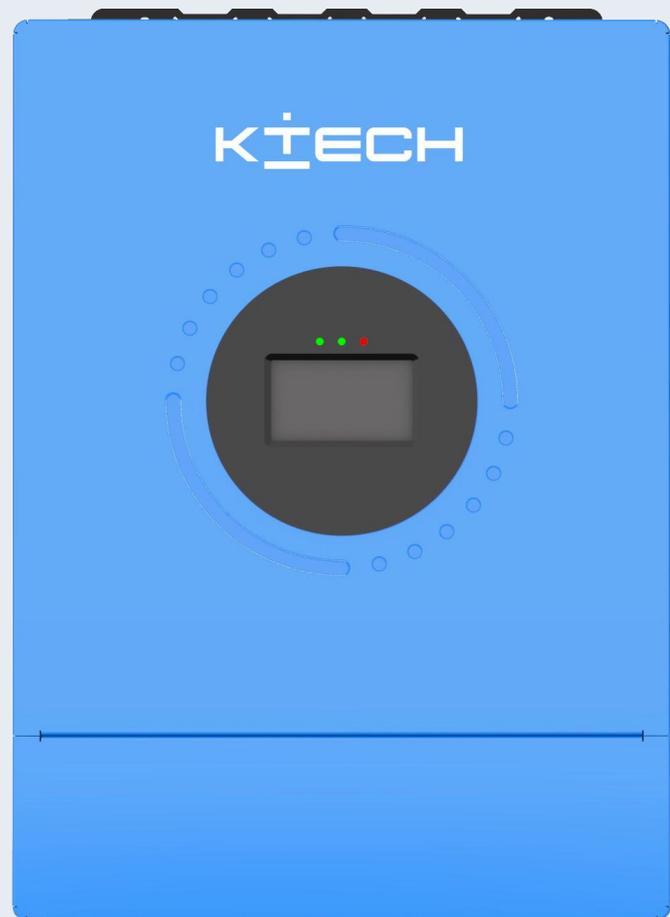


Version: V2.2

Photovoltaic Energy Storage Inverter User's Manual



Models:KE-8KC5LSUF/KE-10KC5LSUF/KE-12KC5LSUF

Catalogue

1.Safety Instruction	3
1.1 How to Use This Manual	3
1.2 Meanings of Symbols in the Manual	3
1.3 Safety statement	3
2.Product Presentation	4
2.1 Product Description	4
2.2 Product Features	4
2.3 System Block Diagram	5
2.4 Product Summary	6
2.5 Product Parameter Table	7
3.Installation	8
3.1 Select the Installation Location	8
3.2 Install the machine	9
3.2.1 Installing the expansion screws	9
3.2.2 Installing the inverter	10
3.3 Schematic Diagram for Single - phase Connection	11
3.4 Connect the AC and DC wiring	12
3.4.1 Introduction	12
3.4.2 Precautions for Connecting the Standby Cable	12
3.4.3 Single-phase parallel connection guide diagram	14
3.4.4 Three-phase parallel connection diagram	16
4.Wiring	18
4.1 Split - phase Mode (default)	18
4.2 Single-phase mode	18
4.3 Cable and Circuit Breaker Selection	19
4.4 AC input and output cables	21
4.5 Battery Wiring	21
4.6 Photovoltaic Wiring	22
4.7 Dry contact wiring	23
4.8 Landing	23
4.9 Final Installation	23
4.10 Start the Inverter	23
5.Communication	24
5.1 Overview	24
5.2 RS485 Port	24
5.3 BMS Port	25
5.4 Dry Contact Port	26
5.5 Bluetooth	27

5.6 WIFI	27
6.Interface Operation(Based on UI version 1.3.0.12)	28
6.1 LED Indication	28
6.2 Liquid Crystal Display and Operation	28
7.Protection Functions	45
7.1 Protection Functions	45
8.Product Maintenance	46
8.1 Troubleshooting	46
8.2 Maintenance	47

1.Safety Instruction

1.1 How to Use This Manual

- This manual contains important information about the product, guidelines, operation and maintenance. It applies to the following models: **KE-8KC5LSUF**, **KE-10KC5LSUF**, **KE-12KC5LSUF**.
- Users must follow the contents of this manual during installation, use and maintenance.

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.

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.

2.Product Presentation

2.1 Product Description

Energy storage hybrid inverter connects and coordinates the control of photovoltaic, energy storage battery, power grid and load, so as to provide stable, safe and clean electric energy for household, commercial and industrial users to meet the energy needs under different scenarios.

2.2 Product Features

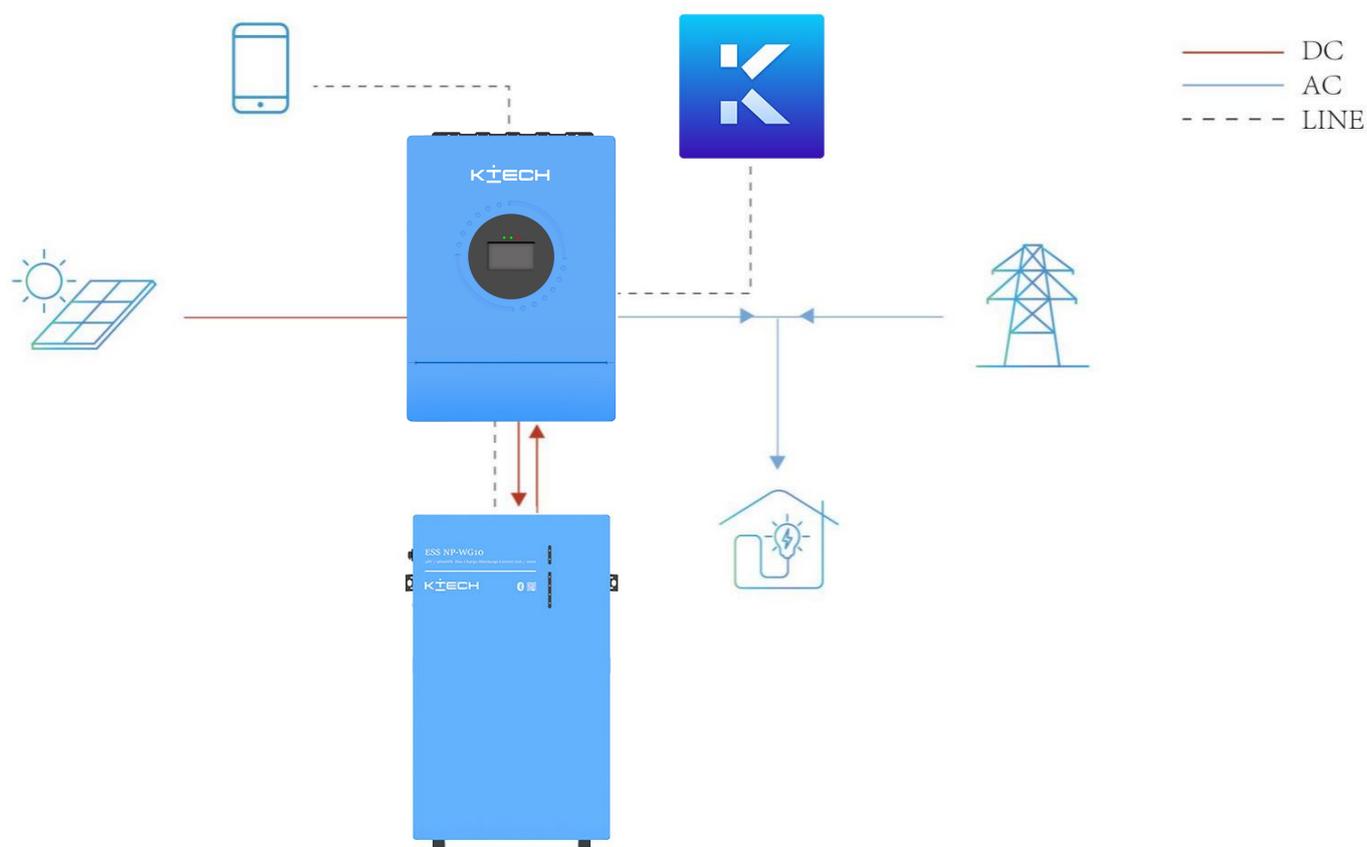
- Supports various types of energy storage batteries such as lead-acid batteries and lithium-ion batteries
- Supports single-phase and split-phase pure sine wave output
- Supports the adjustment of voltage per phase within the range of 100~ 130V
- Supports two photovoltaic inputs and has the function of tracking two MPPT maximum power charging/carrying capacity at the same time. The MPPT efficiency is up to 99.9%, and the maximum current of a single path is 22A
- It has two output modes of mains bypass and inverter output, and has the function of uninterrupted power supply
- There are four charging modes: only PV, mains power priority, PV priority and hybrid charging
- Supports periodic battery charging and discharging
- The energy saving mode function of a single machine reduces the energy loss of no load
- It has many protection functions to protect the safety of photovoltaic panels, storage batteries, loads and controllers themselves
- Capacitive intelligent touch screen, menu operation, parameter setting intuitive and convenient
- Supports 256 event records; supports 512 days of historical data storage.
- Built-in Bluetooth and WIFI, providing native cloud platform access capability, connection can be automatically synchronized.

