Only. In other states, only the following three parameters can be modified: [Parallel Operation Mode], [Grid Type], and [Parallel Operation Phase].

7. Protection Functions

7.1 Protection Functions

No.	Protection Function	Instructions
1	PV Current Limiting Protection	When the charging current or power of the configured photovoltaic array exceeds the rated current or power of the inverter, charging will be carried out at the rated current and power.
2	PV Overvoltage Protection	If the photovoltaic voltage exceeds the maximum value allowed by the hardware, the machine will report a fault and stop the photovoltaic boost to output a sinusoidal AC wave.
3	Night Anti-Backflow Protection	At night, because the battery voltage is greater than the voltage of the PV module, it will prevent the battery from discharging to the PV module.
4	AC Input Overvoltage Protection	When the mains voltage exceeds 140V per phase, the mains charging will be stopped and the inverter output will be switched
5	AC Input Undervoltage Protection	When the mains voltage per phase is lower than 90V, the mains charging will be stopped and the inverter output will be switched.
6	Battery Overvoltage Protection	When the battery voltage reaches the overvoltage break point, PV and mains power will be automatically stopped to prevent overcharging of the battery.
7	Battery Undervoltage Protection	When the battery voltage reaches the low voltage break point, the discharge of the battery will be automatically stopped to prevent excessive discharge of the battery.
8	Battery Overcurrent Protection	When the battery current exceeds the hardware's allowable range, the machine will turn off the output and stop discharging the battery.
9	AC Output Short-Circuit Protection	When a short circuit fault occurs at the load output end, the output AC voltage will be immediately turned off and output again after one minute. If the output is still short circuit after three attempts, the power must be manually recharged and turned on before normal output can be restored.
10	Heat Sink Overtemperature Protection	When the internal temperature of the inverter is too high, the inverter will stop charging and discharging; when the temperature returns to normal, the inverter will resume charging and discharging.
11	Overload Protection	After triggering overload protection, the inverter will resume output after 3 minutes. If overloaded for 5 consecutive times, the output will be shut down until the inverter restarts.(102% <110%)± 10%: Error, output will be shut down after 5 minutes.
12	AC Backfeed Protection	Prevent the battery inverter AC from backflowing to the bypass AC input.
13	Bypass Overcurrent Protection	Software detection.
14	Bypass Wiring Error Protection	When the phase of the two bypass inputs is different from the phase of the inverter phase, the machine will prohibit the bypass from being switched on to prevent the load from being powered off or short-circuited when the bypass is switched on.

8. Product Maintenance

8.1 Troubleshooting

Fault Code	Meaning	Cause	Solution
/	The screen is not displaying	There is no power input, or the device switch is not turned on.	Check whether the battery circuit breaker or PV circuit breaker is closed; ensure the switch is in the "ON" state.
01	Battery voltage low	The battery voltage is lower than the value set in the "battery under-voltage warning voltage" parameter	Charge the battery until the battery voltage is higher than the value set in the parameter.
03	Battery no connect	The battery is not connected, or the lithium battery BMS is in discharge protection mode	Check whether the battery is reliably connected; check whether the circuit breaker of the battery is closed; ensure that the BMS of the lithium-ion battery can communicate normally.
04	Battery undervoltage stops discharging	The battery voltage is lower than the value set by the parameter "overcharge voltage"	Perform a manual reset. Turn off the power and restart. Automatic reset: Charge the battery until its voltage is higher than the value set in the parameter item "Over - discharge Recovery Voltage".
06	Battery charge overvoltage protection	The battery is overvoltage	Turn off the power manually and restart. Check whether the battery voltage exceeds the limit. If so, discharge the battery until the voltage is below the overvoltage of the battery
13	Bypass overload protection	The output power or output current of the side road is overloaded for a certain period of time	Reduce the load power and restart the device. For more details, refer to item 11 in the protection function
14	Inverter overload protection	The output power or output current of the inverter is overloaded for a certain period of time	
19	PV radiator over-temperature protection	The temperature of the photovoltaic radiator exceeds 80°C for 3s	When the radiator temperature cools below the overtemperature recovery temperature, normal charging and discharging are resumed
20	Inverter radiator over-temperature protection	The temperature of the inverter radiator exceeds 80°C for 3s	
21	Fan fault	The hardware detects a fan failure	After powering off, manually turn the fan to check if there is any foreign object blocking it.
26	Inverter AC output is fed back to bypass AC output	The AC output relay is stuck	Manual restart, if the fault occurs again after restart, you need to contact the after-sales service to repair the machine
27	Mains input phase error	The AC input phase is not consistent with the AC output phase	Ensure that the phase of the AC input is the same as that of the AC output. For example, if the output is in split mode, the input must also be in split mode

8.2 Maintenance

To maintain optimal long-term performance, it is recommended to perform the following checks twice a year:

1.Confirm that the air flow around the inverter is not blocked, and remove any dirt or debris on the radiator.

