



XTE SERIES



XTE Hybrid Inverter User Manual

-E- Version for European market

230Vac

Preface

Overview

This document mainly introduces the installation, electrical connection, commissioning, maintenance, and fault-handling methods of the XTE inverter.

Please read this manual carefully before installation and use it to understand the safety information and familiarize yourself with the functions and features of the XTE inverter.

All the manual details, installation instructions, operation, maintenance, and troubleshooting are intended to be for qualified electricians and expert installers.

This inverter can be used by the end user (non-expert person) only after proper training is carried out by the installing company. Before installing and debugging or running any equipment, the user must read and understand all the instructions contained in this manual and be familiar with the relevant safety symbols.

Readers need to have a certain degree of electrical theory, electrical wiring, and professional mechanical knowledge. Before installing this product, please read this manual carefully and ensure that the relevant personnel can easily access and use it.

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Reader object

This manual is mainly intended for:

- Installation and maintenance person (installer).
- User.

Symbol conventions

In order to ensure the safety of people and property during the use of the product, the following warning symbols are displayed on this manual and the box to remind the operator of the safety issues that must be followed.

Warning symbol

Label	Label Description
 Danger!	It is used to warn of imminent dangerous situations that, if not avoided, could result in death or serious bodily injury.
 Warning!	Used to warn of potentially dangerous situations that, if not avoided, could result in death or serious bodily injury.
 Caution!	Used to warn of potentially dangerous situations that, if not avoided, could result in moderate or minor personal injury.
 Note !	Used to convey equipment or environmental safety warning information, which, if not avoided, may lead to equipment damage, data loss, reduced equipment performance, or other unpredictable results. "Caution" does not involve personal injury.
 Read Info	Used to highlight important/critical information, best practices, tips, etc. "Instructions" are not safety warning information, and do not involve information about people, equipment, and environmental injuries.
	This label indicates there is high voltage within the product, and touch may cause an electric shock

Label	Label Description
	This symbol indicates that the temperature here is higher than the acceptable range of the human body, and do not contact in order to avoid personal injury.
	This symbol indicates here is the protective grounding (PE) terminal, and solid grounding is needed to ensure operators' safety.



CAUTION-RISK of electric shock from energy stored in a capacitor, never operate on the inverter couplers, the MAINS cables, Battery cables, PV cables, or the PV generator when power is applied.

After switching off the PV, battery, and Mains, always wait for 5 minutes to let the intermediate circuit capacitors discharge before unplugging DC, the battery, the plug, and MAINS couplers.

When accessing the internal circuit of an inverter, it is very important to wait 5 minutes before operating the power circuit or demounting the electrolyte capacitors inside the device. Do not open the device beforehand since the capacitors require time sufficiently discharge!



Surge Protection

Installation of SPDs to protect the inverter against mechanical damage and excessive stress include a surge arrester in case of a building with an external lightning protection system (LPS) when the separation distance is kept.

To protect the DC system, a surge suppression device (SPD type2) should be fitted at the inverter end of the DC cabling and the array located between the inverter and the PV generator, if the voltage protection level (VP) of the surge arresters is greater than 1100V, an additional SPD type 3 required for surge protection for electrical devices.

To protect the AC system, surge suppression devices (SPD type2) should be fitted at the main incoming point of AC supply (at the consumer's cutout), located between the inverter and the meter/distribution system.

All DC cables should be installed to provide as short a run as possible, and positive and negative cables of the string or main DC supply should be bundled together. Avoiding the creation of loops in the system.



PE Connection and Leakage Current

The end-use application shall monitor the protective conductor by a residual current operated protective device (RCD) with rated fault current $I_{fn} \leq 240\text{mA}$ which automatically disconnects the device in case of a fault.

The device is intended to connect to a PV generator with a capacitance limit of approx. 700 nF.

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1 Safety Instructions

General security considerations



Note !

- This manual is an integral part of the XTE inverter and describes the installation, commissioning, maintenance, and types of faults that could occur. Please read carefully before the operation.
- The personnel responsible for the installation, electrical connection, commissioning, maintenance, and fault handling of XTE inverter products should be professionally trained, follow the correct operation methods, and have the corresponding operating qualifications and basic safety operation knowledge.

All operations of this equipment must strictly comply with the relevant equipment precautions and special safety instructions provided by WECO. The safety warnings listed in the manual represent only those known to WECO, and WECO assumes no responsibility for violations of general safe operating requirements or safety standards for the design, production, and use of the equipment.

Statement

WECO reserves the right not to provide warranty coverage in any of the following cases:

- Shipping damage.
- Damage caused by storage conditions not meeting the requirements of the product documentation.
- Improper storage, installation, and use of equipment.
- Installation and use of equipment by unqualified personnel.
- Failure to follow operating instructions and safety warnings in the product and documentation.
- Operate in harsh environments beyond what is described in the product and documentation.
- Operations that go beyond the parameters specified in the applicable technical specifications.
- Unauthorized disassembly, alteration of the product, or modification of software code.
- Equipment damage caused by abnormal natural environments (force majeure such as lightning, earthquakes, fires, storms, etc.).
- The warranty period has expired and the warranty service has not been extended.
- any installation and operating environment beyond those specified by relevant international standards.

Personnel requirements

Personnel who can perform XTE inverter installation, electrical and gas connection, commissioning, maintenance, fault handling, and replacement must meet the following conditions:

- Operators should have received professional training.
- Operators should read this manual in its entirety and master the safety matters related to operations.
- Operators should be familiar with the relevant safety specifications of electrical systems.
- The operator must be familiar with the working principle and composition of the system and familiar with the user manual for this product.
- During operation, please do not wear metal objects such as rings, watches, key rings, etc., and do a good job of safety protection (such as wearing insulating gloves, wearing electrician shoes, etc.).

Box identification protection

- The markings on the XTE inverter housing contain important information for safe operation. Alteration or damage is strictly prohibited.
- There is a nameplate on the side of the XTE inverter box that contains important parameter information related to the product. Alteration or damage is strictly prohibited.

System installation



Danger!

It is strictly forbidden to operate the XTE inverter with electricity during installation.

- The process of lifting or placing the inverter must be carried out slowly and cannot be placed quickly, otherwise the product may be damaged.
- When installing the XTE inverter, make sure it is not electrically connected and energized.
- There should be a certain distance between the XTE inverter and the surrounding objects to ensure sufficient space for installation and heat dissipation. If you have any questions about the installation distance, please consult a technical service engineer.
- During installation, liquids, debris or conductive particles must be prevented from entering the system, which could lead to internal short circuits or system failure.

Electrical connection



Danger!

Before electrical connection, please make sure that the XTE inverter is undamaged and in a safe state, otherwise it may cause electric shock or fire.

- All electrical connections must comply with national electrical standards.
- XTE inverters can only be connected to the grid if the local power department permits it.
- The cable for the connection must be firmly connected, well insulated, and be of appropriate specifications.

Operate



Danger!

During the operation of the XTE inverter, there is a high voltage that can cause electric shock, resulting in death, serious personal injury, or serious property damage. Please strictly follow the safety precautions listed in this manual and other relevant documents.

- When the XTE inverter is first energized, it must be set up by a professional electrical technician. Incorrect settings may affect the normal operation of the XTE inverter and cause the XTE inverter to be inconsistent with the certification of the country.
- Some components in the XTE inverter box, such as capacitors, still have power after the electricity is cut off and must wait 5 minutes before operation.
- Operate the equipment in accordance with local regulations and laws.

Maintenance and replacement



Danger!

During the operation of the XTE inverter, there is a high voltage that can cause electric shock, resulting in death, serious personal injury, or serious property damage. Therefore, before carrying out any maintenance work, it is necessary to turn off the power supply of the XTE inverter and operate it in strict accordance with the safety precautions listed in this manual and other relevant documents.

- Please maintain the XTE inverter if you are familiar with the contents of this manual and have the appropriate tools and test equipment.
- Before maintenance, please turn off the XTE inverter, disconnect the input and output switches, and wait at least 5 minutes for operating the XTE inverter.
- During the maintenance period, please try to avoid unrelated personnel entering the maintenance site, and temporary warning signs or fences must be placed.
- The XTE inverter can only be re-energized after the fault is handled, otherwise the fault may expand, or the equipment may be damaged.
- During maintenance, please abide by ESD protection specifications and wear anti-static gloves.
- Some components in the XTE inverter, such as capacitors, still have power after the power is cut off and must wait 5 minutes before any operations. Avoid opening cabinet doors in rainy or wet weather conditions to maintain or repair products.
- When carrying out various operations such as equipment maintenance and inspection, relevant personnel need to take appropriate protective measures, such as wearing noise-proof earplugs, insulating shoes and anti-scald gloves.

2 Product Introduction

2.1 Product Introduction

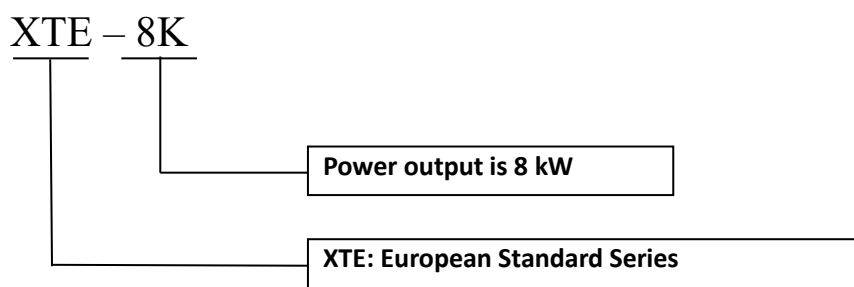
Function

XTE inverter can convert solar energy into alternating current or can store DC energy in the Energy Storage Battery. Through the APP, the user can flexibly choose the appropriate working mode according to the actual situation of photovoltaic, power grid, battery, load, and so on.

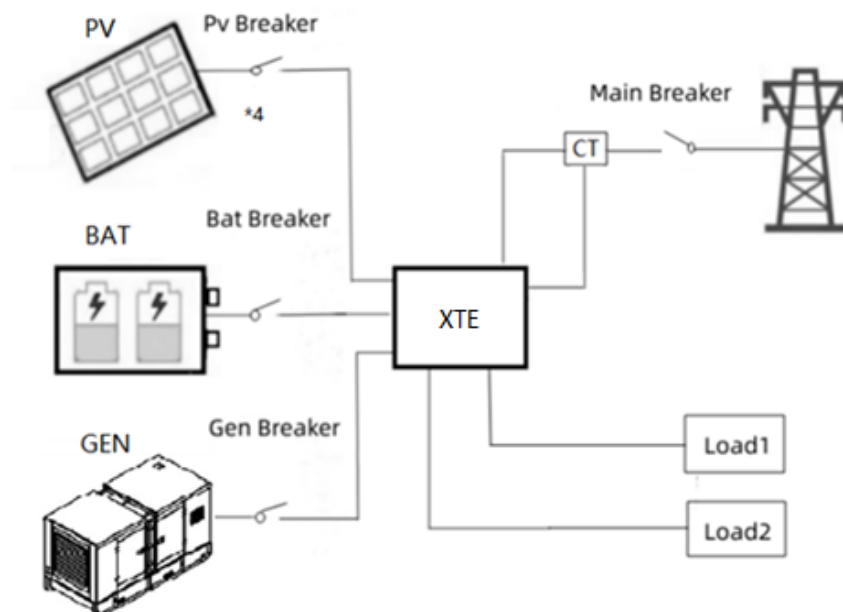
Model

This paragraph defines product models: XTE-6K, XTE-8K, XTE-10K, XTE-12K.

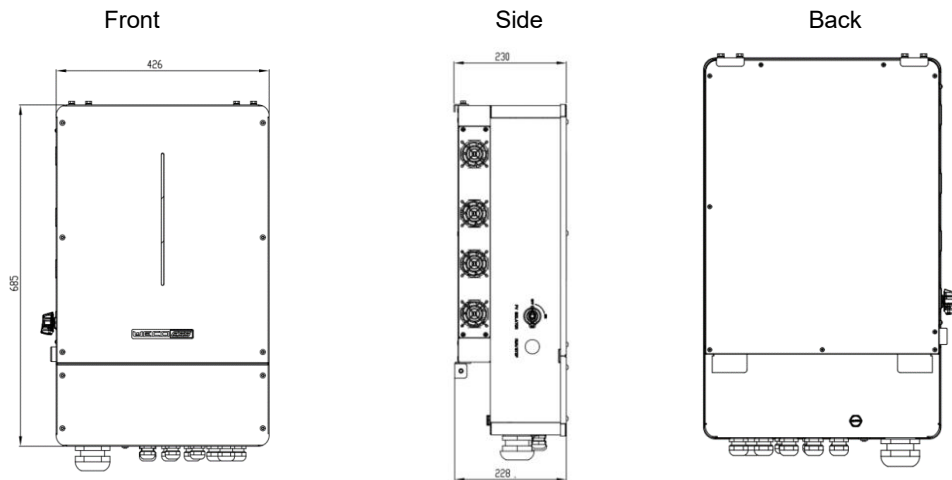
Naming convention XTE (using XTE-8K as an example):



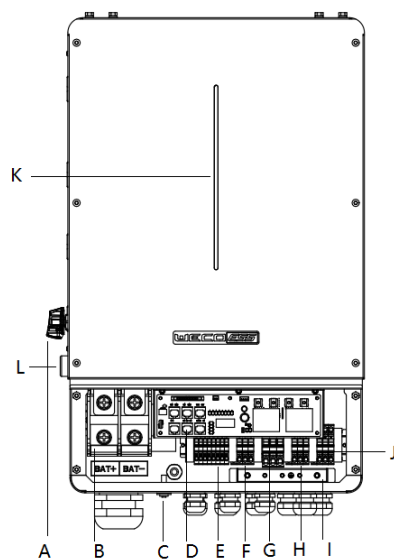
Networking applications



2.2 Description of appearance

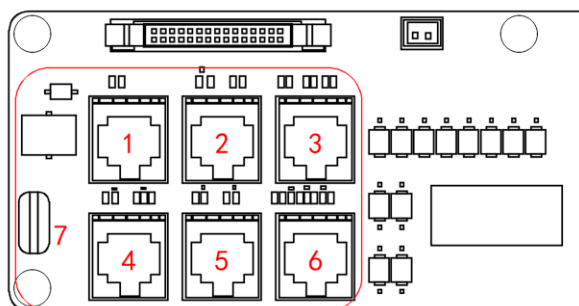


2.3 Terminals of inverter



A	PV DC switch
B	BATTERY input
C	Wi-Fi
D	CAN1/CAN2, BMSCAN/CTL1/CTL2/Type-c upgrade
E	PV1 - PV4 input (4 MPPT)
F	Generator
G	Grid
H	Priority Load
I	PE
J	Ordinary Load
K	LED Bar
L	Start button