2.3 System Block Diagram

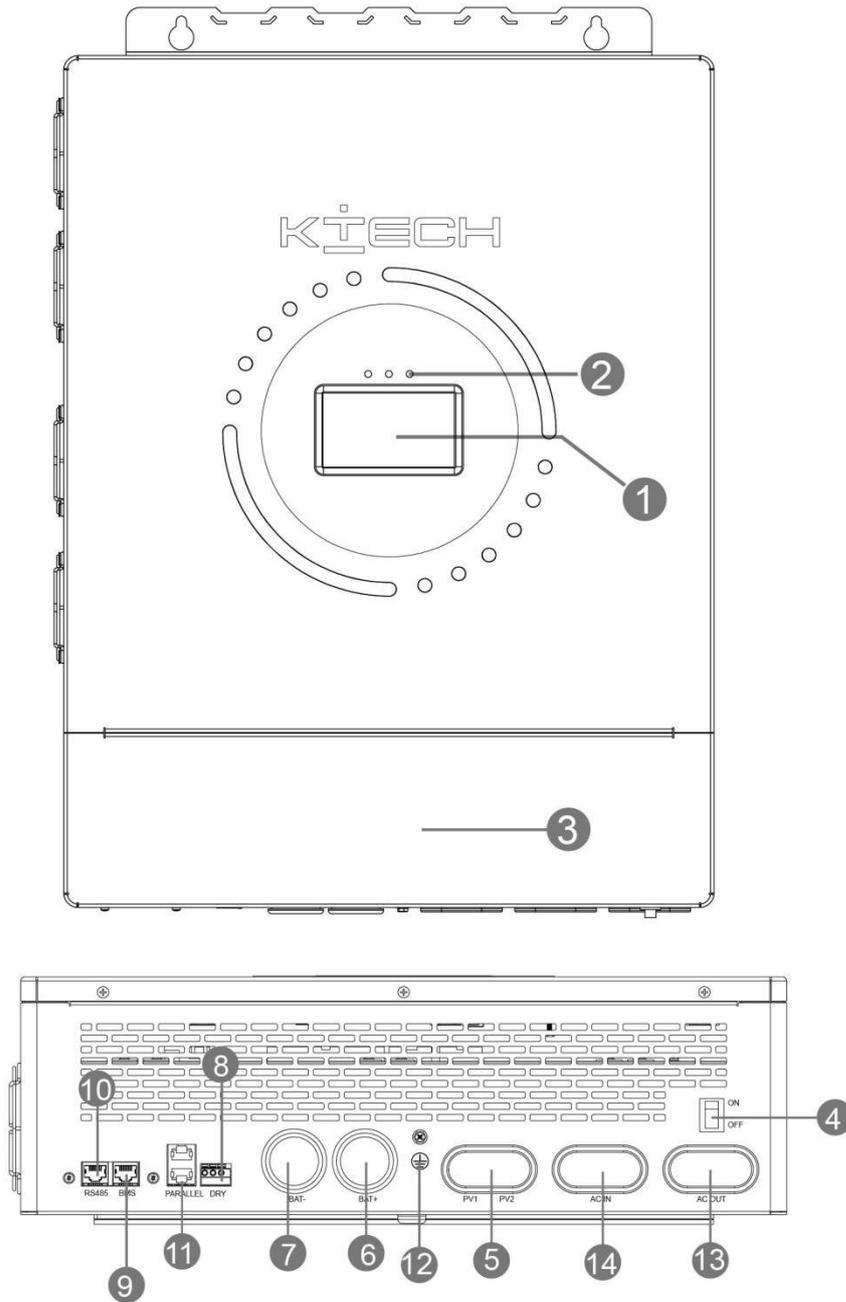
The following figure shows the system application scenario of this product. A complete system consists of the following parts:

- 1. Photovoltaic modules:** convert light energy into direct current, which can be used to charge the battery through inverter, or directly converted into alternating current to supply power to the load.
- 2. Mains power or generator:** Connected to an AC input and can charge the battery while supplying the load. The system can generally also operate without utility power or a generator when the battery and photovoltaic modules are powering the load.
- 3. Battery:** The function of the battery is to ensure the normal power supply to the system load when photovoltaic power is insufficient or there is no grid power.
- 4. Load:** Can connect to various household and office loads, including refrigerators, lights, televisions, fans, air conditioners, and other AC loads.
- 5. Inverter:** The energy conversion device for the whole system.

Actual application scenario diagram:



2.4 Product Summary



1	Capacitive touch screen	2	LED pilot lamp	3	Terminal protection cover
4	ON/OFF ship type switch	5	PV input (1/1)	6	Battery (positive terminal)
7	Battery (negative electrode)	8	Dry contact points	9	BMS port
10	RS485 port	11	Parallel communication port	12	Grounding screws
13	AC output	14	AC input		

2.5 Product Parameter Table

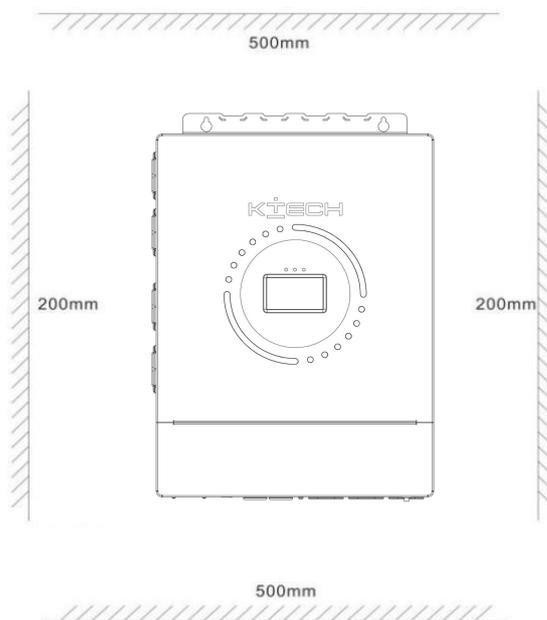
Model	KE-8KC5LSUF	KE-10KC5LSUF	KE-12KC5LSUF
Inverter output			
Output rated power	8000W	10000W	12000W
Peak output power	16000W	20000W	24000W
Rated output voltage	120/240V (Single-phase/Split-phase)		
Rated frequency	50/60Hz		
Output waveform	Pure sine wave		
Switching time	10ms (typical value)		
Battery			
Battery type	Lithium ion battery / Lead acid battery / User customization		
Rated battery voltage	48V		
Voltage range	40~60V		
Maximum photovoltaic charging current	180A	200A	200A
Maximum mains/generator charging current	100A	100A	100A
Maximum hybrid charging current	180A	200A	200A
Photovoltaic Input			
Number of MPPT	2		
Maximum input power	7500W+7500W		9000W+9000W
Maximum input current	22A+22A		
Maximum open circuit voltage	500V+500V		
MPPT Operating voltage range	125~425V		
Mains Power/Generator Input			
Input voltage range	90~140V		
Input frequency range	50/60Hz		
Bypass overload current	63A		
Efficiency			
MPPT tracking efficiency	99.9%		
Maximum battery inversion efficiency	92%		
General			
Dimensions(W*H*D)	470*620*147 mm		
Weight	25.5kg (Net weight)		
Ingress protection	IP20/IP54		
Operating ambient temperature	-10~55°C, >45°C derating		
Noise	<60dB		
Cooling method	Intelligent air cooling		
Warranty period	Two years		
Communication			
Communication method	Wi-Fi/Bluetooth/RS485/CAN//Dry contact		
External module (optional)	4G		
Certification			
Overview	UL1741/FCC		

3. Installation

3.1 Select the Installation Location

This product is for indoor use only (protective class IP20). Before choosing the 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: $\geq 200\text{mm}$ on both sides and $\geq 500\text{mm}$ at the top.
- Ambient temperature: $-10\sim 55^{\circ}\text{C}$; 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 a potentially explosive area
- Do not install the inverter and lead-acid battery in a confined space

WARNING

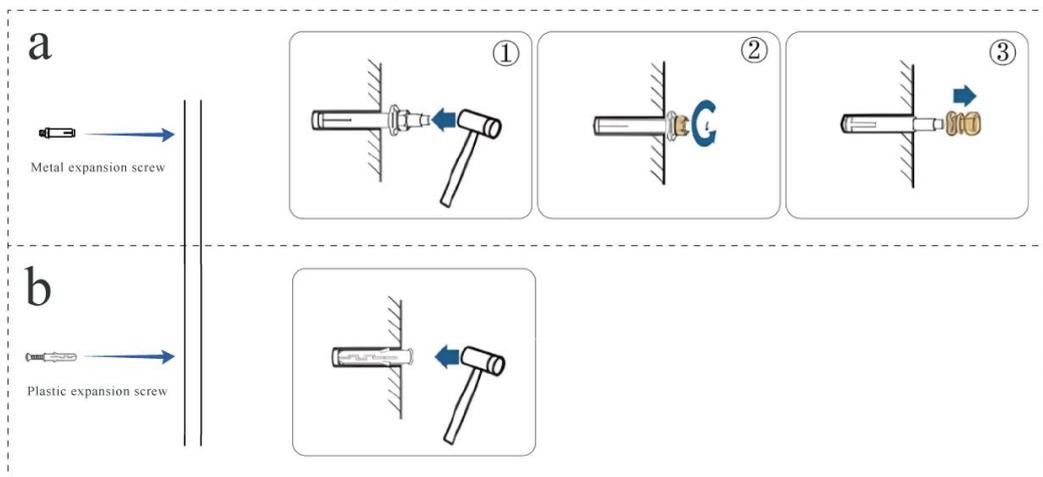
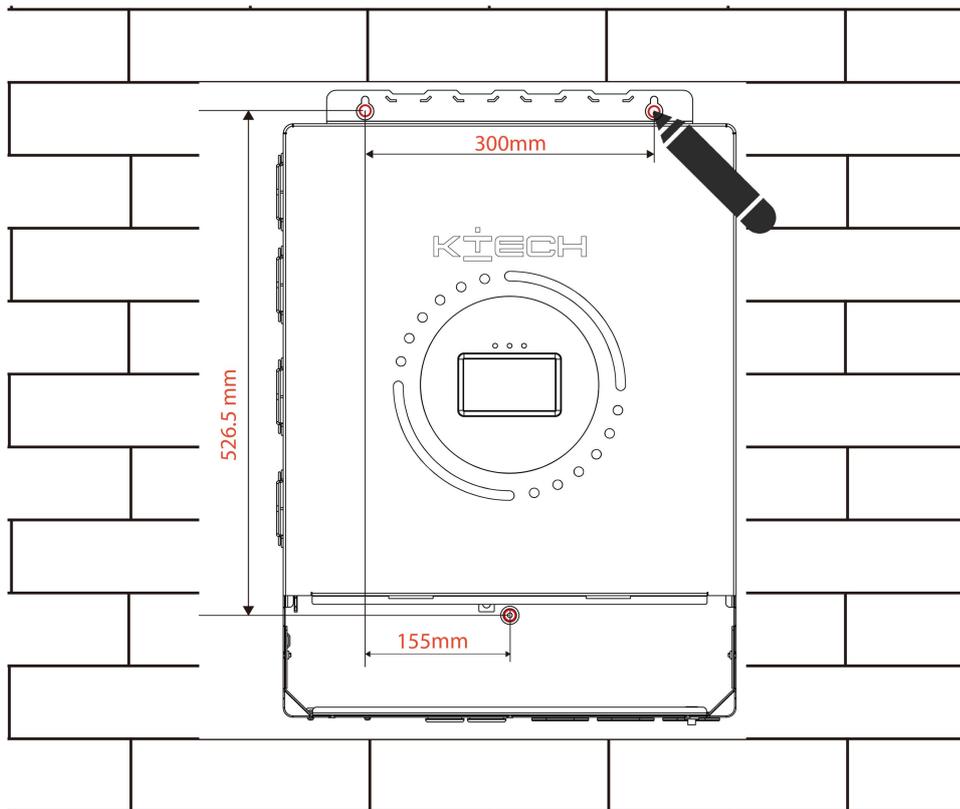
- Do not install the inverter in direct sunlight
- Do not install or use the inverter in a humid environment