2.Check all exposed wires to see if their insulation is damaged due to sun exposure, friction with surrounding objects, dry rot, damage by insects or rodents, etc. Repair or replace the wires if necessary.

3.Verify that the indicators and displays are consistent with the equipment operation. Pay attention to any fault or error displays and take corrective measures if necessary.

4.Examine all the wiring terminals for signs of corrosion, insulation damage, high temperature, burning/discoloration, and tighten the terminal screws.

5.Check for dirt, nesting insects, and corrosion, and clean the insect - proof net regularly as required.

6.If the lightning arrester has failed, replace the failed one in a timely manner to prevent lightning-strike damage to the inverter and even other equipment of the users.

DANGER

• Before performing any inspection or operation, make sure that the inverter is disconnected from all power sources and that the capacitors are fully discharged to avoid the risk of electric shock.

DANGER

• Avant d'effectuer tout contrôle ou toute opération, assurez-vous que l'onduleur est déconnecté de toutes les sources d'alimentation et que les condensateurs sont complètement déchargés afin d'éviter tout risque d'électrocution.

The following causes of machine problems are not covered by the standard warranty:

1.The product has exceeded the warranty period (except for the service of extending the warranty period signed by both parties).

2.Failure to operate according to the product manual or relevant installation and maintenance requirements, failure or damage caused by non-product specified working environment, storage or use. Such as incorrect use of installation distance, ventilation, waterproof cap, etc.

3.Unauthorized disassembly, maintenance or modification of the machine.

4.Products obtained through unauthorized channels.

5.Faults and damages caused by unforeseen or human factors or force majeure, such as storm weather, flood, lightning, overvoltage, insect damage and fire.

6.Unauthorized modification, design change or replacement of parts.

7.Intentional damage or defacement, making indelible marks, theft, etc.
8.Natural wear and tear and aging.

9.Not used in accordance with correct safety requirements (e.g. VDE standards).

10.Other failures or damages caused by non-product quality problems.

11.Damage caused by transportation (including scratches on the shell caused by moving the packaged product during transportation).

12.Due to the harsh environment, the machine shell is rusted and corroded.

9. Technical Support

1) Customer service email:

E-mail: essvipsupport@eco-worthy.com.cn

2) Customer service telephone numbers:

Tel(DE): +49 6175-6514-999

Tel(US/CA): +1 713-906-2097

Tel(UK): +44 755-340-6988

Note:

Customer Service Hours:

US: Mon-Fri 8：3AM - 6:00 PM(CST)

UK: Mon-Fri 9 AM - 5 PM(GMT)

DE: Mon-Fri 9 AM - 5 PM(CET)

3) Company address: USA/Germany

Address(US): 10920 W Sam Houston Pkwy N,Suite 700, Houston, TX 77064

Address(DE): ECO-Worthy Europe GmbH Otto-Hahn-Str. 20 61381 Fried richsdorf - Köppern Germany

4) Official website address:

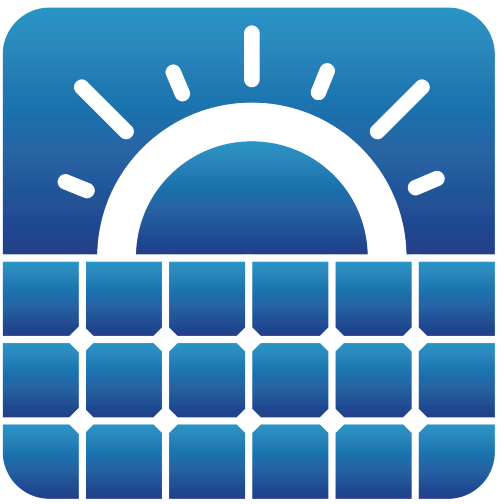
Web: https://www.eco-worthy.com/

5) Official social media:

Facebook: https://www.facebook.com/ecoworthy.store/

Youtube: @ecoworthy

Tiktok: https://www.tiktok.com/@eco_worthy



ECO-WORTHY

ENERGY FOR INDEPENDENCE

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