Signal Connection



* Port Function

Port	Name	Description
1	CAN1	Used to connect the communication interface between inverters for parallel connection
2	CAN2	Used to connect the communication interface between inverters for parallel connection
3	RS485	Read the internal data of the inverter. Internal use, reserved
4	CAN	BMS communication for lithium batteries
5	CT-L2	For external grid side CT to detect current size. Use of split-phase connection
6	CT-L1	For external grid side CT to detect current size. Single-phase 220V applications only connect to this CT, split phase connections use CT-L1 and CT-L2
7	Type-C	Local monitoring and upgrading ports

2.4 Technical Parameters

Technical Data	XTE-6K	XTE-8K	XTE-10K	XTE-12K *
Solar				
Nominal Input (PV)	6	8	10	12*
Max. Power[kW]	9	12	15	18
Max. PV DC Voltage [V]	500 (520)			
MPPT Voltage Range [V]	110-500			
Max. Input Current of Single MPPT [A]	15			
MPPT Tracker/Strings	4			
Channels per MPPT	1			
AC output				
Rated Output Power [kW]	6	8	10	12
Max. AC Output Power [kW]	6.6	8.8	11	13.2
Max. Output Current [A]	27.5	36.7	45.8	55
Ac Output Voltage [V]	230 (single phase)			
Frequency [Hz]	50-60			
THDI	<3%			
Topology	Split Phase			
Battery				
Battery Voltage Range [V]	40 -58.4			
Max. Charging Voltage [V]	58.4			

Max. Charge/Discharge Current [A]	135/135	190/190	210/210	235/235
Battery Type	Li-Ion			
Communication Interface	WeCo-CAN			
EPS output				
Rated power [kVA]	6	8	10	12
Rated output voltage [V]	230 (single phase not for UL type)			
Rated output current [A]	25	33.3	41.6	56.0
Rated frequency [Hz]	50/60			
Automatic switching time [ms]	< 10			
THDI	< 3%			
Overload capacity	125%,60s / 150%,10s			
General data				
Max. Efficiency	≥97.2%			
Europe Efficiency	≥97.8%			
Ingress Protection	IP65/NEMA 3R			
Noise Emission [dB]	<38			
Operating Temperature [°C]	-25°C ~ 60			
Cooling	Natural			
Relative Humidity	0~95%（non-condensing）			
Altitude	2,000m (>2,000 Derating)			
Dimensions W *D *H [mm]	430*225*710			
Weight [kg]	41			
Isolation Transformer	No			
Self-consumption [W]	<3			
Display				
Logic Multicolor LED bar	LED BAR			
COMM 1	RS485 WiFi			
COMM 2	CAN			
Safety standard				
	EMC/ CE/ IEC 61000:4/3			
EUROPE+SOUTH AFRICA	IEC62109			
	NRS 097-2-1* Jan 2023			
	Ask your distributor for specific Certifications available			

*Available only in specific States

2.5 Label Description

Box identification

Symbol	Name	Meaning
	Anti-scald warning sign	The inverter has a high shell temperature when working, there is a risk of scalding and it is strictly forbidden to touch it
	Delayed discharge identification	There is a high voltage after the inverter is powered on. All operations on inverters must be carried out by trained electrical professionals people. There is still a residual voltage after the inverter is powered down, and it takes 5 minutes to discharge to a safe voltage
	Check the manual logo	Remind the operator to pay attention to check the instruction manual of the inverter box
	Inverter grounding label	Protect the ground wire connection location
	Inverter warning label	When working, do not unplug the antenna directly
	Inverter serial number label	Serial number information
	Inverter login QR code label	Scan the code to connect to the inverter APP



Read Info

The icon is for reference only, please refer to the actual product.

Description of the LEDs.

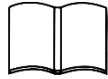
The LED Bar is described in the following table.

Equipment Status	Light Language	Remarks
Standby	Blink light blue light for 6s once (3S lights on, 3S lights off)	The device is normal, and APP remote shutdown does not work
On-Grid Work	Blink light, green light for 6s once (3S lights on, 3S lights off)	
Off-Grid Work	Blink light green light for 3s once (0.5S lights on, 2.5S lights off)	
Alarm	Blink light orange light for 3s once (1.5S lights on, 1.5S lights off)	Recoverable alarm, automatic recovery
Fault	Red light continuously	The fault causes the system to stop working and requires manual maintenance

Nameplate

WECO ESS Model: XTE-6K (Europe/South Africa) Grid Support Interactive Inverter		WECO ESS Model: XTE-8K (Europe/South Africa) Grid Support Interactive Inverter		WECO ESS Model: XTE-10K (Europe/South Africa) Grid Support Interactive Inverter	
PV Input		PV Input		PV Input	
Max PV Input	9000W	Max PV Input	12000W	Max PV Input	15000W
PV MPPT Voltage Range	120-500Vdc	PV MPPT Voltage Range	120-500Vdc	PV MPPT Voltage Range	120-500Vdc
MPPT Efficiency	99.9%	MPPT Efficiency	99.9%	MPPT Efficiency	99.9%
MPPT max Input Current	14Adc	MPPT max Input Current	14Adc	MPPT max Input Current	14Adc
Number of MPPT	4	Number of MPPT	4	Number of MPPT	4
Short Circuit Current	22Adc	Short Circuit Current	22Adc	Short Circuit Current	22Adc
AC Output		AC Output		AC Output	
Rated Output Power	6000W	Rated Output Power	8000W	Rated Output Power	10000W
Rated Output Power	25A	Rated Output Power	33.3A	Rated Output Power	41.7A
Grid Voltage	230V Single Phase	Grid Voltage	230V Single Phase	Grid Voltage	230V Single Phase
Grid Frequency Range	45~55 Hz	Grid Frequency Range	45~55 Hz	Grid Frequency Range	45~55 Hz
EPS Power Output	6000W	EPS Power Output	8000W	EPS Power Output	10000W
EPS Output Voltage / Frequency	230V Single Phase 45~55 Hz	EPS Output Voltage / Frequency	230V Single Phase 45~55 Hz	EPS Output Voltage / Frequency	230V Single Phase 45~55 Hz
Power Factor	-0.8 ~+0.8	Power factor	-0.8 ~+0.8	Power factor	-0.8 ~+0.8
Battery		Battery		Battery	
Battery Voltage Range	40~58.4Vdc	Battery Voltage Range	40~58.4Vdc	Battery Voltage Range	40~58.4Vdc
Max Charging / Discharging Current	135Adc	Max Charging / Discharging Current	190 Adc	Max Charging / Discharging Current	210 Adc
System		System		System	
Ingress Protection	IP65	Ingress Protection	IP65	Ingress Protection	IP65
Humidity	0-95% no condensation	Humidity	0-95% no condensation	Humidity	0-95% no condensation
Elevation	3000mt	Elevation	3000mt	Elevation	3000mt
Operate Temperature	-25 ~ + 60 °C (>45°C derating)	Operate Temperature	-25 ~ + 60 °C (>45°C derating)	Operate Temperature	-25 ~ + 60 °C (>45°C derating)
Inverter Efficiency	97.8%	Inverter Efficiency	97.8%	Inverter Efficiency	97.8%
Weight	41kg	Weight	43kg	Weight	46kg
Topology	Transformerless / non isolated	Topology	Transformerless / non isolated	Topology	Transformerless / non isolated
Serial Number		Serial Number		Serial Number	
Production Week		Production Week		Production Week	
WECO (Guangdong) Energy Storage Technology Co., Ltd. Guangdong China. Email: support@wecoss.com		WECO (Guangdong) Energy Storage Technology Co., Ltd. Guangdong China. Email: support@wecoss.com		WECO (Guangdong) Energy Storage Technology Co., Ltd. Guangdong China. Email: support@wecoss.com	
					

- (1) Trademark and product model (2) Important technical parameters
(3) Conformity of the certification system logo (4) Company name and origin



Read Info

The icon is for reference only, please refer to the real object.

Description of the certification mark.

icon	name	meaning
	EU safety certification mark	This product meets CE certification standards
	SGS certification mark	This product conforms to SGS certification standard
	High voltage hazard sign	This product has high voltage inside, please pay attention to the protection
	EU WEEE logo	It is not possible to dispose of the inverter as household waste

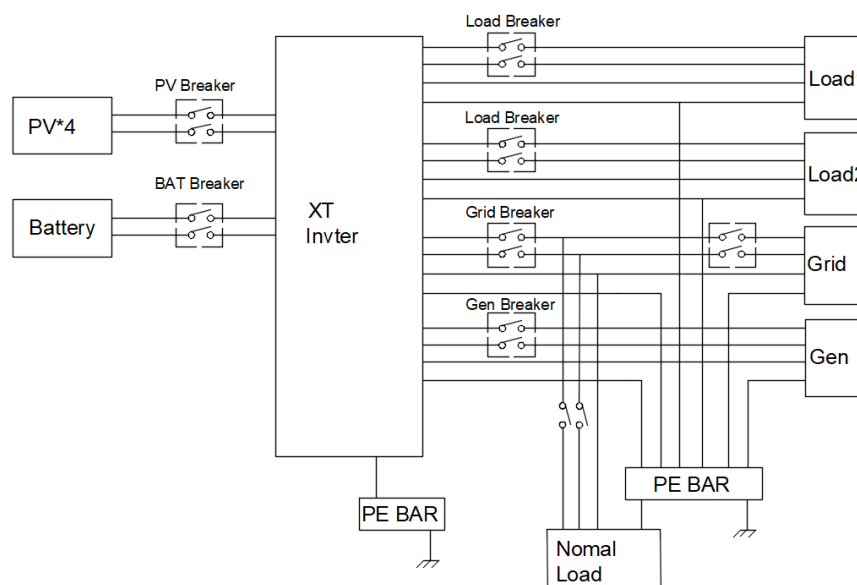
2.6 How it works

The XTE inverter can be connected to up to 4 PV strings, it has 4 MPPT and each MPPT circuit can support only 1 string of solar panel as the input current is limited to 15A.

Maximum power point tracking, DC to single-phase AC conversion through inverter circuit, and surge protection function on both DC and AC side.

The XTE inverter can expand the energy storage function through the energy storage interface, the energy generated by the PV string is supplied to the local load for use, and the excess energy is stored in the energy storage equipment. The electric energy stored in the energy storage equipment can be released to the grid according to the user's load situation, and the peak-valley regulation of the grid can be realized to achieve the maximum benefits.

Schematic:



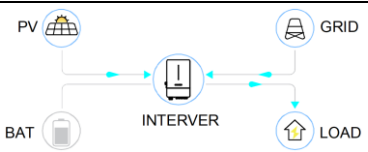
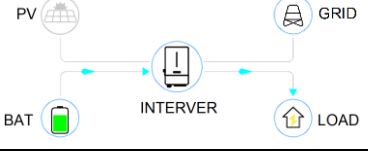
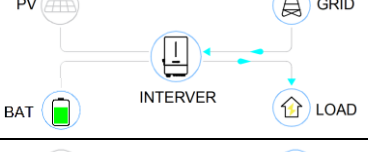
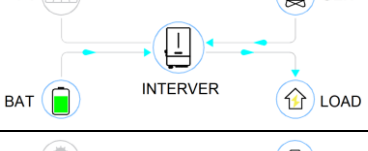
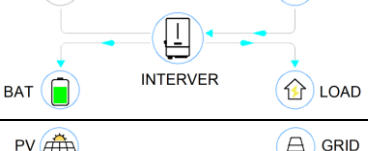
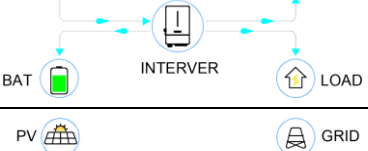
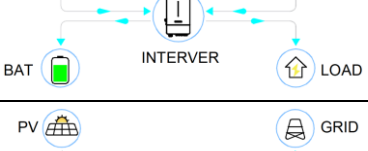
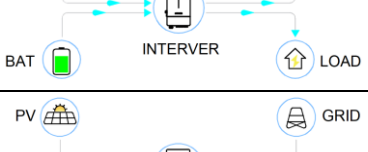
Note!

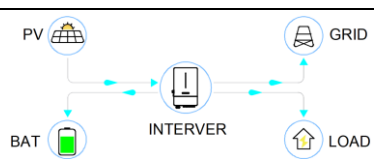
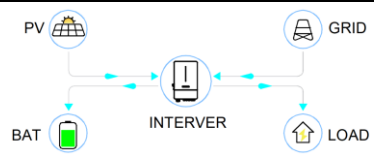
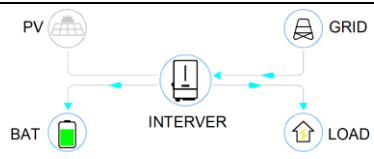
- Please control the home loads and make sure it's within the "BACK-UP output rating" under BACK-UP mode, otherwise the inverter will shut down with an "overload fault" warning.
- Please confirm with the mains grid operator whether there are any special regulations for grid connection.

Description of the WORKING MODE

Note: when the load is connected in parallel with the AC input line, it is mandatory to install the CT sensor and make sure that the sensor direction is correct.