3.2 Install the machine

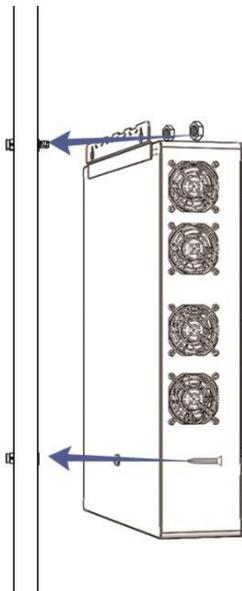
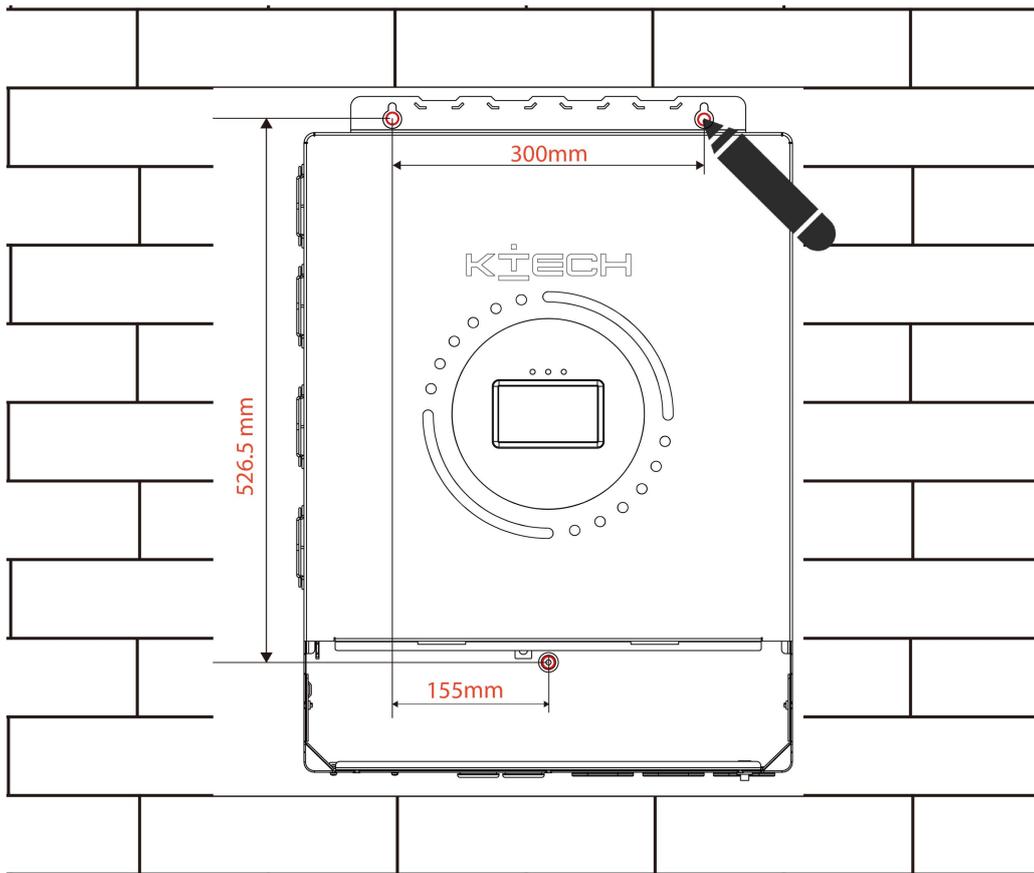
3.2.1 Installing the expansion screws

Drill 3 mounting holes on the wall with an electric drill in alignment with the hole positions of the inverter as per the specified dimensions.

- Drive the metal expansion bolt into the wall, tighten the nut to make the expansion bolt open its expanding feet; then remove the washer and nut.
- Drive the plastic expansion tube into the wall.



3.2.2 Installing the inverter

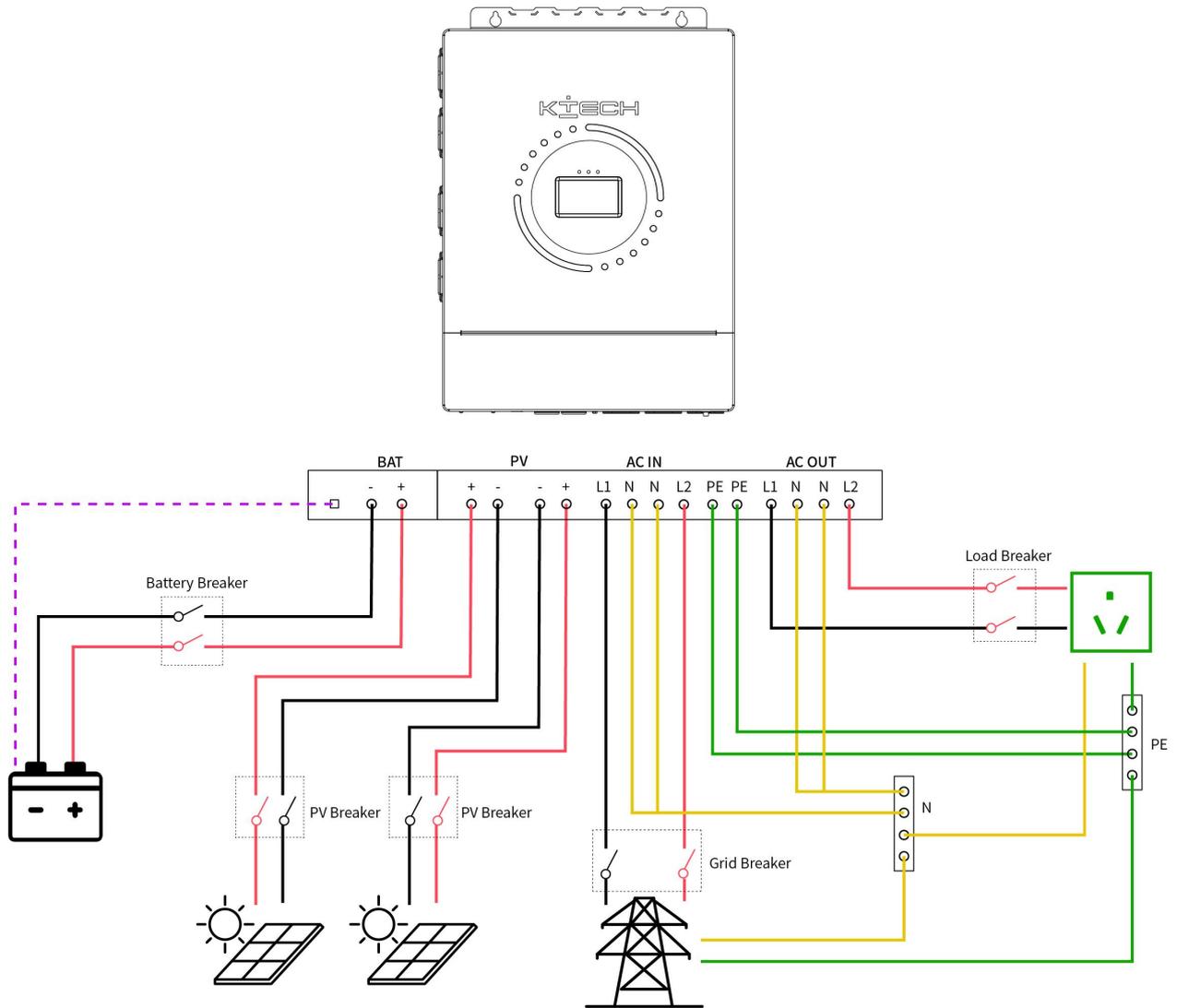


NOTICE

- When using the equipment in areas with poor air quality, the dust filter will be blocked by air particles. Please disassemble and clean the air filter regularly to avoid affecting the internal air flow rate of the inverter, thus triggering the device overtemperature protection failure, affecting the use of power supply and the service life of the inverter.

3.3 Schematic Diagram for Single - phase Connection

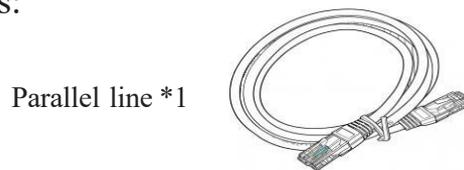
⚠ Do not reverse the positive and negative battery!



3.4 Connect the AC and DC wiring

3.4.1 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:



3.4.2 Precautions for Connecting the Standby Cable

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, and do not connect the PV1 and PV2 ports of a single inverter to the same PV source.

2 、 Battery Wiring:

For single-phase or three-phase parallel connection, all inverters must be connected to the same battery bank. Connect BAT+ to BAT+, and BAT- to BAT- (with correct polarity). Ensure proper wiring, consistent cable length, and identical wire gauge before powering on the system to avoid abnormal output of the parallel system caused by incorrect connections.

3 、 AC OUT Wiring:

a) Single-Phase Parallel Line

For single-phase parallel connection, all inverters must have L connected to L, N connected to N, and PE connected to PE. Ensure proper wiring, consistent cable length, and identical wire gauge before powering on the system to avoid abnormal output of the parallel system caused by incorrect connections.

b) Three-Phase Parallel Line

For three-phase parallel connection, all inverters must have N connected to N and PE connected to PE. The L wires of all inverters in the same phase shall be connected together, while the AC output L wires of different phases must not be connected to each other. Other precautions are the same as those for single-phase parallel connection.

4 、 AC IN Wiring:

For single-phase parallel connection:all inverters must have their L (Line) terminals connected to L, N (Neutral) terminals to N, and PE (Protective Earth) terminals to PE.Ensure correct wiring and consistent cable length/diameter before power-on and startup to prevent abnormal operation of the parallel system due to miswiring.Do not connect multiple different AC power sources to avoid damage to the inverters or external electrical equipment.Maintain the consistency and uniqueness of the AC power input.For three-phase parallel connection:all inverters must have their N terminals connected to N and PE terminals to PE.L terminals of all inverters in the same phase shall be connected together.L terminals of AC inputs from different phases shall not be interconnected.