Working mode	Scenario	Brief Description
Auto Mode		Photovoltaic, battery and grid power are available: Photovoltaic energy is sufficient, priority load use, when there is surplus, if the battery is fully charged, feed back to the grid
Auto Mode		Photovoltaic and battery are available, grid is not available: Photovoltaic energy is sufficient, priority load use, if the battery is not fully charged, the battery will be charged when there is surplus
Auto Mode		Photovoltaic and battery are available, grid is not available: Photovoltaic is insufficient, the battery discharge meets the load use
Auto Mode		Photovoltaic, battery and grid power are available: Photovoltaic is insufficient, if the battery discharge cannot meet the load use, the grid takes power to meet the load
Auto Mode		Photovoltaic and grid power are available, battery is not available: Photovoltaic is sufficient, priority load use, when there is surplus, feed back to the grid

Working mode	Scenario	Brief Description
Auto Mode		Photovoltaic and grid power are available, battery is not available: Photovoltaic is insufficient for load use, the power grid draws power to meet the load use
Auto Mode		Battery and grid power are available, PV is not available: When the battery is fully charged, the battery is discharged to meet the load use
Auto Mode		Battery and grid power are available, PV is not available: When the battery is low, the grid meets the load usage
Auto Mode		Battery and generator are available, photovoltaic and utility power are not available: If the battery is fully charged, the battery is discharged and the generator replenishes the power to meet the load use
Auto Mode		Battery and generator are available, photovoltaic and utility power are not available: The battery is insufficient, the load is small, and the generator meets the load use while charging the battery
Plan Mode		Photovoltaic, battery, and grid power are available: During the charging period, the photovoltaic priority is to meet the load use and battery charging, when there is a surplus, it feeds back to the grid
Plan Mode		Photovoltaic, battery, and grid power are available: During the charging period, photovoltaic priority is to meet the load use and battery charging, when insufficient, the grid draws power to meet the load and battery charging use
Plan Mode		Photovoltaic, battery, and grid power are available: During the discharge period, the photovoltaic and battery discharge meets the load use, and when there is a surplus, it feeds back to the grid
Plan Mode		Photovoltaic, battery, and grid power are available: During the discharge period, photovoltaic and battery discharge meets the load use, when is insufficient, the grid draws power to meet the load use
Plan Mode		Battery and grid power are available, PV is not available: During the charging period, the grid draws power to meet the load and battery charging use
Plan Mode		Battery and grid power are available, PV is not available: During the discharge period, the battery discharge meets the load use, and when there is surplus, it feeds back to the grid

Working mode	Scenario	Brief Description
Bat Priority		Photovoltaic, grid and battery are available: Solar energy will charge the battery as the priority, if there is a surplus, the excess power will supply the load. If there is still some extra energy, the excess electricity will feed the power to the grid.
Bat Priority		Photovoltaic, grid and battery are available: Solar energy will charge the battery as the priority, if there is a surplus, the excess electricity will supply the load. If solar energy is insufficient to charge the battery and supply power to the loads, the grid will supply power to the loads.
Bat Priority		Battery and grid power are available, PV is not available: The grid will supply power to load and charge the battery at the same time.

Note:

The XTE series inverter has two separate outputs that can be controlled by the battery SOC to maximize energy usage in the event of a grid blackout.

The LOAD 2 will cut Off according to the DOD setting of the APP ``On GRID DOD`` and any load connected under the LOAD 2 will be turned off once the Battery SOC will reach that level.

The LOAD 1 will continue to supply the load (Grid is not available) until the ``Off GRID DOD`` is not reached as soon as the battery SOC will reach that level any load connected under the LOAD 1 port will be disconnected.

3 Storage

If the inverter is not immediately put into service within 2 months from the production date, the storage specifications need to be met as follows:

- Do not remove the outer packaging of the inverter.
- The storage temperature should be kept at $-20^{\circ}\text{C}\sim+60^{\circ}\text{C}$; The relative humidity should be maintained at 5% RH~95% RH.
- Store in a clean, dry place and protected from dust and moisture.
- Please place the inverter carefully to avoid personal injury or equipment damage caused by equipment dumping.
- During storage, regular checks are required. If it is found that there is a moth bite and the packaging is damaged, the packaging material needs to be replaced in time.
- After long-term storage, the inverter needs to be inspected and tested by professionals before it can be put into use.

4 Installation

4.1 Pre-installation inspection

Check the outer package.

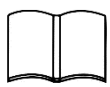
Before unpacking the inverter, check the outer packaging for visible damage, such as holes, cracks, or other signs of possible damage inside, and check the inverter model. If there is any damage or the inverter model does not match, do not open it and contact your dealer as soon as possible.



Note !

It is recommended to remove the outer packaging of the inverter within 24 hours before it is ready to be installed.

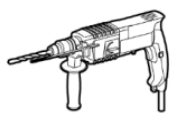
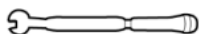
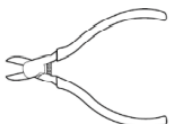
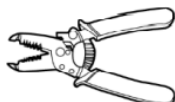
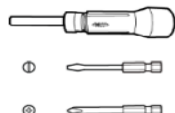
After unpacking the inverter, please check whether the deliverables are complete and whether or not there is any obvious external damage. If any items are missing or there is any damage, please contact your dealer.

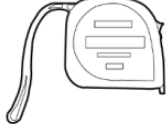
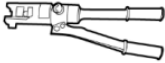
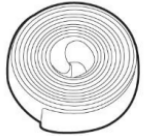


Read Info

For the number of deliverables shipped with the box, please refer to the Packing List inside the box.

4.2 Tools list

	Tools and gauges		
Installation	 Hammer drill (drill bit $\Phi 12\text{mm}$).	 Torque socket wrench (sleeve opening: 13mm, for M8 bolts; Torque range: 0N•m~ 15N•m).	 Torque wrench (opening size: 13mm; Torque range: 0N•m~1.5N•m).
	 Diagonal pliers	 Wire strippers	 Torque screwdriver (head: M4, M6; Torque range: 0N•m~ 5N•m).
	 Rubber hammer	 Tool knife	 Wire cutters
	 Crimping pliers (Model: H4TC0001; Manufacturer: Amphenol).	 Open Wrench (Model: H4TW0001; Manufacturer: Amphenol).	 Cable ties

	Tools and gauges		
	 vacuum cleaner	 Multimeter (DC voltage range $\geq 600V$ DC).	 Markers
	 Steel tape measure	 Horizontal ruler	 Hydraulic pliers
	 Heat shrink tubing	 Heat guns	
Personal protective equipment	 Safety gloves	 Protective goggles	 Dust masks
	 Safety boots		

4.3 Select the installation location

Basic Requirements

- The inverter has a degree of protection of IP65 and is installed outdoors.
- During the operation of the inverter, the temperature of the air outlet will be relatively high, please reserve the ventilation distance.
- Do not install inverters in areas where flammable, explosive materials are stored.
- Do not install the inverter in a location that can be reached by children.
- The inverter installed in the salt-damaged area will be corroded and may cause fire, please do not install the inverter outdoors in the salt-damaged area. Salt-damaged areas are areas within 500m of the coast or affected by sea winds. Areas affected by sea breezes vary depending on meteorological conditions (e.g. typhoons, seasonal winds) or terrain (with dikes, hills).

Installation environment requirements

- The inverter should be installed in a well-ventilated environment to ensure good heat dissipation.
- If the inverter is installed in a place with direct sunlight, it may cause a decrease in power as the temperature rises.
- It is recommended to choose a sheltered installation site or build a sunshade.

Installation requirements

- The inverter mounting must have fire resistance according to the local rules (please refer to the safety officer of your company for more details).

- Do not install the inverter nearby flammable materials, liquid or gas, the installation site must be approved by the local authorities.
- Please ensure that the installation surface is strong enough to support the inverter and that the support screws can meet the load-bearing requirements of the installed inverter.

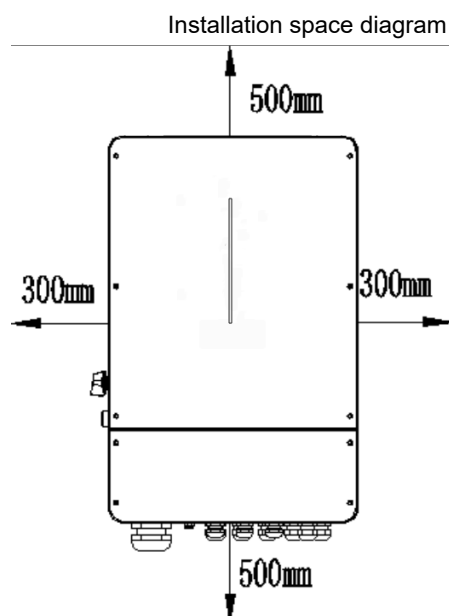
Installation angle requirements

The inverter should be installed on the ground with good load bearing. Installation angle requirements:

- Please install upright or backward $\leq 15^\circ$ to facilitate the stability of the device.
- Do not tilt the inverter forward, horizontally, invert, tilt too much back, and rollover.

Installation space requirements

When installing the inverter, a certain amount of space should be reserved around the inverter to ensure that there is enough space for installation and heat dissipation.

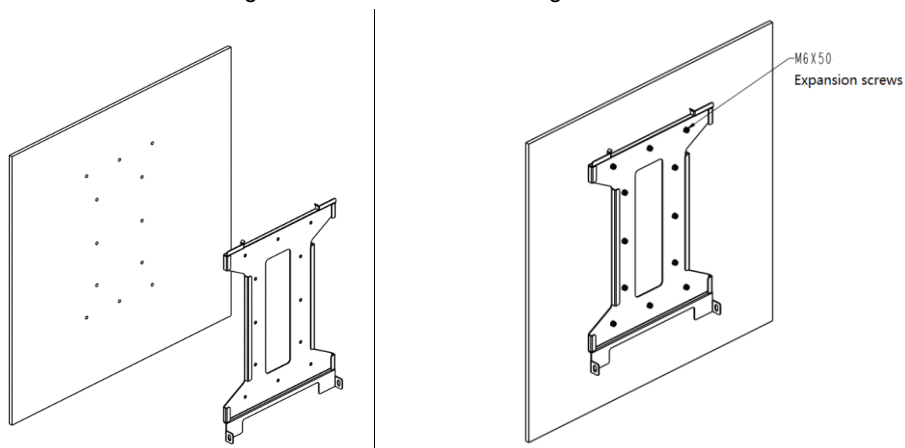


4.4 Install the inverter

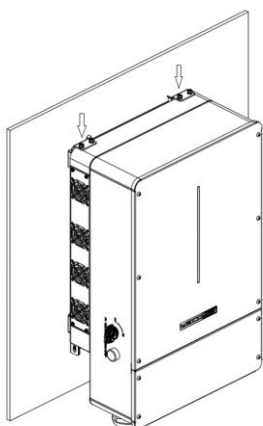
Procedure

Step 1. Take out the mounting bracket from the accessory, as shown in the figure, and use a drill to make the holes on the wall according to the mounting holes position of the mounting bracket, the hole depth shall be 50-60mm and the expansion screw shall be selected according with the wall type.

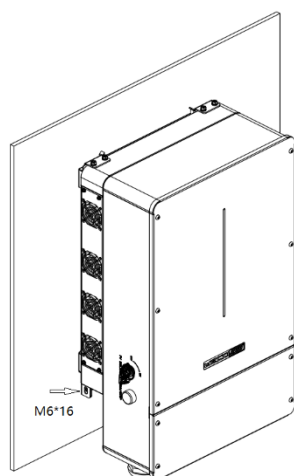
Then install the mounting bracket on the wall securing it with the screws.



Step 2. Lift the inverter, hang the hook on the inverter onto the mounting bracket, and then fix it with screws at the bottom.



Step3. Fix with M6 * 16 screws at the bottom to secure the inverter on the bracket.



5 Electrical Connections

Notes



Danger!

Before making the electrical connection, make sure that all the switches of the inverter are in the "OFF" state, otherwise the high voltage of the inverter may cause a risk of electric shock.



Warning!

- Equipment damage caused by incorrect wiring is not covered by the equipment warranty.
- Operations related to electrical connections must be carried out by professional electrical technicians.
- When making electrical connections, operators must wear personal protective equipment.



Read Info

The color of the cable involved in all electrical connection diagrams in this section is for reference only, and the cable selection should comply with the local cable standards (yellow and green two-color wires can only be used for protective earthing).

5.1 Prepare the cable

Part description

Serial Number	Parts	Illustrate	Source
A	Photovoltaic strings	Photovoltaic strings consist of photovoltaic modules connected in series. The XTE inverter supports 4 string inputs.	Users bring their own
B	Energy storage equipment	XTE inverter supports WECO energy storage device access.	Users bring their own
C	Generator	XTE inverter supports generator access.	Users bring their own



Note!

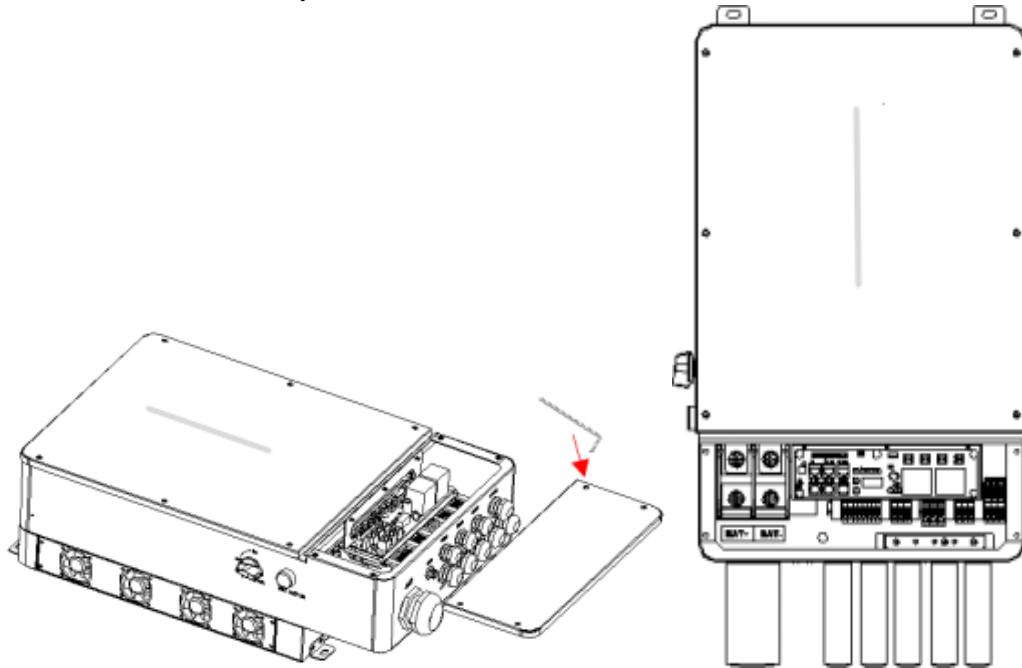
- External AC switch 3 single-phase circuit breaker or other AC load circuit breaker to ensure safe disconnection of the inverter from the grid.
- If the external AC switch has a leakage protection function, its rated leakage operating current is required to be $\geq 100\text{mA}$.
- The AC switch prohibits the use of knife gate switches.