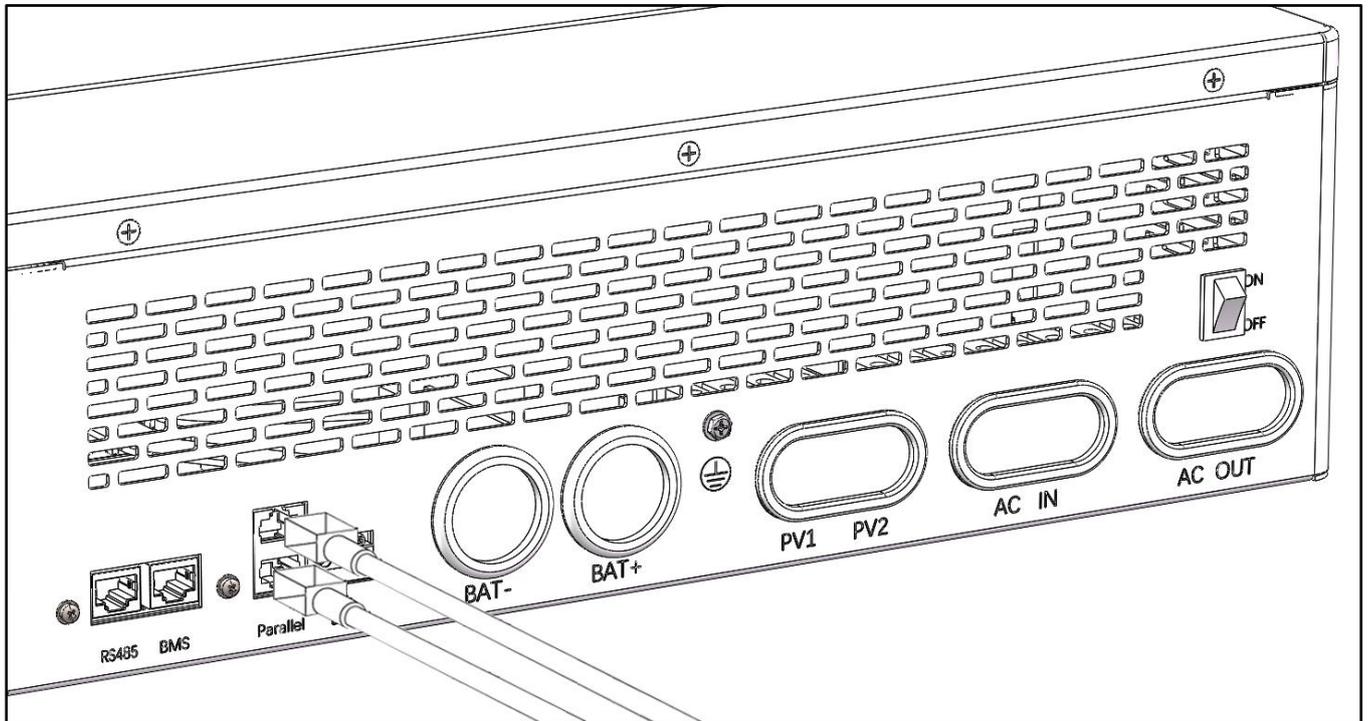
5 、 Parallel Communication Line Wiring:

The communication cable is used for single-phase or three-phase parallel connection. When connecting multiple inverters, the "one-out-one-in" principle must be followed: the male connector (output) of the current inverter shall be connected to the female connector (input) of the inverter to be paralleled. Do not connect the male connector to the female connector of the same inverter.Meanwhile, the parallel communication cables of all inverters must be securely fastened with screws to prevent cable detachment or poor contact, which may cause abnormal operation of the system output or equipment 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.

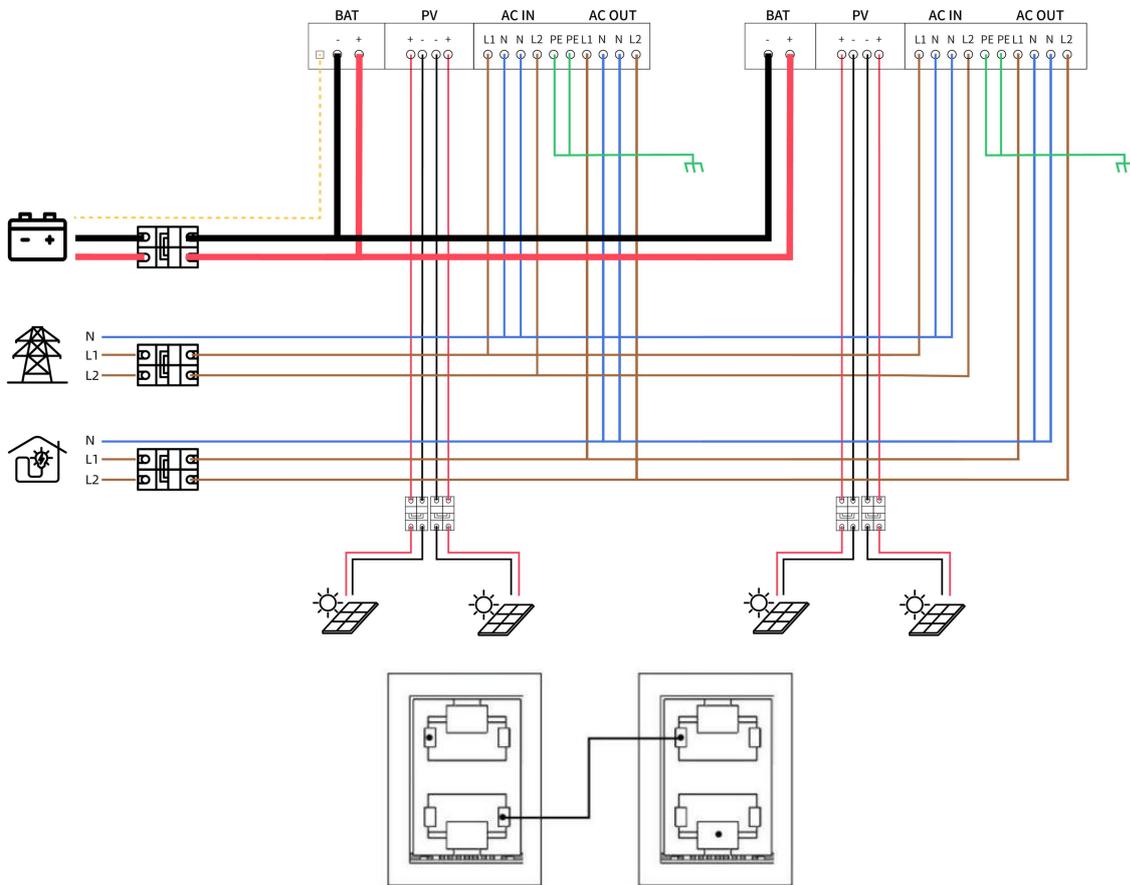
3.4.3 Single-phase parallel connection guide diagram

1、 The inverter parallel communication line and equal current detection line need to be connected and locked with screws, as shown in the schematic diagram:

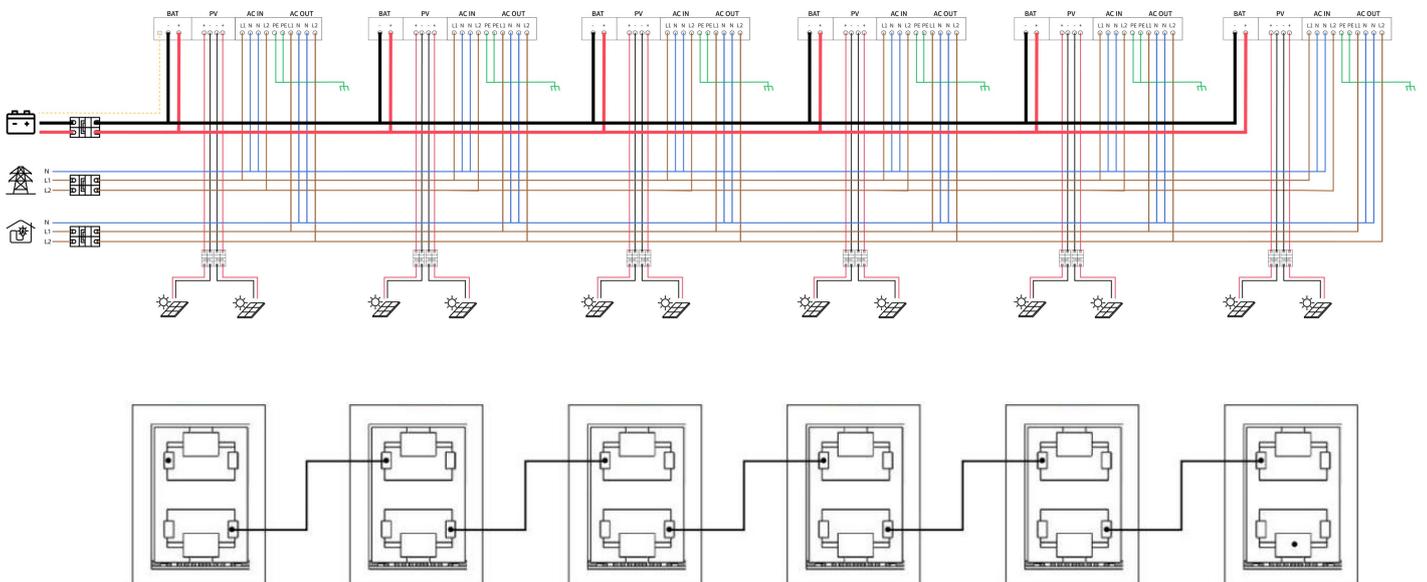


2、 When multiple units are connected in parallel, the connection diagram is as follows:

a) Parallel Connection of Two Inverters in the System:

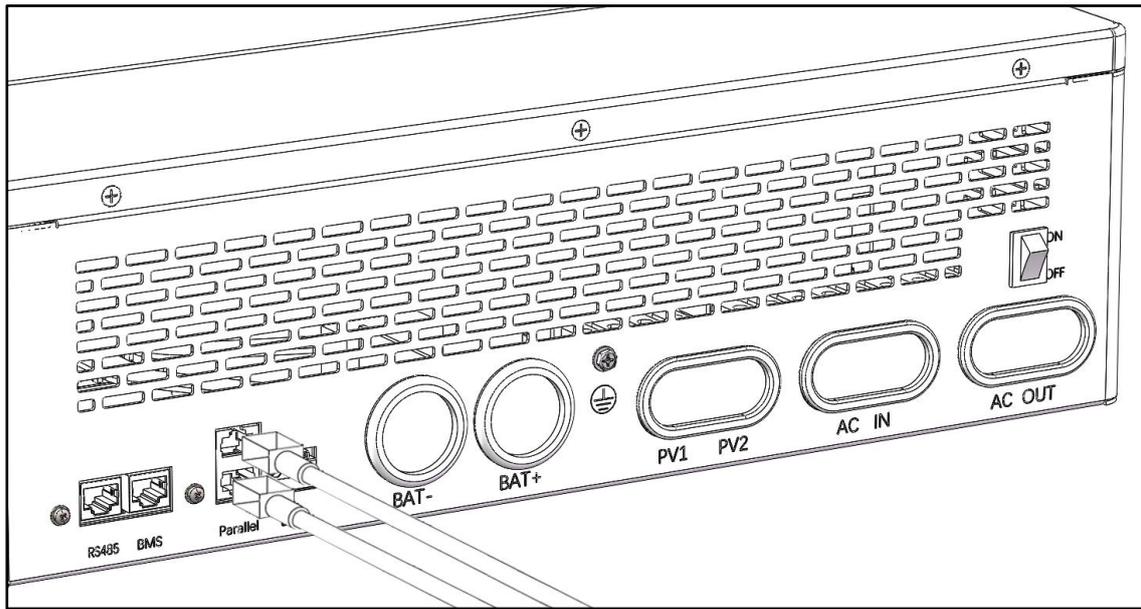


b) Parallel Connection of Six Inverters in the System:



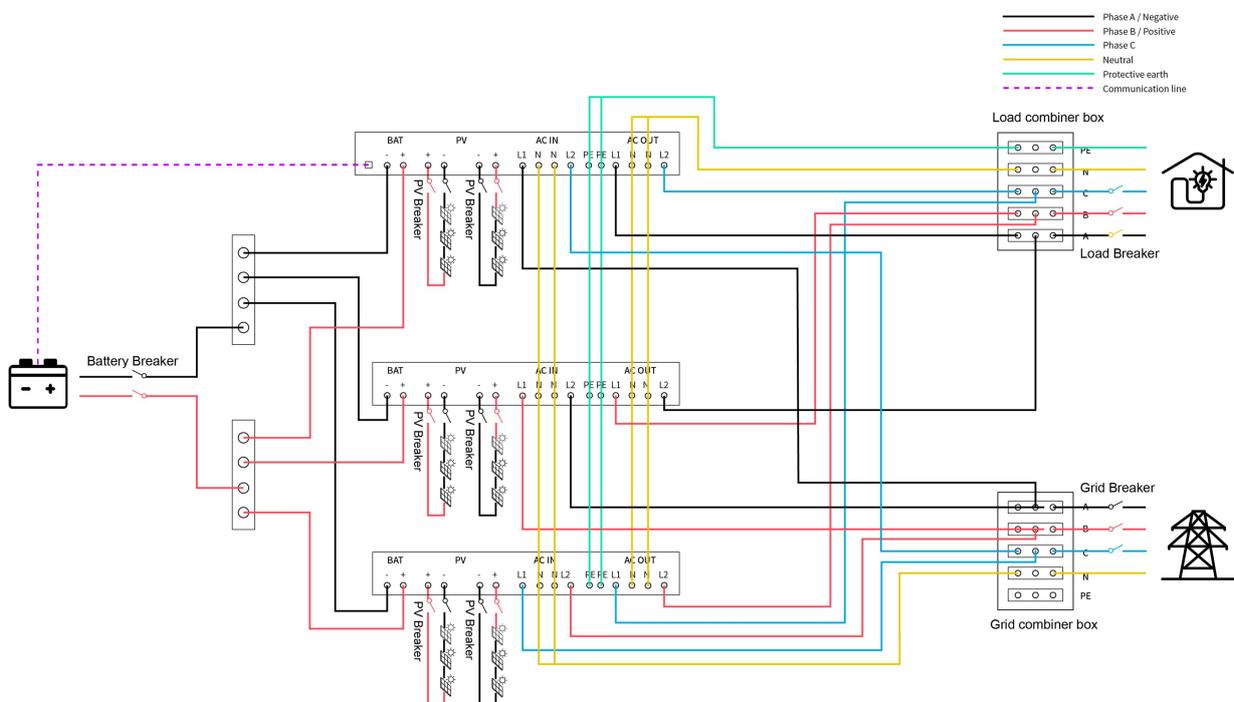
3.4.4 Three-phase parallel connection diagram

1、 The communication line of the inverter should be connected and locked with screws, as shown in the schematic diagram:

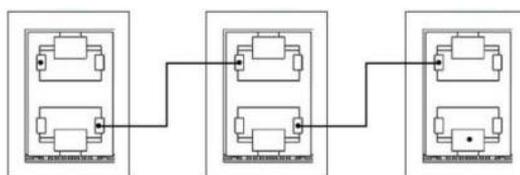


Three-Phase Parallel Operation

⚠ Cannot share PV input at any time!



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



Note:

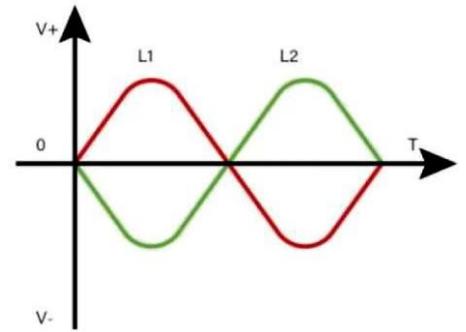
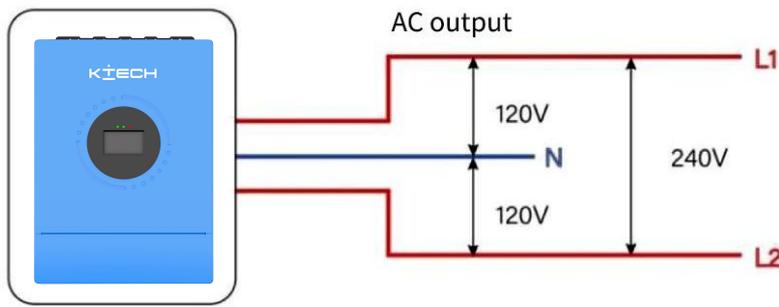
- 1) Before powering on and lighting up the screen, check whether the wiring is correct according to the above wiring diagram to avoid system problems.
- 2) All connections should be fixed and strong to avoid system failure caused by wire loss.
- 3) When the AC output is connected to the load, the wiring should be correct according to the requirements of the electrical load equipment to avoid damage to the load equipment.
- 4) The communication output voltage must be set to a consistent value, or only the host can be configured. When operating in parallel mode, the voltage set by the host shall prevail, and the host shall forcibly rewrite the remaining slaves to keep them consistent. This option can only be set in standby mode.
- 5) Machine factory defaults to stand-alone mode, if you use a weaver or three-phase function, need to set the weaver mode through the screen. The setting method is:

Each time the power is turned on, one machine is turned on and the rest are turned off. Then, the parallel mode and phase are set according to the on-site system operation mode. For single-phase parallel units, set up the single-phase parallel unit main unit, slave unit, and slave unit in sequence. Three-phase parallel units are set in sequence as three-phase parallel main unit, slave unit, and slave unit, and the phases are set in sequence as A phase, B phase, and C phase. After the machine is successfully set up, turn off the machine switch, wait for the machine to be powered on, and then set the other machines in sequence until all machines are set up. At the same time, all machines should be powered on again and enter the working state.

- 6) After the system is running, the measurement output voltage is correct, and then the load is connected to set.

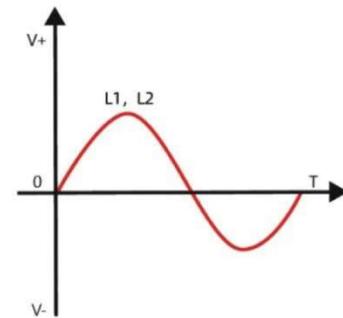
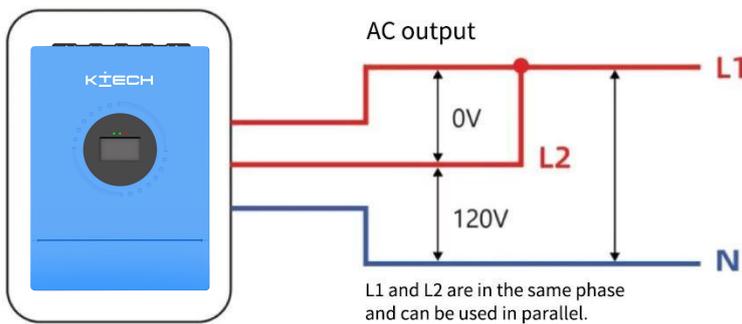
4. Wiring

4.1 Split - phase Mode (default)



Project	Description
Applicable model	KE-12KC5LSUF/KE-10KC5LSUF/KE-8KC5LSUF
AC output phase voltage (L-N)	100~ 130V,120V default
AC output line voltage (L1-L2)	200~260V,240V default

4.2 Single-phase mode



Project	Description
Applicable Models	KE-12KC5LSUF/KE-10KC5LSUF/KE-8KC5LSUF
AC Output Phase Voltage (L - N)	100~130V, 120V default



NOTICE

- Users can adjust the output voltage via the settings menu.
- The output voltage is adjustable within the range of 100V to 130V.

4.3 Cable and Circuit Breaker Selection

· PV input

Model	Wire diameter	Maximum input current	Circuit breaker specifications
KE-8KC5LSUF	4mm ² / 10 AWG	22A	2P-32A
KE-10KC5LSUF	4mm ² / 10 AWG	22A	2P-32A
KE-12KC5LSUF	4mm ² / 10 AWG	22A	2P-32A

· AC input

Model	Output mode	Maximum current	Wire diameter	Circuit breaker specifications
KE-8KC5LSUF	Split-phase/ Single-phase	63A(L1/L2/N/N)	25mm ² /4AWG (L1/L2/N/N)	3P-63A
KE-10KC5LSUF	Split-phase/ Single-phase	63A(L1/L2/N/N)	25mm ² /4AWG (L1/L2/N/N)	3P-63A
KE-12KC5LSUF	Split-phase/ Single-phase	63A(L1/L2/N/N)	25mm ² /4AWG (L1/L2/N/N)	3P-63A

· Battery

Model	Wire diameter	Maximum current	Circuit breaker specifications
KE-8KC5LSUF	95mm ² / 4/0 AWG	180A	2P-200A
KE-10KC5LSUF	120mm ² / 250 kcmil	200A	2P-250A
CT-12KC5LSUF	120mm ² / 250 kcmil	200A	2P-250A

· AC output

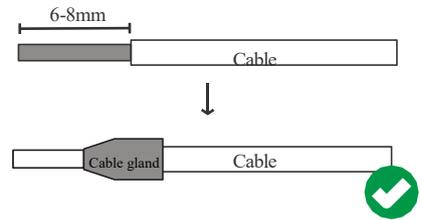
Model	Output mode	Maximum current	Wire diameter	Circuit breaker specifications
KE-8KC5LSUF	Split-phase/ Single-phase	63A(L1/L2/N/N)	25mm ² /4AWG (L1/L2/N/N)	3P-63A
KE-10KC5LSUF	Split-phase/ Single-phase	63A(L1/L2/N/N)	25mm ² /4AWG (L1/L2/N/N)	3P-63A
KE-12KC5LSUF	Split-phase/ Single-phase	63A(L1/L2/N/N)	25mm ² /4AWG (L1/L2/N/N)	3P-63A



NOTICE

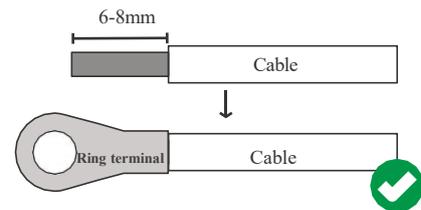
- For the photovoltaic input, AC input, and AC output terminals.