Cable description

No.	location	Wire diameter (AWG).	Source
1	PV input line	12	Not Provided by WeCo
2	Energy storage input line	4, 2sets	
3	Grid-side input line	8	
4	Generator input line	8	
5	Load output line	8	

5.2 Open the bottom wiring cover

Remove the cover screws by Allen Wrench and remove the cover.



5.3 Back-up: Load1 and Load2 Connection

XTE inverter has parallel and off-grid functions, the inverter provides output power through the AC port when connected to the grid and provides output power through the back-up port when off-grid.

Priority Load has a higher priority than **Ordinary Load**, and when the battery energy is insufficient, Ordinary Load output will be disconnected in order to supply the remaining energy to the Priority Load Output.

PRIORITY LOAD will supply the load base until the SOC level is reached.

(setting based on the Off GRID DOD)

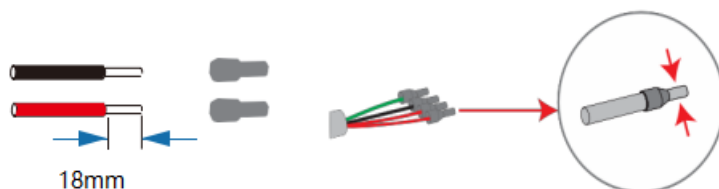
ORDINARY LOAD will Supply the load based on the OFF-GRID SETTING, the power output will be suspended once the SOC level will reach the ON GRID DOD setting.



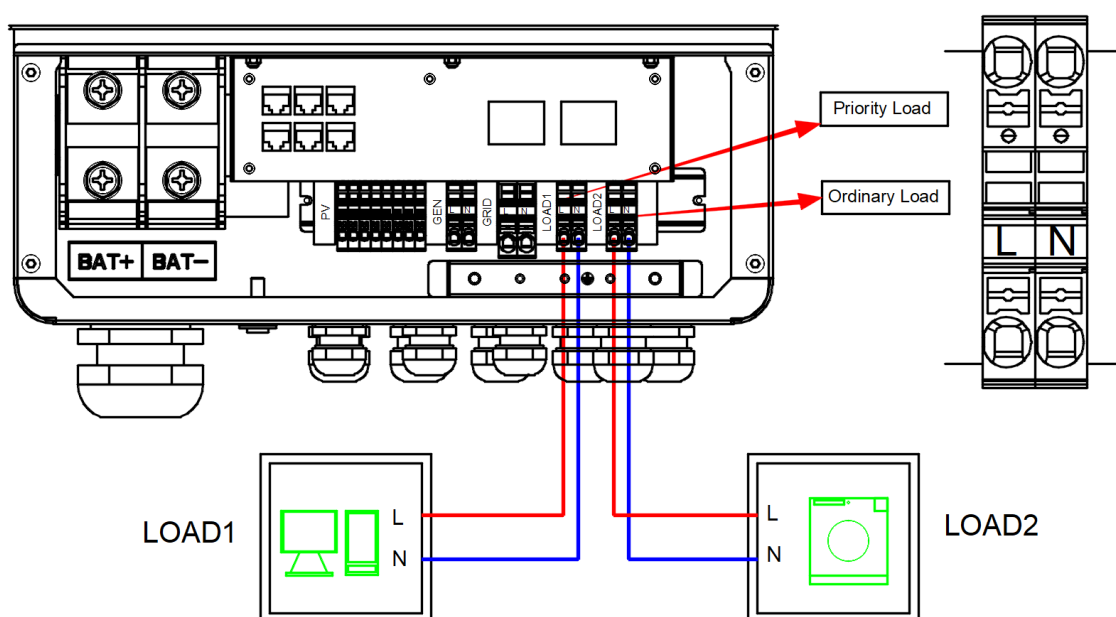
The XTE inverter can provide an overloaded output via the Backup function.
When the battery is not connected, it is strongly not recommended to use the Backup function.

Procedure

Step 1: Select 8AWG wire, strip off the 18mm long insulation layer, and crimp the round terminal.



Step 2: Connect the finished wire through the bottom Backup port to the Backup terminal.



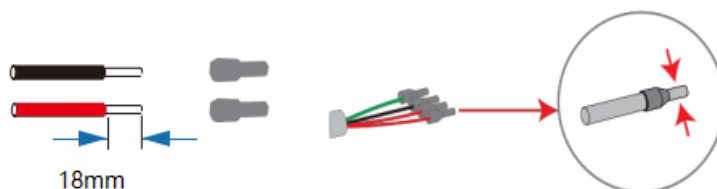
5.4 Grid Connection and Generator Connection

Prerequisites

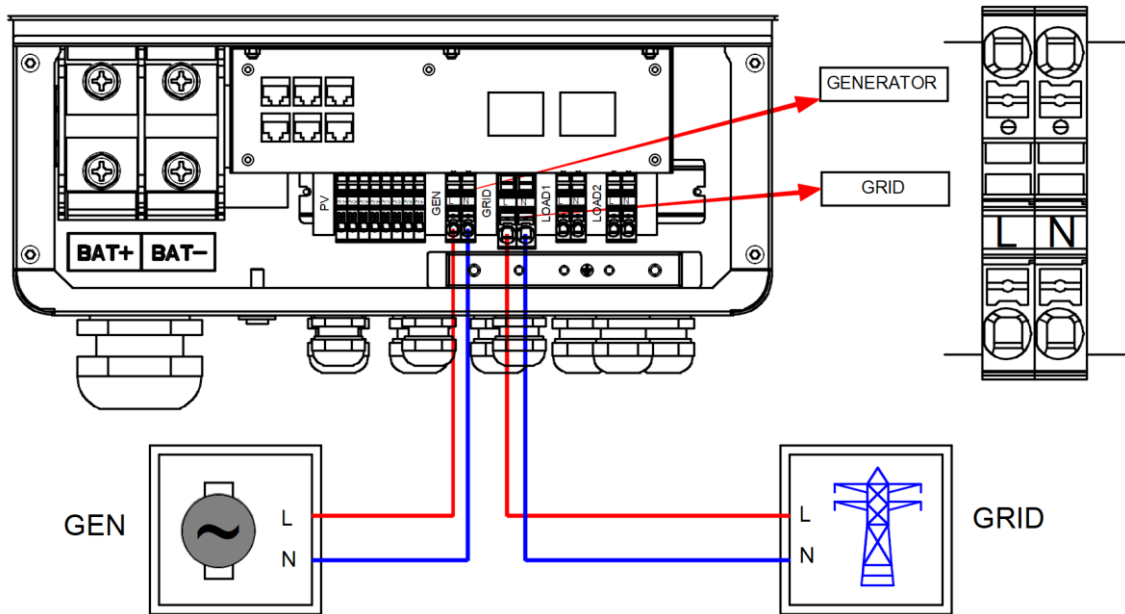
Before connecting the input line on the AC grid side, please make sure that the other end of the cable is not connected to the grid, or that the AC pre-circuit breaker is in the disconnected state. Detect if the grid voltage is within the allowable range.

Procedure

Step 1. Select 8AWG wire, strip off the 18mm long insulation layer, and crimp the round terminal.



Step 2. Connect the finished wire through the bottom Grid port to the Grid terminal.



5.5 Connect the input line of the energy storage device

Prerequisites



Danger!

- Before connecting the input line on the side of the energy storage device, please confirm that the other end of the cable is not connected to the energy storage device or the energy storage device is not powered on, and its main switch is in the disconnected state.
- A short circuit in energy storage equipment can cause personal injury. The instantaneous high current caused by a short circuit will release a large amount of energy, which may cause a fire.
- When the inverter is running, it is forbidden to perform maintenance operations on the energy storage line, such as connecting or exiting the energy storage equipment. Failure to do so will result in a risk of electric shock.
- Before connecting the energy storage line, make sure that the "BATTERY SWITCH" of the inverter and all switches connected to the inverter is in the "OFF" state and the residual power has been drained, otherwise the high voltage of the inverter and energy storage equipment may cause a risk of electric shock.



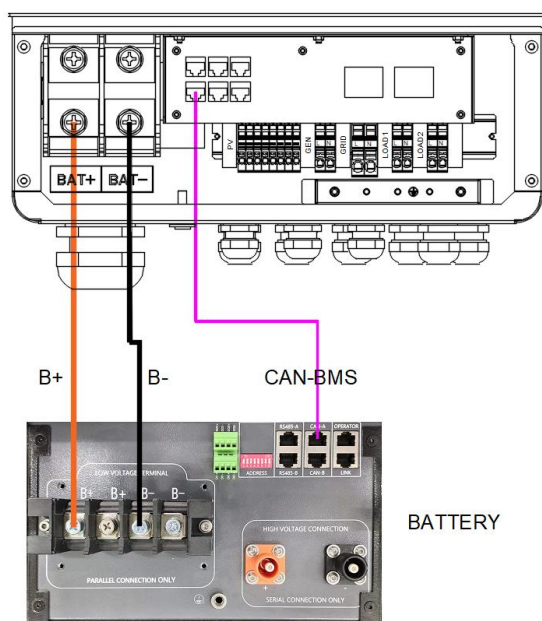
Warning!

- Make sure that the following conditions are met. Failure to do so may result in damage to the inverter and even a fire hazard.
- The polarity of the energy storage cable is correct, that is, the positive pole of the energy storage device is connected to the positive pole of the inverter energy storage circuit breaker, and the negative pole is connected to the negative pole of the energy storage terminal of the inverter energy storage circuit breaker.



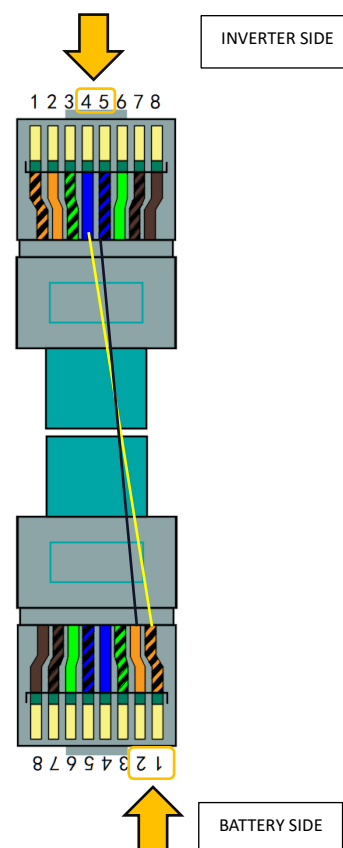
Note !

- In the process of installing energy storage equipment and inverters, if the positive or negative electrodes of the energy storage equipment are short-circuited to the ground due to the installation or routing of power distribution cables that do not meet the requirements, AC and DC short circuits may be caused during the inverter working process, resulting in equipment damage. Damage to the equipment caused by this is not covered by the equipment warranty.
- The trace distance between the energy storage device and the inverter is $\leq 10\text{m}$, and it is recommended to be within 5m.



Wiring diagram

	CANL H	CAN L
Battery SIDE RJ45	1	2
Inverter side RJ45	4	5



Installation of power cables

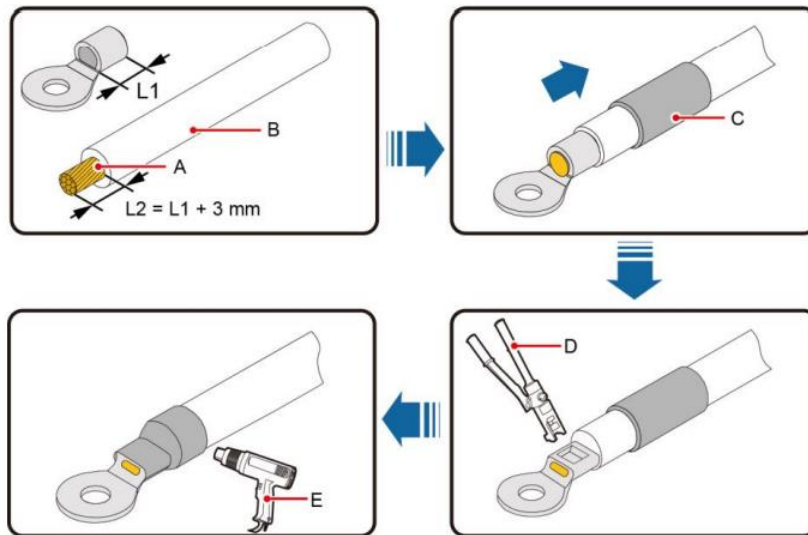
Procedure

Step 1: Make the cable, crimping the OT terminal, using a 25 mm² DC cable, stripping the wire, crimping OT 50-10 Terminals.



Note !

- When stripping the thread, do not scratch the core.
- The cavity formed after the conductor crimping sheet of the OT terminal is crimped should be completely covered with the wire core, and the wire core and the OT terminal should be tightly bonded and not loose.
- The crimping can be covered with a heat shrink sleeve or insulating tape. Take heat shrink tubing as an example.
- During the use of the heat gun, pay attention to the protection to prevent the equipment from being burned.



(A) Core (B) Insulating layer (C) Heat shrinkable sleeve
(D) Hydraulic pliers (E) Heat gun

Step 2: Install the power input line of the energy storage device.

Use M10 screws to lock the positive and negative poles of the energy storage output with the input end of the inverter battery.



Danger!

Energy storage equipment voltage is fatal, please use a special insulation tool when connecting cables.

When wiring, make sure that the polarity of the cable connection between the terminal of the energy storage device and the energy storage switch and the energy storage terminal of the inverter is correct.

Installation of communication cables

The communication interface between the inverter and battery is CAN with an RJ45 connector.



Note !

When arranging signal cables, please pay attention to separating the signal cable from the power cable, and avoid large interference sources when routing, so as to avoid signal interference and affect communication.

Step 1: Production of communication cables

One end of the communication line is connected to the crystal head of the network cable. The wire sequence is shown in the figure above. The other end is made according to the CAN wiring pin position of the energy storage equipment.

Step 2: Install the communication cable.

Insert the terminals on both sides of the communication cable into the communication ports of the inverter and energy storage equipment.



Note !

The cable protection layer is located inside the connector.

The wire core is completely into the wiring hole without leakage.

Pay attention to the cable orientation to make sure that the cable is not twisted.

5.6 PV Connection

Hybrid can be connected in series with 4-string PV modules for 5kW, 6kW, 8kW, and 10kW. Select PV modules with excellent function and reliable quality. The open-circuit voltage of module arrays connected in series should be compatible with the input characteristics of the inverter.

Prerequisites



Danger!

- Before connecting the input line of the photovoltaic string, please confirm that the other end of the cable is not connected to the photovoltaic string group, or the photovoltaic string group is in a disconnected state, otherwise the high voltage of the photovoltaic string group may cause electric shock personal injury.
- If the inverter PV input terminal is not connected to the PV string, do not remove the waterproof cover of the DC input terminal, otherwise it will affect the protection level of the equipment.



Warning!

Make sure that the following conditions are met. Failure to do so may result in damage to the inverter or even a fire hazard.

- The maximum open-circuit voltage of each PV string must not exceed 650V DC under any conditions.
- The polarity of the DC input side is correct, that is, the positive electrode of the photovoltaic string is connected to the positive pole of the inverter photovoltaic input terminal, and the negative electrode is connected to the negative pole of the inverter photovoltaic input terminal.

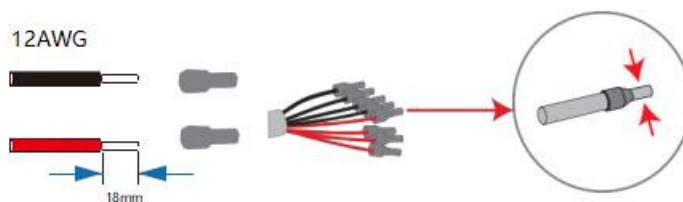


Note !

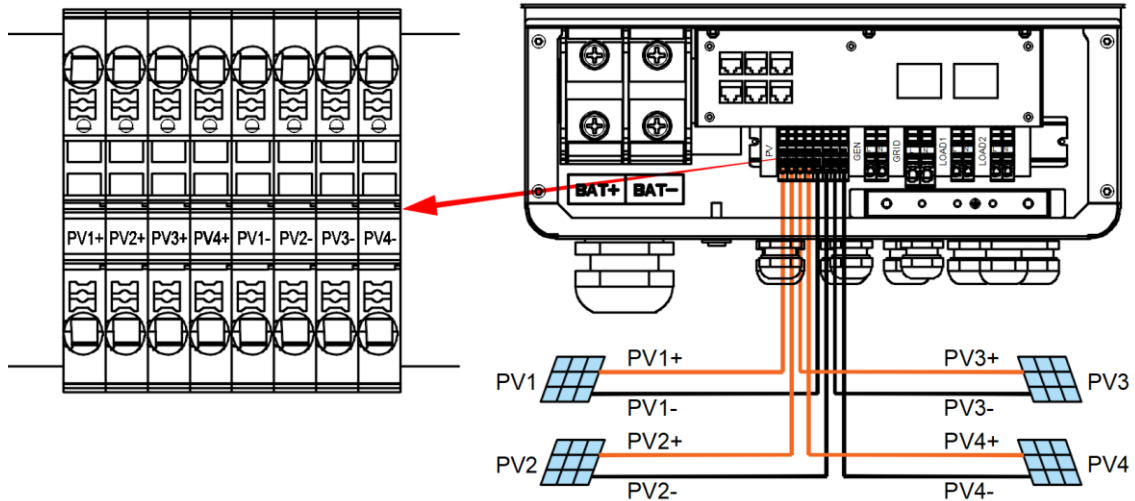
- The optical string output connected to the inverter does not support grounding. Please ensure that the output of the PV module is well insulated to the ground.
- In the process of installing the optical string and the inverter, if the positive or negative pole of the optical string is short-circuited to the ground due to the installation or wiring of the distribution cable does not meet the requirements, it may cause a short circuit of AC and DC during the inverter working process, resulting in equipment damage. Damage to the equipment caused by this is not covered by the equipment warranty.

Procedure

STEP 1: Select 12AWG wire, strip off the 18mm long insulation layer, and crimp the round terminal.



Step 2: Connect the finished wire through the bottom PV port to the PV terminal.



5.7 WiFi Connection

Step 1. Plug WiFi into “WiFi” port at the bottom of the inverter.

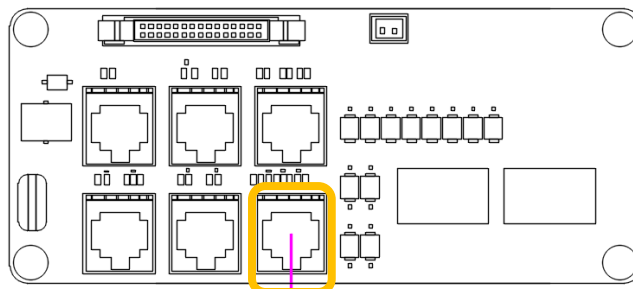
Step 2. Build the connection between the inverter and router following the instruction of the WeCo NooR APP.

Step3. Create a user account online (Please check the App section for more details).

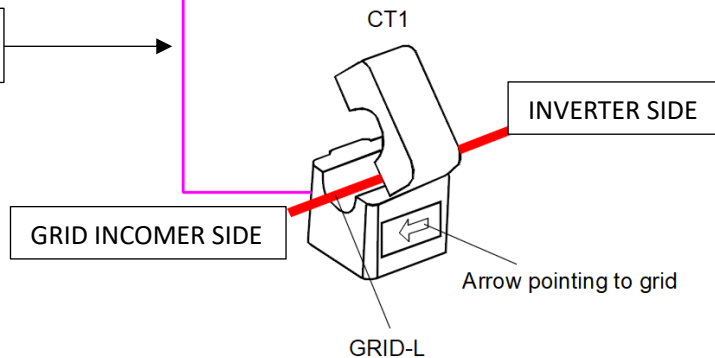
5.8 CT (current transform)

CT is abbreviation for “current transform”, is used to detect Grid current.

The RJ45 connector of CT is connected to” CT-L1”, and the CT is connected to L phase.



CT Cable cannot exceed 15 meters



6 System debugging

6.1 Check before powering on

Inspection items and acceptance criteria

Serial Number	Item To Check	Acceptance Criteria
1	The inverter is installed in place	The inverter is installed correctly and is robust and reliable.
2	The WiFi antenna is in place	WiFi antennas are installed correctly and are robust and reliable.
3	The cables are well arranged	The cable arrangement is reasonable to meet the user's requirements.
4	Cable ties are beautiful to lash	The cable tie should be even, and no sharp corners should be left at the shear.
5	Reliable grounding	The ground wire connection is correct and reliable.
6	Disconnect the switch	The "DC SWITCH" and all switches connected to the inverter are in the "OFF" state.
7	Cable connections into place	AC output lines, DC input lines, energy storage lines and signal lines are connected correctly and securely and reliably.
8	Seal unused terminals and connectors	Unused terminals and connections are covered with waterproof covers.
9	The installation environment meets the requirements	The installation space is reasonable, the environment is clean and tidy, and there are no construction residues.

6.2 System power-up

Prerequisites

Before closing the AC switch between the inverter and the grid, it is necessary to measure whether the AC voltage on the grid side of the AC switch is within the allowable range of the inverter.

Before closing the inverter and the PV DC input switch, it is necessary to measure whether the DC voltage on the PV DC switch side is within the allowable range of the inverter.

Before closing the DC input switch between the inverter and the energy storage device, it is necessary to measure whether the DC voltage on the DC switch side of the energy storage device is within the allowable range of the inverter.

Procedure

Step 1. If the inverter energy storage port is connected to an energy storage device, close the energy storage switch first, and then the auxiliary power switch of the energy storage device.

Step 2. Close the AC switch between the inverter and the grid.

Step 3. If there is a DC switch between the inverter and the photovoltaic string, close the DC switch.

Step 4. Place make sure "DC SWITCH" at the bottom of the inverter chassis in the "ON" position.

Step 5. Set the inverter parameters through the App, see 7 App operation for detailed operation.

Step 6. After setting, press the button switch on the left side of the inverter to start the operation of the inverter.

Step 7. (Optional) Use a spot thermometer to detect the temperature at the connection between the DC terminal and the energy storage terminal. After the inverter has been working for a period of time, the temperature at the DC terminal connection is detected to confirm that the DC terminal contact is good. Make sure the temperature rise does not exceed 30°C.

Step 8. Observe the LED indicator to check the operating status of the inverter.

6.3 Power down the system

Background information



Warning!

- After the inverter is powered down, there is still residual power and heat in the chassis, which may cause electric shock or burns. Therefore, after 5 minutes of powering down the inverter system, wear protective gloves before operating the inverter.
- If the inverter is connected to an energy storage device, please make sure to use the APP to issue a shutdown command, and after the inverter has been turned off, perform the power-down operation.
- If the user does not use the APP to issue the shutdown command, the inverter will switch to off-grid working mode after the power is down on the grid side.

Procedure

Step 1. Use the APP to issue shutdown commands.

Step 2. Disconnect the inverter and the AC circuit breaker input on the grid side.

Step 3. Disconnect the PV DC circuit breaker between the inverter and the PV string.

Step 4. If the inverter energy storage port is connected to an energy storage device, disconnect the energy storage input circuit breaker.

Step 5. If the inverter generator input port is connected to the generator, disconnect the generator input circuit breaker.

7 Noor Cloud APP Operation

7.1 App Introduction

Function

Noor Cloud App is a cloud through a 2.4G network and wifi module.

The mobile application software of terminal communication can realize alarm query, parameter configuration, daily maintenance, debugging and other functions, and is a convenient maintenance platform.

Connection method

After the DC side or AC side of the inverter is powered on, it can be connected to the APP through the Wi-Fi module and an external router.

Statement

The interface shown in this app is NOOR V1.0.0. The picture is for reference only, and the specific application interface shall prevail.

The company has the right to final interpretation of this document and all related documents of this product.

Subject to update, revision or discontinuation without notice, please visit our official website for the latest product information.

7.2 Download and install the app

Download method: Search for "Noor" in the Google Play or App Store application market.

Mobile phone system requirements: It supports use on IOS 12.0 and Android 8.1.0 or above.

After the installation is complete, the "Noor" icon can be displayed.

7.3 Register a Noor APP account

Precondition

The DC or AC side of the inverter is powered on.

The phone is connected to the network.

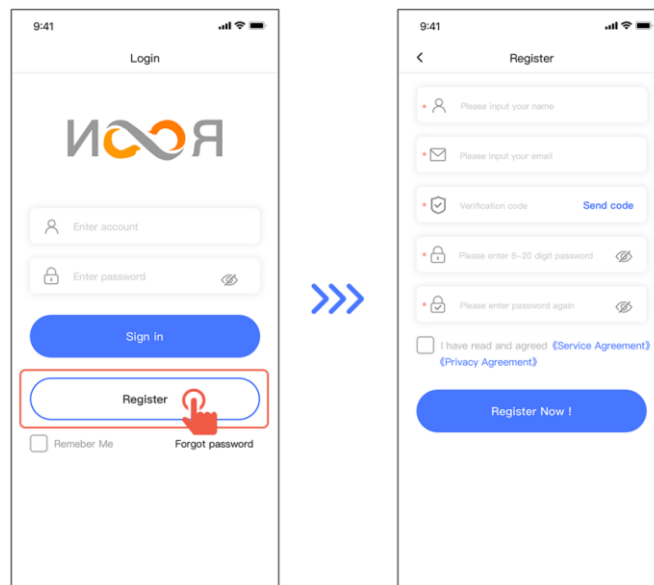
Procedure

If you have not a Noor App user account, please register according to the following steps:

Go to the Noor App login page, and click "Register Now!" at the bottom.

Complete the user account registration according to the prompts on the page, fill in the registration information: country (required), email number (required), verification code (required), password (required), re-enter password (required), and finally check the user agreement and privacy registration to register.

After account registration, users can log in to the Noor App with the account name and password.



7.4 Login and Logout of the APP

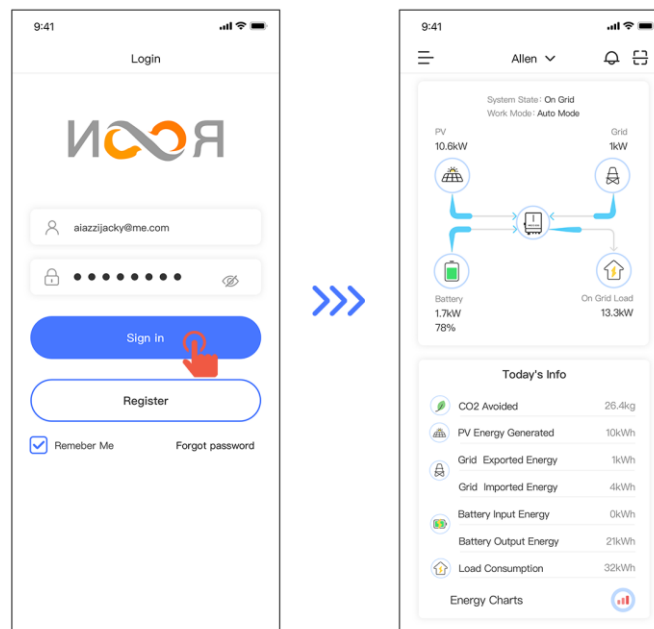
7.4.1 Login APP

After correctly installing the app on your mobile phone, you can use it by logging into the app.

Steps:

On the mobile desktop, use the Noor App application icon to log in.

On the app login page, enter your account and password, then click "Sign in".

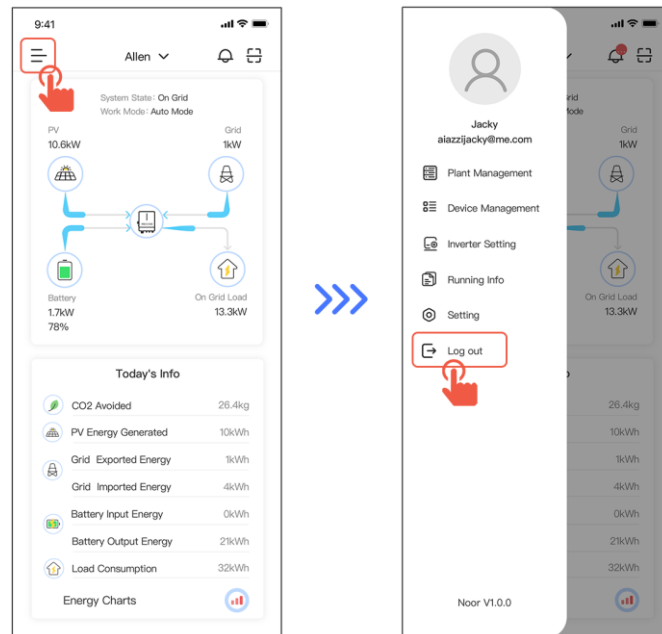


7.4.2 Logout APP

Steps:

Click "☰" in the upper left corner of the main page, and a pop-up page will appear on the left side.