1. Use a wire stripper to remove 6 - 8mm of the insulation layer of the cable.
2. Fix a cable gland at the end of the cable (the cable gland needs to be prepared by the user).



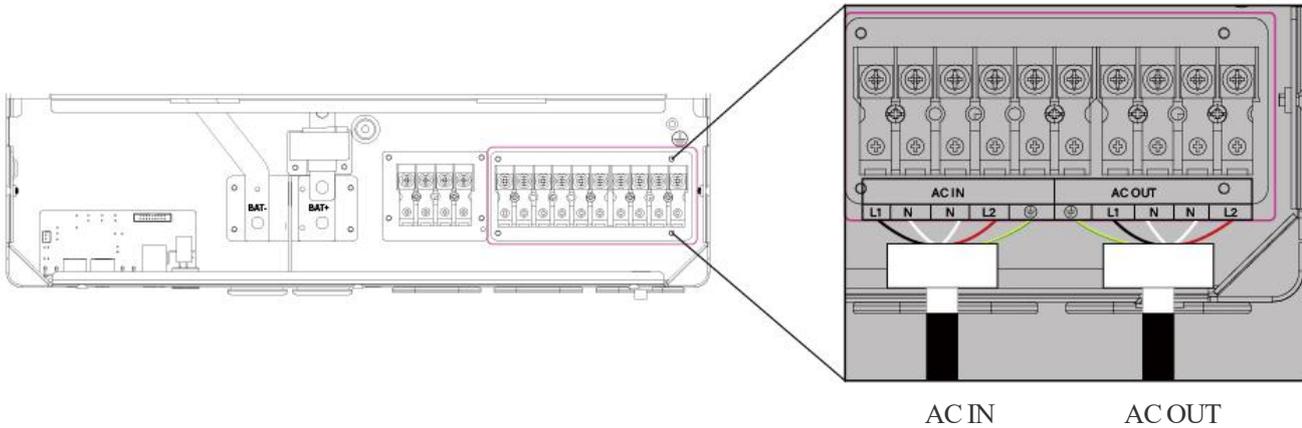
- Battery Terminal

1. Use a wire stripper to remove 6 - 8mm of the insulation layer of the cable.
2. Fix the ring terminal (provided with the box) at the end of the cable.



4.4 AC input and output cables

Connect the live wire, neutral wire, and ground wire according to the position and sequence of the cables shown in the following figure.

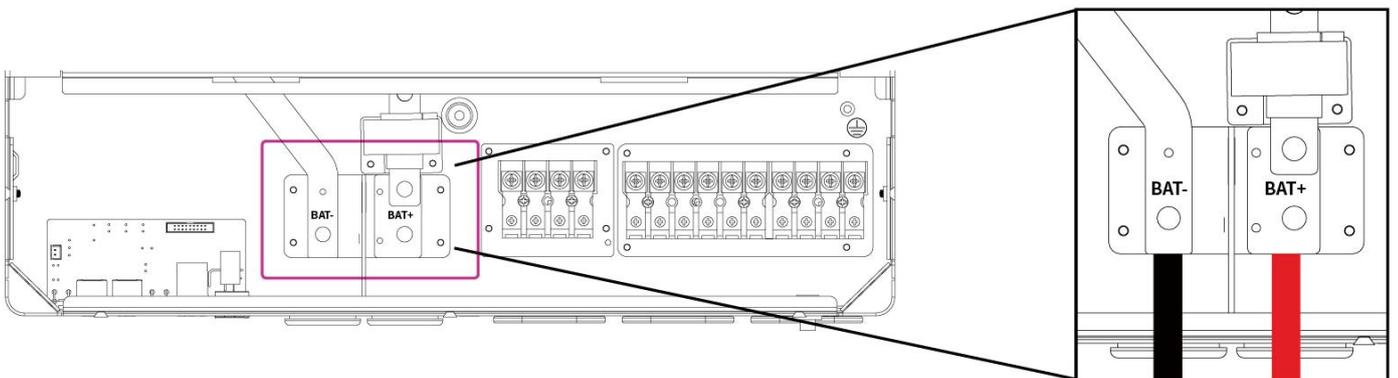


DANGER

- 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.

4.5 Battery Wiring

Connect the battery's positive and negative cables in the cable position and order shown in the image below.



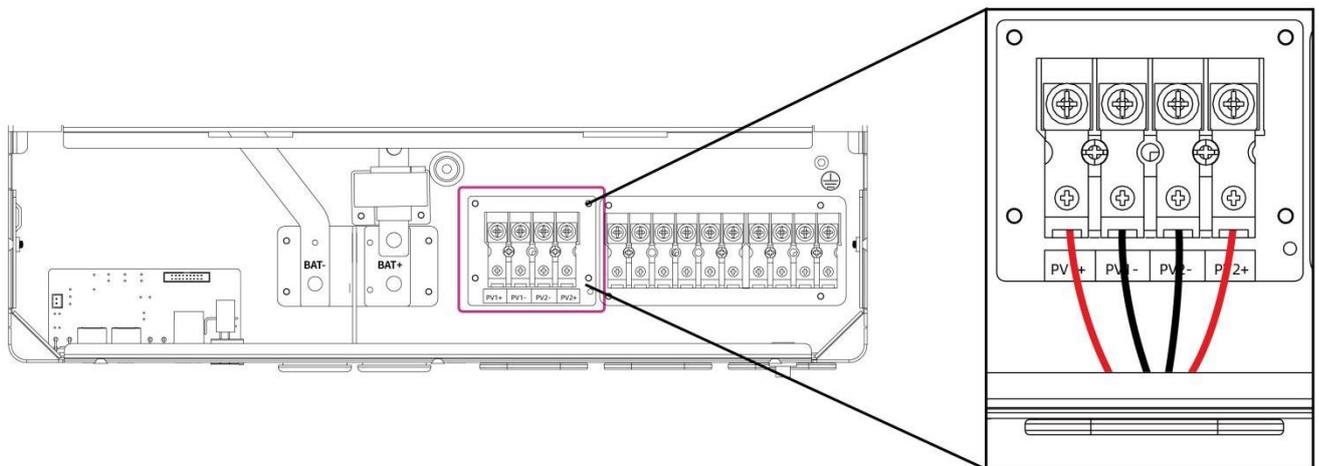


DANGER

- 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 risk of electric shock. Do not operate with power on.
- Make sure that the positive and negative terminals of the battery are connected correctly. Do not reverse them, otherwise the inverter may be damaged.
- Check whether the cable used is sufficient to meet the requirements, too thin, poor quality cable will have serious safety risks.

4.6 Photovoltaic Wiring

Connect the positive and negative wires of the two photovoltaic circuits in accordance with the cable positions and sequence shown in the diagram below.

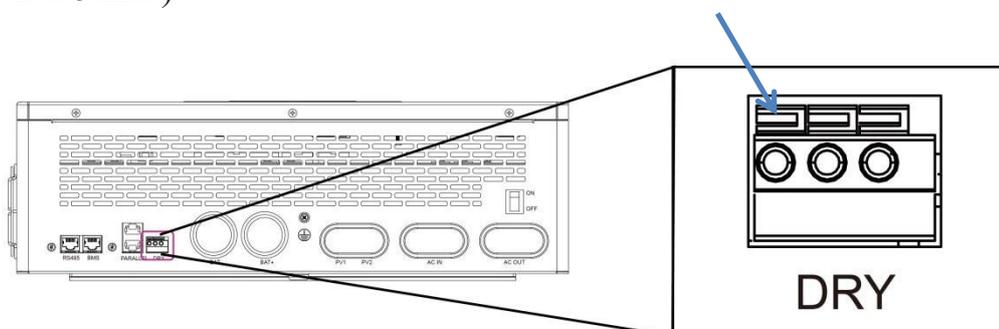


DANGER

- 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 \leq 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.

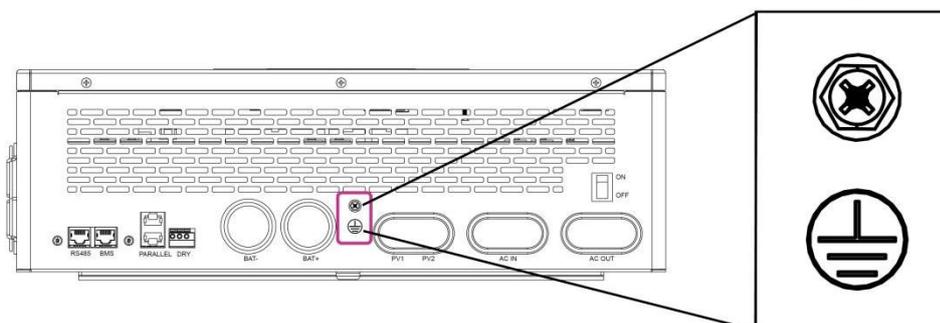
4.7 Dry contact wiring

Use a small screwdriver to push the arrow in the direction indicated, and then insert the communication cable into the dry junction port. (The cross-section of the communication cable is 0.2-1.5mm²).



4.8 Landing

Ensure that the grounding terminal is reliably connected to the grounding busbar.



NOTICE

- The diameter of the protective earthing conductor (PEC) shall not be less than 4 mm², and it shall be routed as close to the earthing point as possible.