On the pop-up page that slides out, click the " " icon to log out.



7.5 Build a Power Station Wizard

Precondition

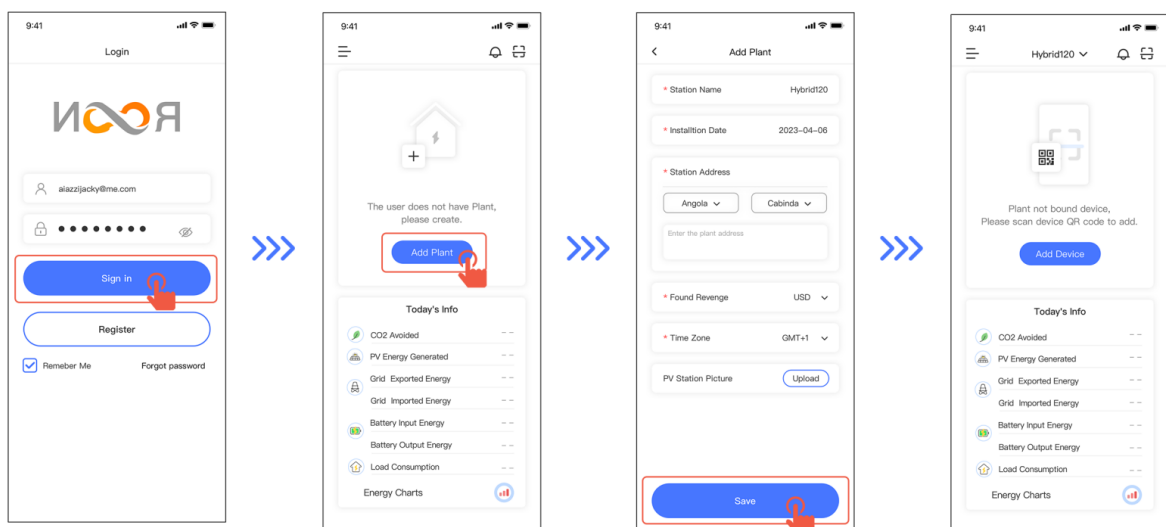
After completing the device commissioning, you can use Noor App to create a power station and configure the basic information, which enables centralized monitoring and management of the devices.

7.5.1 Login at the first time to create an initial power station

Step 1: After logging in to the Noor App, you can click the "Add plant" button to add a power station.

Step 2: You can fill in the information for the power station on the page, and then click the "Save" button to save the information and exit to the main page.

Steps 3: If there is no device in the power station, you can click the "Add Device" button to add devices. Refer to section 7.6 "Build new device" for more information.



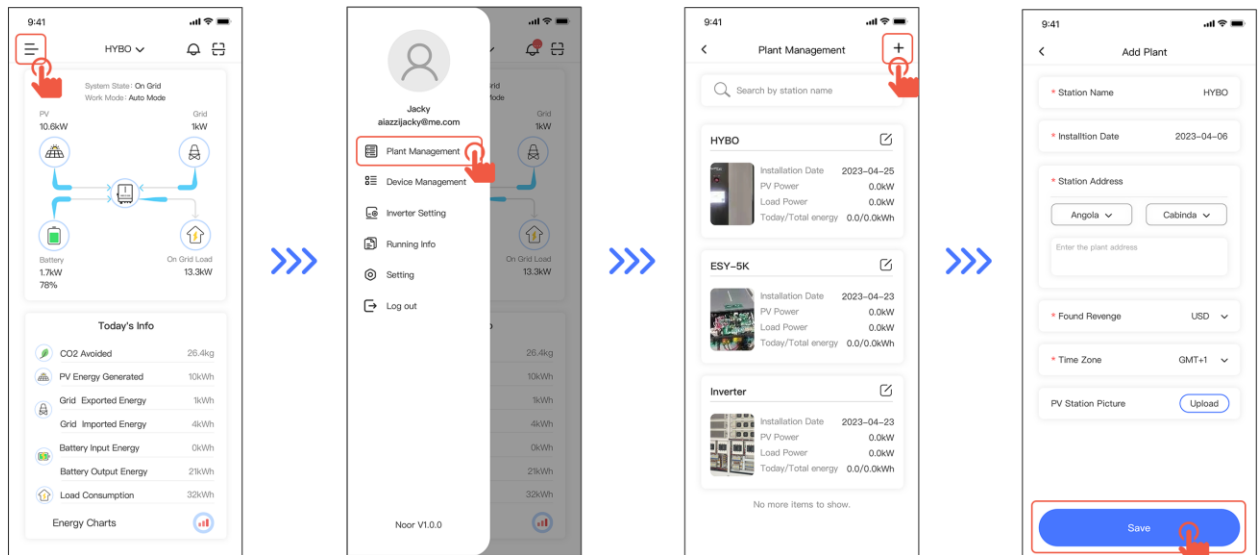
7.5.2 Add a power station

Step 1: Click "☰" in the upper left corner of the main page, and a page will slide out from the left side.

Step 2: Click on the "Plant Management" button in the slide-out page to view the power station list.

Step 3: Click the "+" button in the upper right corner of the power station list page to enter the page for adding a power station.

Step 4: After filling in the power station information, use "Save" button to save.



7.6 Add a new device

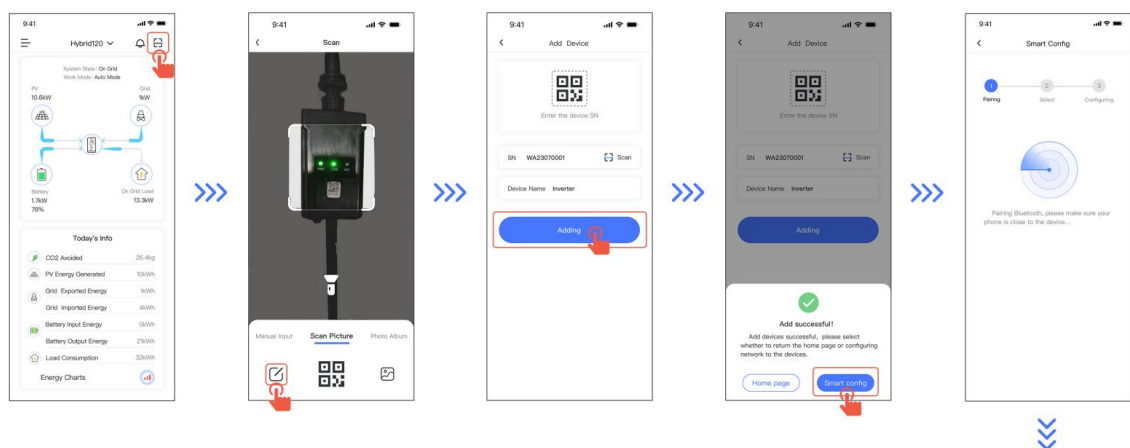
After the power station is created, if you want to add a new device to the power station, you can add the new device to a power station by this function.

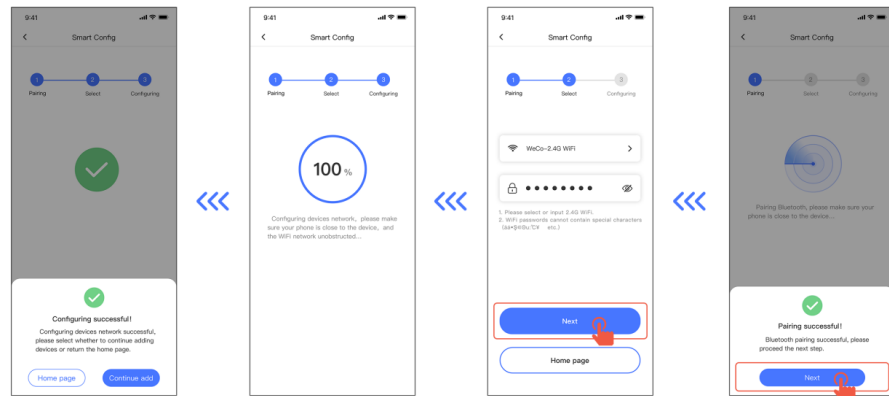
Step 1: Click the "📷" icon in the upper right corner of the home page to enter the scanning page.

Step 2: Scan or identify the QR code of the data collector from the album. This QR code is the device SN information. If the QR code is damaged or the scanning is abnormal, you can click "📝" to enter the SN.

Step 3: After scanning or filling in the SN, enter the device name (name the device).

Step 4: Click "Adding" to add; If you need to continue adding new devices, click "Continue Add", otherwise click "Home Page" to return to the homepage.



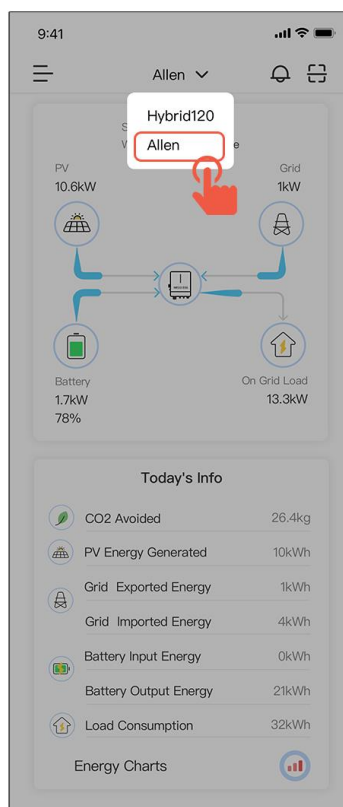


7.7 Check the power station status

The Noor App provides an overview of the power station, real-time status overview of the power station, energy output and consumption, revenue, energy flow diagrams, and other information.

7.7.1 View the details of the power station

After logging in to the App, you can view the details of the current power station, or you can click the "Hybrid120" icon on the "Home Page" and select the name of the power station to view the details of the power station.

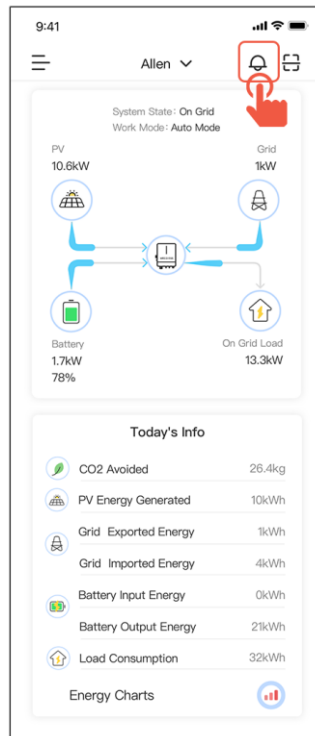


- Fault\Alarm messages: display the fault alarm information of the binding devices of the plant.
- Real-time operating status: real-time status, working mode, and power supply direction of the device's system under the plant.
- Today's information: CO2 emission reduction and today's energy information such as photovoltaic, power grid, battery, load, etc.

- Energy chart: the energy usage status of the device's system under the plant at different times and dimensions helps analyze the trend of energy trends.

7.7.2 Fault message reminder

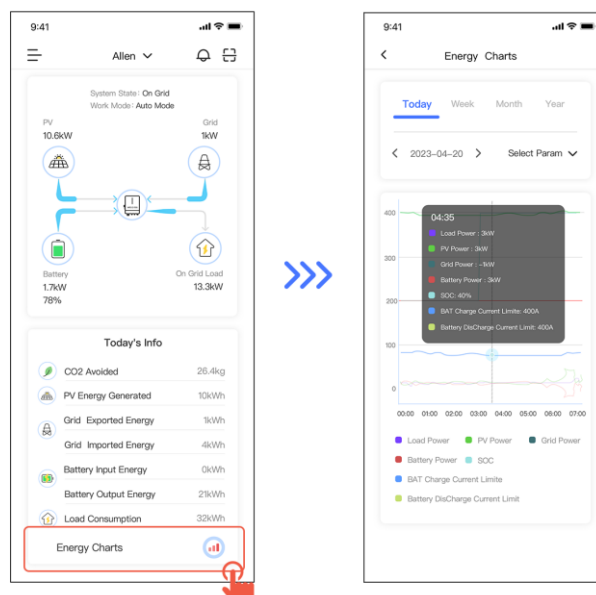
Click "  " on the "Home Page" to view the fault messages of the devices of the power station.



- View fault\alarm messages: Click the fault alarm record to view the fault alarm details.

7.7.3 Energy Information

On the main interface, select "Energy charts" to view energy information, as shown below:



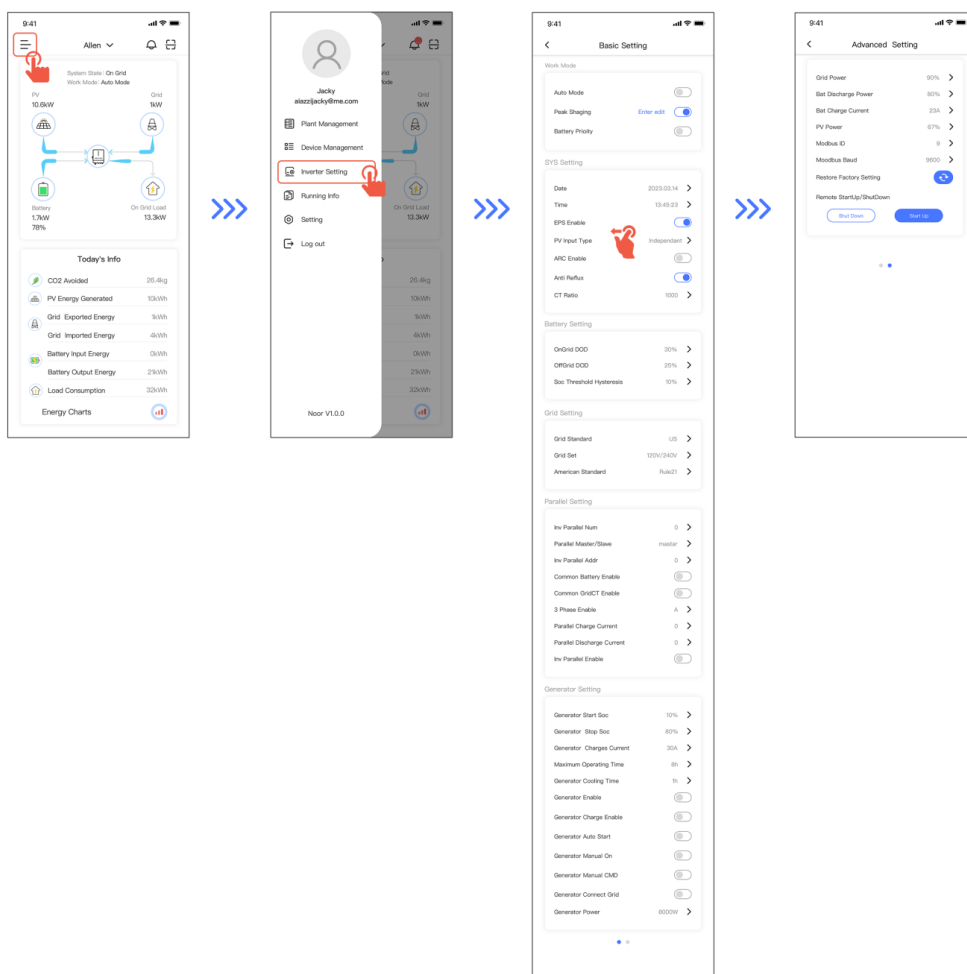
- Select time: Click the "< 2023-04-20 >" area to select the data view on the specified date.
- Select parameters: Click the "Select Param" area to select the parameters that need to be viewed for comparative analysis.

7.8 Inverter settings

The working mode and parameters of specific equipment can be set in the power station setting.

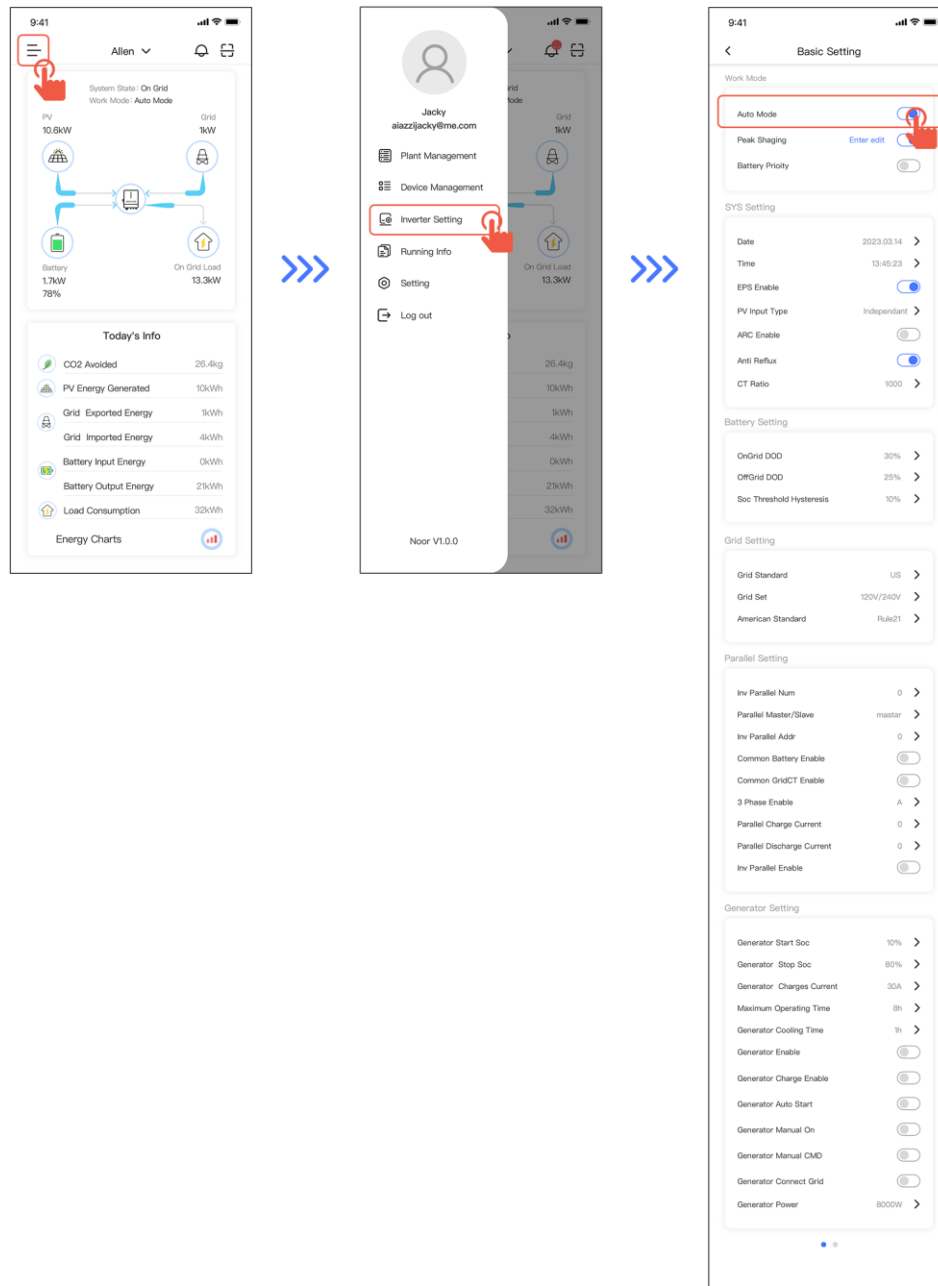
Step 1: Click the "☰" icon in the upper left corner area of the homepage, and the page will pop up on the left side.

Step 2: Click "Inverter Setting" to enter the configuration page.



7.8.1 Set working mode

In the "Home > Power Station Settings" tab, three working modes can be configured for the current power station: Auto mode, Peak Shaving and Battery Priority. The home page can display the working mode status of the current power station.



Auto mode

The priority of photovoltaic power generation is to ensure the load works, and then the remaining photovoltaic power is charged to the energy storage battery. After the battery is fully charged, the excess energy can be fed into the grid (the function of feeding into the grid can only be used with the permission of the grid company).

Peak Shaving

The system can run according to the set time and power, use photovoltaics and batteries when electricity prices are high, use the grid and charge batteries when electricity prices are low, and sell the remaining electricity generated by photovoltaics to the grid during the day (with the permission of the grid company first In order to use

the function of feeding into the grid), it can save electricity costs. In the planning mode, it is necessary to set the charging and discharging time period and the corresponding power.

Battery Priority

In this mode, the system prioritizes charging the battery until fully charged.

7.8.2 System settings

Settable functions: Date, Time, EPS enable, PV Input Type, ARC enable, Anti reflux, CT Ratio.

SYS Setting

Date	2023.03.14	>
Time	13:45:23	>
EPS Enable	☒	
PV Input Type	Independant	>
ARC Enable	☐	
Anti Reflux	☒	
CT Ratio	1000	>

Date: Current date. The inverter's statistical function will be performed based on this set date.

Time: The current time, the system's planning mode, will match this set time.

EPS Enable: EPS enable switch. After setting the enable switch, the load will output and provide power after the inverter is off the grid.

PV Input Type: Photovoltaic input type, default to independent input.

ARC Enable: US test standards need to be set to enable.

Anti Reflux: Discharge the reverse current and set the enable so that the excess energy of the system will not be fed back to the power grid.

Ct Ratio: Transformation ratio of external current transformer for detecting current, multiple of A/A

7.8.2.3 BAT Setting

Settable functions: Bat Grid DOD, Off Grid DOD, Soc Threshold Hysteresis.

Bat.Setting

Bat Grid DOD	30%	>
Off Grid DOD	25%	>
Soc Threshold Hystetesis	10%	>

Bat Grid DOD: The lower limit of the discharge SOC On grid connection operation. When it is lower than this value, the battery will no longer discharge.

Off-Grid DOD: The lower limit of the discharge SOC during off-grid operation. When it is lower than this value, the battery will no longer discharge.

Soc Threshold Hysteresis: After discharging to the SOC value that needs to be charged after the protection is effective, otherwise it will not be discharged here.

7.8.2.4 Grid setting

Settable functions: Grid Standard, Grid Set, American Standard Classification.

Grid Setting

Grid Standard	US	>
Grid Set	120V/240V	>
American Standard Classification	Rule21	>

Grid Standard: Select the national grid standard, and after confirmation by the state, the voltage amplitude and frequency will be determined.

Grid Set: Set whether it is a single output or two outputs.

American Standard Classification: Selection of grid standards used in different regions of the United States.

7.8.2.5 Parallel Setting

Settable functions: Inv Parallel Num, Parallel Master/Slave, Inv Parallel Addr, Common Battery Enable, Common GridCT Enable, 3 Phase Enable, Parallel Charge Current, Parallel Discharge Current, Inv Parallel Enable.

Parallel Setting

Inv Parallel Num	0	>
Parallel Master/Slave	master	>
Inv Parallel Addr	0	>
Common Battery Enable	☐	
Common GridCT Enable	☐	
3 Phase Enable	A	>
Parallel Charge Current	0	>
Parallel Discharge Current	0	>
Inv Parallel Enable	☐	

Inv Parallel Num: Number of parallel machines.

Parallel Master/Slave: Whether the parallel identity is a host or a slave, the slave will work according to the host's command.

Inv Parallel Addr: Parallel address. In a parallel system, the address cannot be repeated and can be set between 1-99.

Common Battery Enable: Whether the battery is shared in the parallel system.

Common GridCT Enable: In the parallel system, whether the current transformer on the grid side is shared.

3 Phase Enable: Whether the parallel system constitutes a three-phase power grid.

Parallel Charge Current: Limit of charging current to the battery after parallel operation.

Parallel Discharge Current: Discharge current limit for battery after the parallel operation.

Inv Parallel Enable: The parallel setting will not take effect until the parallel setting is enabled.

7.8.2.6 Generator Setting

Settable functions: Generator Start SOC, Generator Stop SOC, Generator Charge Current, Maximum Operating Time, Generator Cooling Time, Generator Enable, Generator Charge Enable, Generator Auto Start, Generator Manual On, Generator Manual CMD, Generator Connect Grid, Generator Power.

Generator Setting

Generator Start Soc	10%	>
Generator Stop Soc	80%	>
Generator Charges Current	30A	>
Maximum Operating Time	8h	>
Generator Cooling Time	1h	>
Generator Enable	☐	
Generator Charge Enable	☐	
Generator Auto Start	☐	
Generator Manual On	☐	
Generator Manual CMD	☐	
Generator Connect Grid	☐	
Generator Power	8000W	>

Generator Start SOC: The generator automatically starts the SOC value. After the battery SOC is lower than this value, if the generator enable is set to enable, the generator start dry connection point will close to start the generator.

Generator Stop SOC: The generator automatically stops the SOC value. After the battery SOC is higher than this value, if the generator enable is set to enable, the generator start dry connection point will be disconnected and the generator will be shut down.

Generator Charge Current: The current value for charging the battery after the generator is started. Please pay attention to the generator power and load power when setting this value.

Maximum Operating Time: Maximum operating time after generator startup.

Generator Cooling Time: Cooling time for generator shutdown.

Generator Enable: The generator is enabled, and the startup and shutdown of the generator will not take effect until the enable setting is set.

Generator Charge Enable: Generator charging is enabled, and the battery will not be charged until the generator is started after setting the enable.

Generator Auto Start: Control the dry contact and enable the signal of the external generator.

Generator Manual On: Manual control generator enable signal.

Generator Manual CMD: Manually control the generator on and off.

Generator Connect Grid: The externally connected generator is connected to the power grid input terminal for use.

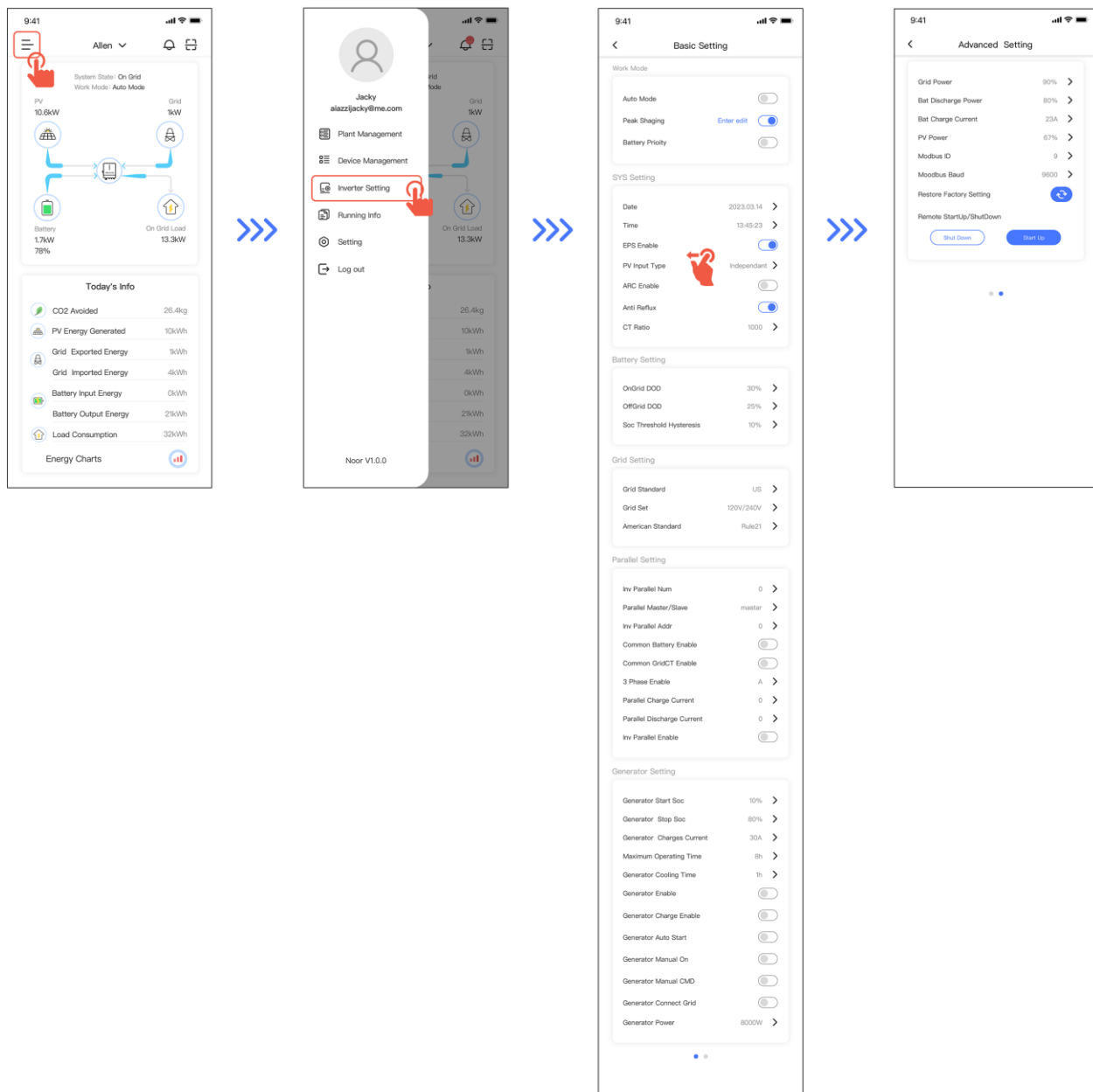
Generator Power: Generator power, is not less than system load power.