4.9 Final Installation

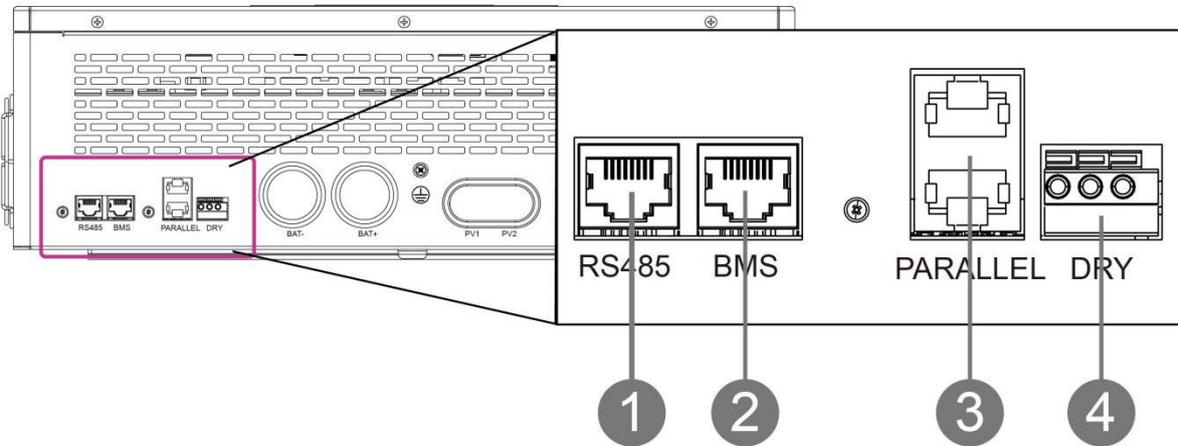
After ensuring the reliability of wiring and correct wire sequence, restore the terminal cover to its original position.

4.10 Start the Inverter

- Step 1: Close the circuit breaker of the battery.
- Step 2: Press the boat-shaped switch at the bottom of the inverter. The screen and indicator lights will 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 increasing power.

5.Communication

5.1 Overview



1	RS485 port	2	BMS port	3	Parallel communication port	4	Dry contact
---	------------	---	----------	---	-----------------------------	---	-------------

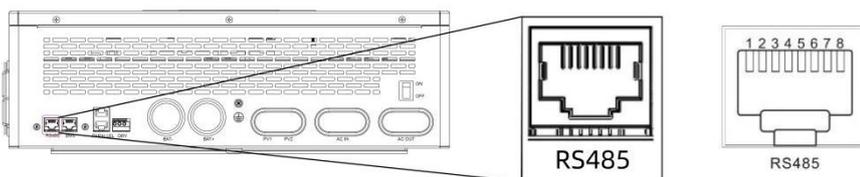


NOTICE

The RS485 port and the BMS communication port cannot be used simultaneously.

5.2 RS485 Port

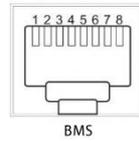
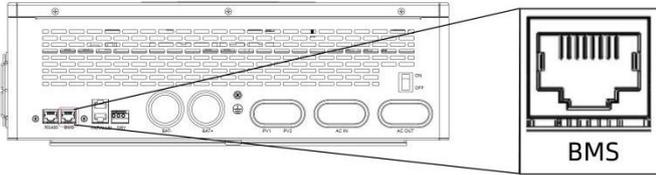
The RS485 port serves as a data expansion port.



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 BMS Port

The BMS port is used for connecting to the BMS of the lithium-ion battery.



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

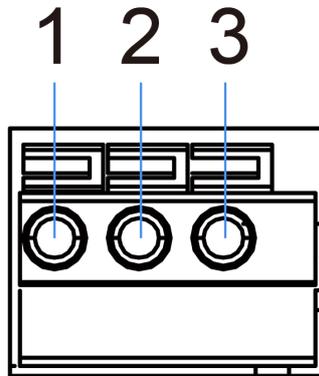
If you require communication between the inverter and the lithium battery BMS, please contact us to learn about the communication protocols or upgrade the inverter to the corresponding software program.

If you use a standard RJ45 network cable, please check the pin definition—pins 1 and 2 usually need to be disconnected for proper operation.

5.4 Dry Contact Port

The dry contact port provides the following function:

Generator remote start/stop



Function	Description
Generator remote start/stop	<p>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.</p> <p>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)</p>



NOTICE

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

5.5 Bluetooth

The inverter comes with a built-in Bluetooth module, which can be connected and used via the Xiaoai Assistant or Wisehome APP (Wisehome APP can be downloaded by scanning the QR code below, through the official website, or by contacting us for the installation package).



IOS



Android



Chinese Android

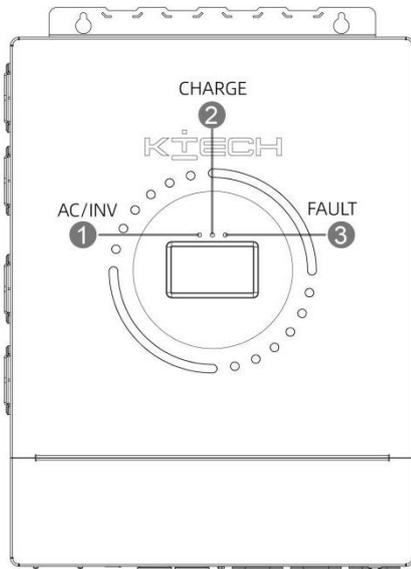
5.6 WIFI

After configuring the internet connection in the App, the device can connect to the Xiaoai Assistant/Wisehome cloud platform.

Please note: When setting the Wi-Fi name in the App, use only English letters and numbers (name must be less than 32 characters). Chinese characters and special symbols are not allowed. The password must also consist of English letters and numbers (8–16 characters in length). Chinese characters and special symbols should not be included.

6.Interface Operation(Based on UI version 1.3.0.12)

6.1 LED Indication



Pilot lamp	Pigment description	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.

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 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 data shows 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

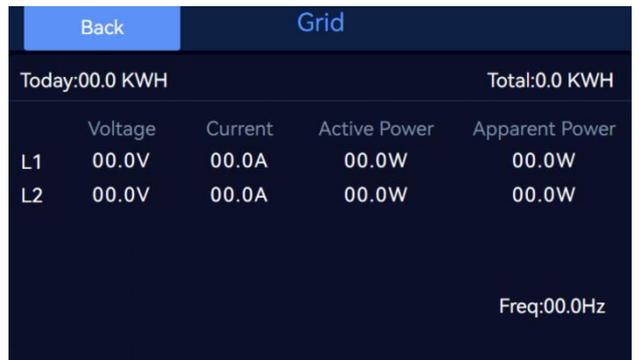
In this interface, the upper part shows the daily PV solar panel's PV power generation and total power generation, while the lower part shows the PV voltage, current and power respectively.



(3) Grid Data Interface

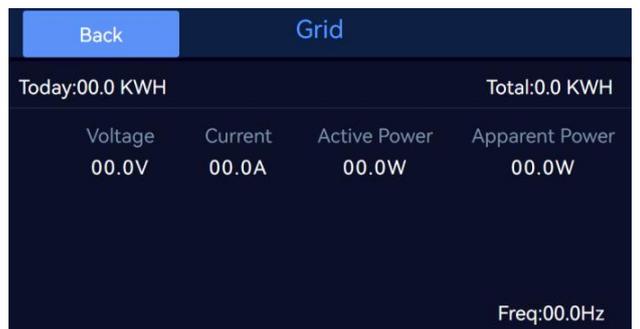
The data of the power grid will vary according to the equipment model. If it is a split-phase inverter, the right interface will be displayed:

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:

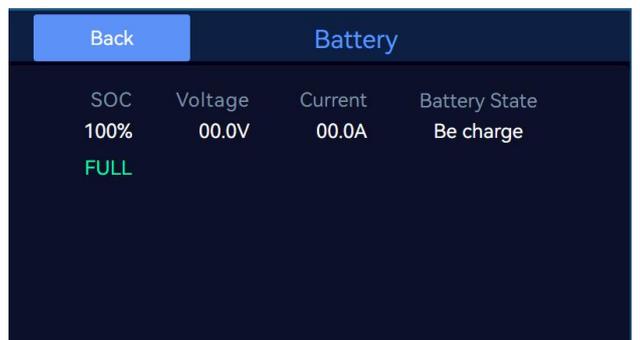
Above the interface are the daily and total grid-connected electricity of the power grid.



(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 of the loads L1 and L2.

	Current	Active Power	Apparent Power	Load Rate
L1	00.0A	00.0W	00.0W	0.00%
L2	00.0A	00.0W	00.0W	0.00%

Today:00.0 KWH Total:0.0 KWH

Freq:00.0Hz

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.

	Current	Active Power	Apparent Power	Load Rate
	00.0A	00.0W	00.0W	0.00%

Today:00.0 KWH Total:0.0 KWH

Freq:00.0Hz

(6) Equipment Information Interface

Display text	Description
Hardware-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 interface.

Hardware version	0.0.0.0
Software version	0.0.0.0 <input type="button" value="Check update"/>
UI version	0.0.0.0 <input type="button" value="Check update"/>
Device SN	02123456789000000000
Max supported battery voltage	48V
Language	<input type="button" value="English"/>

(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, WIFI status, cloud platform link status, RS485-1 communication status, RS485-2 communication status, BMS communication status

(9) Statistical Data Interface

The interface is divided into two pages, and the content displayed is as follows:

	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

Back		Statistical data	
		<	>
Boot time		2025-03-04 00:00:00	
Last balanced charge time		2025-03-04 00:00:00	
Total operation days		30Days	
Error recording		200	
Historical data		100	

(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

Back		Historical data	
		K	← 512/512 →
Battery charge AH	300Ah	Battery discharge AH	30Ah
Inverter work time	00	Bypass work time	20h
Load usage	00	Time	2025-03-05 08:00:00
PV power generation	00	Grid-connected power	00
Load consumes utility power			00
Amount of electricity charged today			00

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. Like historical data, users can select and input a specific one to jump. (The following pictures only show some parameters)

Order number	Parameter name
1	Error code
2	Time
3	PV1 voltage
4	Battery voltage
5	Total charge power
6	Grid voltage
7	Inverter voltage
8	Load current
9	Load active power
10	Grid frequency
11	PV radiator temp
12	Inverter radiator temp
13	Battery radiator temp
14	Load apparent power
15	Load apparent power
16	Device status

The screenshot shows a mobile application interface titled "Event data". At the top, there is a "Back" button and a "256/256" indicator. Below the title bar, there are navigation arrows and a list of parameters with their corresponding values, all of which are 0.

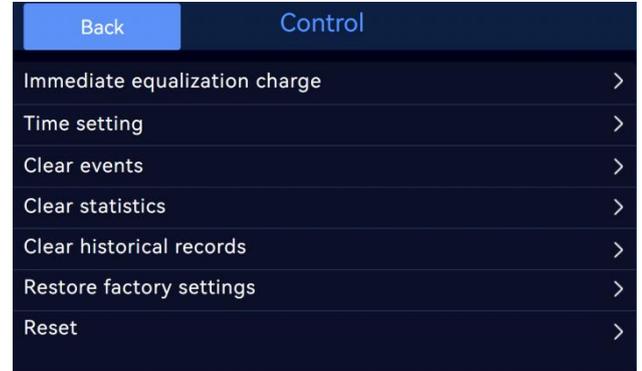
Order number	Parameter name	Value
1	Error code	
2	Time	0
3	PV1 voltage	0
4	Battery voltage	0
5	Total charge power	0
6	Grid voltage	0
7	Inverter voltage	0
8	Load current	0
9	Load active power	0
10	Grid frequency	0
11	PV radiator temp	0
12	Inverter radiator temp	0
13	Battery radiator temp	0
14	Load apparent power	0
15	Load apparent power	0
16	Device status	0
17	PV2 voltage	0
18	Total bus voltage	0
19	Battery current	0
20	Battery SOC	0
21	Grid current	0
22	Inverter current	0
23	Load rate	0
24	Mains charge current	0
25	Inverter frequency	0
26	BAT charge status	0
27	PV charge current	0
28	PV total KWH	0

Order number	Parameter name
17	PV2 voltage
18	Total bus voltage
19	Battery current
20	Battery SOC
21	Grid current
22	Inverter current
23	Load rate
24	Mains charge current
25	Inverter frequency
26	BAT charge status
27	PV charge current
28	PV total KWH

(12) Control Function

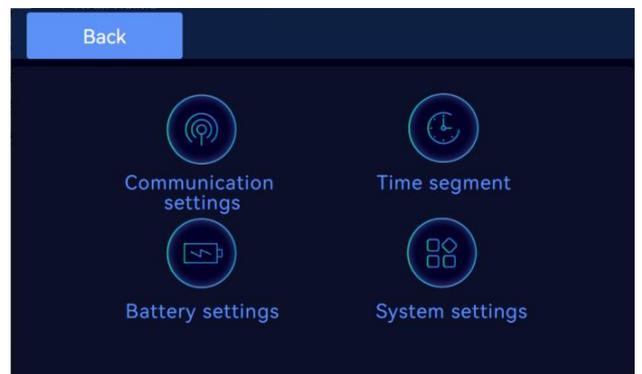
The control functions are as shown in the table above. After clicking the arrow ">", except for clicking "Set Time" which will jump to the external interface for setting, other functions can be executed after clicking confirm.

	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

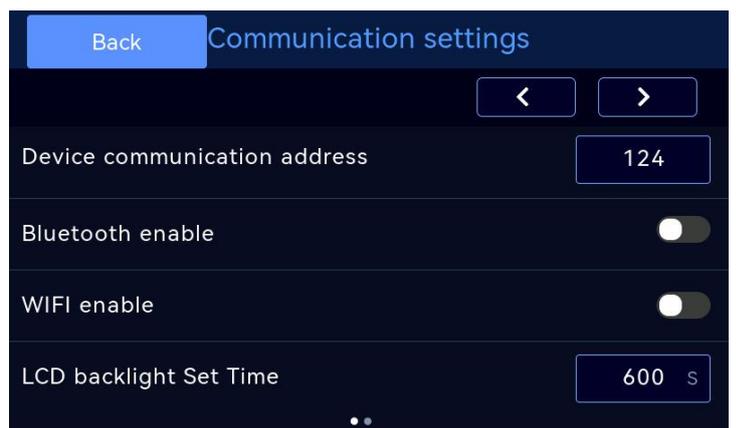
Icon	Description
	After clicking, enter the communication data setting interface
	After clicking, enter the interface of time setting for charging and discharging
	After clicking, enter the battery parameter setting interface
	After clicking, enter the system parameter setting interface



(14) Communication Data Setting Interface

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

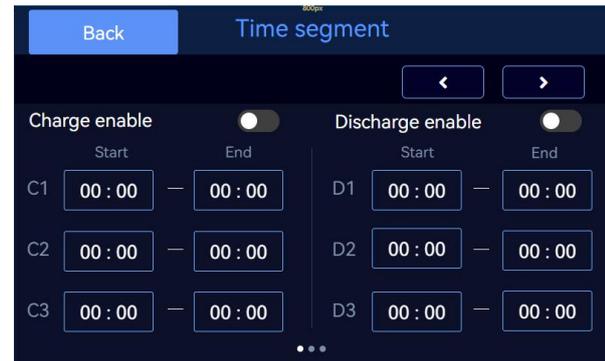
	Order number	Parameter name
Page 1	1	Device address
	2	Bluetooth enabled
	3	WIFI enabled
	4	LCD backlight time
Page 2	1	RS485-1 parameter Settings
	2	RS485-2 parameter Settings



(15) Periodic Charge and Discharge Settings

In the time-segmented charging/discharging setting interface, the time parameters of each charging and discharging period shall only be configured on the premise that the corresponding enable function is activated. If the enable function is not turned on, the configured period parameters will not take effect. Users can click the ">" button on the interface to enter the multi-period setting page, where they can complete the configuration of the start time and end time for each charging and discharging period.

		Order number	Parameter name
Charge	Page 1	1	Time - segmented charging enable
		2	Setting of start and end time for 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
	Page 2	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
	Page 3	9	Setting of start and end time for charging stage 8
		10	Setting of start and end time for charging stage 9
Discharge	Page 1	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
	Page 2	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
	Page 3	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

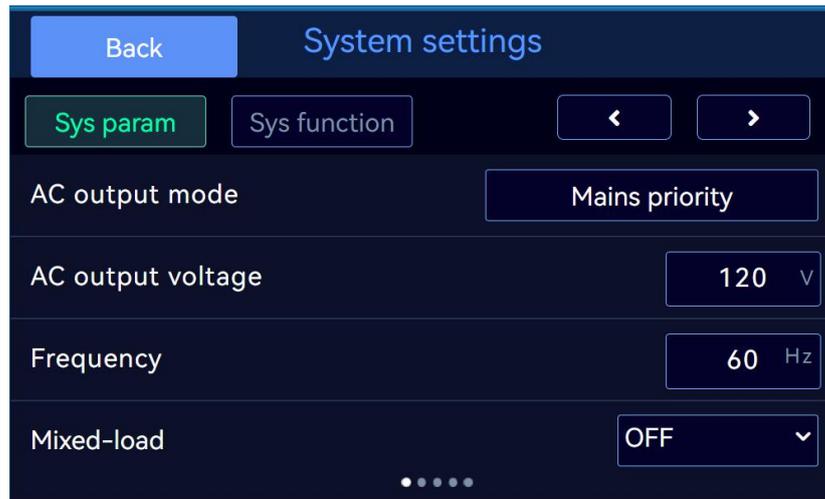
When "Setting Parameters" or "Type Parameters" is displayed in green, it indicates that the interface is in place, and each parameter can be set through drop-down options and input boxes.



	Page	Main options	Option 2	Description	
Setting Parameter	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)mV/°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 switching 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	0~240A	It can be input in the range of 0~240A, 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	Page 1	Over-voltage threshold	36~68V	It can be input in the range of 36~68V with a step of 0.1 V.
		Equalizing charge voltage	36~68V	It can be input in the range of 36~68V with a step of 0.1 V and is only valid when the battery type is open lead-acid battery, sealed lead-acid battery.
		Boost charge voltage	36~68V	It can be input in the range of 36~68V with a step of 0.1 V and is valid for lithium battery type.
		Float charge voltage	36~68V	It can be input in the range of 36~68V with a step of 0.1 V. 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 0.1 V.
		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 battery 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 0.1 V. 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.
		Over-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 voltage" 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 types of 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



	Page	Main options	Option 2	Description
System Parameter	Page 1	AC output mode	Mains priority	In the case of mains power priority, the mains power prioritizes supplying power to the load and battery, while the battery only supplies power to the load when mains power is unavailable. (For example, when the time discharge function is used, the battery can discharge.) Priority: Mains power > Photovoltaic > 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
			PV priority	PV priority: When the photovoltaic is not available, or the battery voltage is lower than the set value of [battery to mains voltage point], it switches to mains power. Priority: Photovoltaic > Mains power > Battery
		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
		Mixed-load (applicable to select Models only)	OFF	Disable
			Mix load	After activation, it automatically switches to grid power priority mode, and this setting cannot be changed. In this mode, both grid power and photovoltaic power simultaneously power the load.
	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.
			Single-phase master	
			Slave	
Three-phase master				
Split-phase 2*208Host (only displayed on the split-phase)				
Parallel phase	Phase A			

			Phase B			
			Phase C			
	Page 3	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.		
			Mains priority	Mains power priority charging, only light activated when mains power is invalid		
			PV priority	Photovoltaic priority charging is only activated when photovoltaic is invalid		
			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		
		PV output priority	Charge priority	In this mode, the PV output charges the battery first		
			Load priority	In this mode, the PV output gives power to the load first		
	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

(18) The Fault Information Is as Follows:

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)

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 undervoltage 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.



- 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.

Product issues caused by the following circumstances are not covered under the KTECH's standard warranty:

1. The product is beyond the warranty period (except where both parties have separately signed an extended warranty service agreement);
2. Failures or damages caused by non-compliance with the operating requirements specified in the product manual or relevant installation and maintenance guidelines, or by improper use, storage, or operation in an environment not specified for the product. Examples include improper installation distance, inadequate ventilation, and incorrect use of waterproof caps;
3. Unauthorized from KTECH's disassembly, repair, or modification of the product;
4. Products obtained through unauthorized channels by KTECH;
5. Failures and damages caused by unforeseeable factors, human factors, force majeure, or other reasons, such as stormy weather, floods, lightning, overvoltage, pest infestations, and fires;
6. Unauthorized modifications, design changes, or replacement of parts;
7. Intentional damage, defacement, making indelible marks, theft, etc.;
8. Natural wear and tear and aging;
9. Use not in compliance with correct safety regulations (such as VDE standards, etc.);
10. Other failures or damages not caused by the KTECH product's own quality issues;
11. Damages caused during transportation (including scratches on the product casing resulting from collisions to the packaged product during transportation);
12. Rust and corrosion on the machine casing caused by harsh environments.