7.8.2.7 Advanced setting

Step 1: Click "☰" in the upper left corner of the main page, and a page will slide out from the left side.

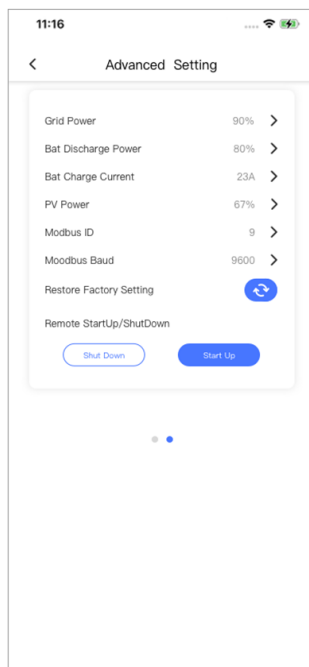
Step 2: Click on the "Inverter Setting" button in the slide-out page to view the setting list.

Step 3: On the basic settings page, slide your finger to the left to enter the advanced settings page:



The advanced settings page is shown below,

Settable functions: Grid Power, Bat Discharge Power, Bat Charge Current, PV Power, Modbus ID, Modbus Baud, Restore Factory Setting, Remote Start-Up/Shut-Down



Grid Power: Grid connected power dispatching, taking power from the grid and feeding back the maximum power value of the grid, using percentage settings.

Bat Discharge Power: Battery discharge power scheduling, maximum power value of battery discharge, usage percentage setting.

Bat Charge Current: Battery charging current.

PV Power: Photovoltaic power scheduling, setting the maximum photovoltaic power, percentage setting.

Modbus ID: RS485 communication address of this machine.

Modbus Baud: Baud rate of local RS485 communication.

Restore Factory Setting: Restore factory settings.

Remote Start-Up/Shut-Down: System power-on and power-off settings.

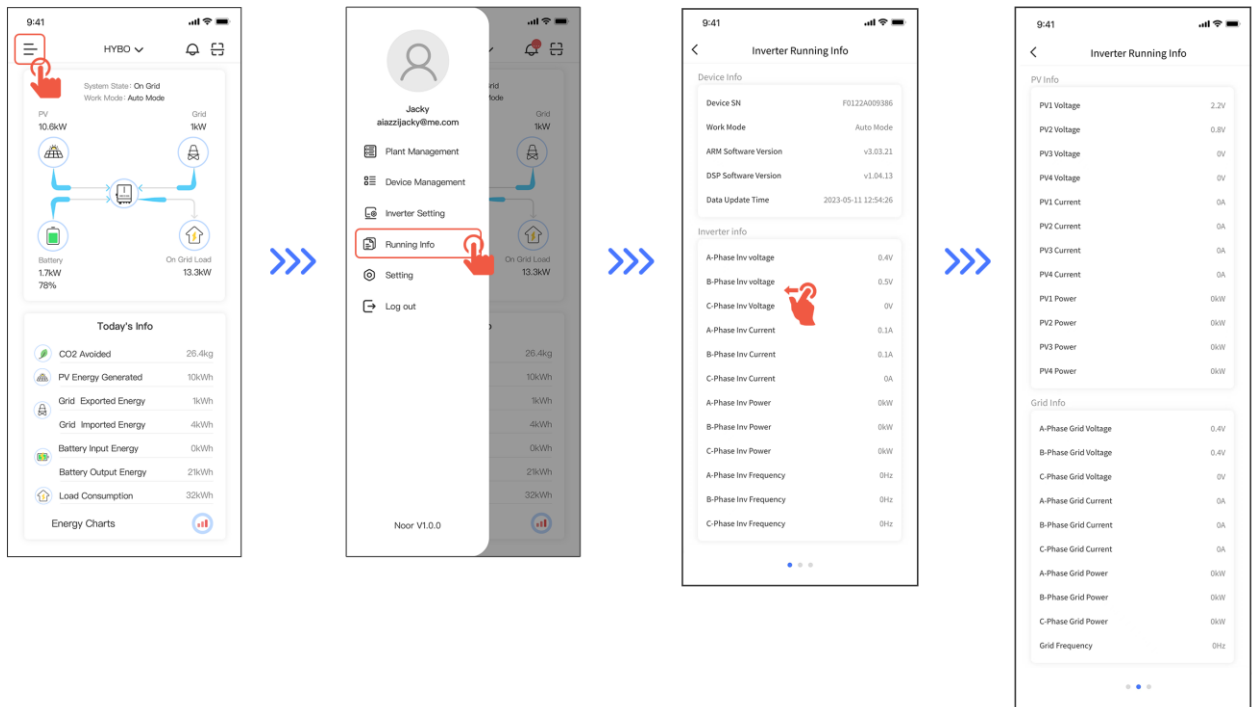
7.9 Device Information

You can view the detailed real-time operation information of the device's system under the current plant such as photovoltaic, power grid, battery, and load.

Procedure:

Step 1: Click the “☰” icon in the upper left corner area of the homepage, and the page will pop up on the left side.

Step 2: Click "Running Info" to enter the device system operation information page.



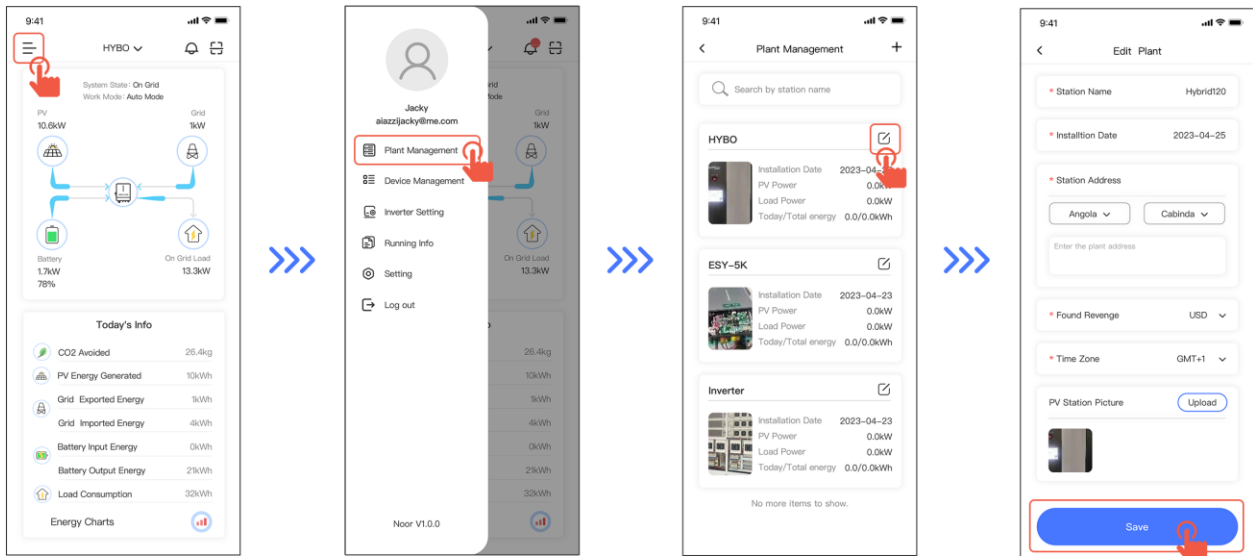
7.10 Device management

You can view the basic status of all devices added by the current plant.

Procedure:

Step 1: Click the “☰” icon in the upper left corner area of the homepage, and the page will pop up on the left side.

Step 2: Click "Device Management" to enter the list page.



- Device information: You can view the basic information and operation status of all devices under the current plant.
- Device deletion: Swipe left on the device you want to delete to appear the red delete button, click to confirm the pop-up window, and delete the device.

7.11 Plant Management

In the app, users can create plant, edit plants information, and delete plants.

To create a plant, see 8.5 Create a new plant.

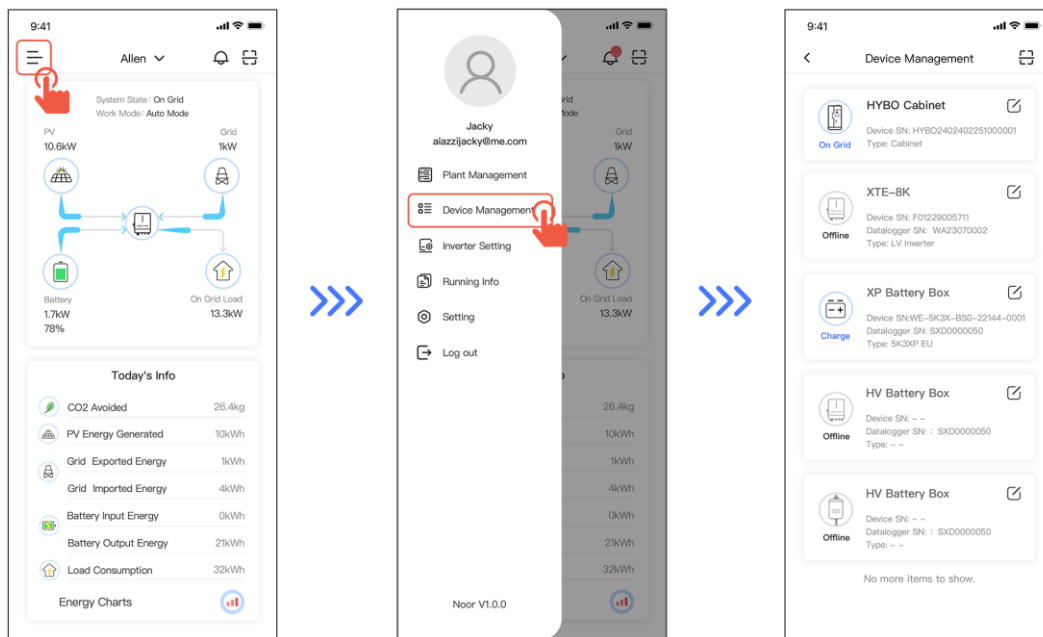
7.11.1 View the list of power stations

Showcasing all the plant created, you can see when the plant was created and the energy generated by the devices system.

Procedure:

Step 1: Click the “☰” icon in the upper left corner area of the homepage, and the page will pop up on the left side.

Step 2: Click "Plant Management" to enter the list page.



7.11.2 Edit plant information

According to the actual situation, the name of the plant, the address of the plant and other information can be edited.

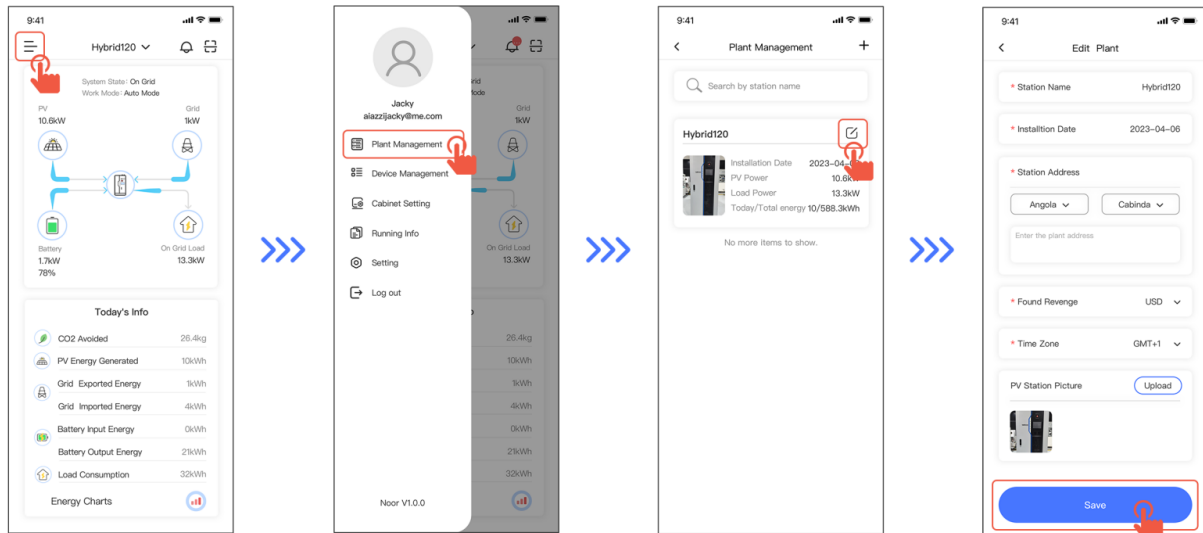
Procedure:

Step 1: Click the “☰” icon in the upper left corner area of the homepage, and the page will pop up on the left side.

Step 2: Click "Plant Management" to enter.

Step 3: On the "Plant Management" page, click the “✎” icon in the upper right corner of the plant that needs to be edited.

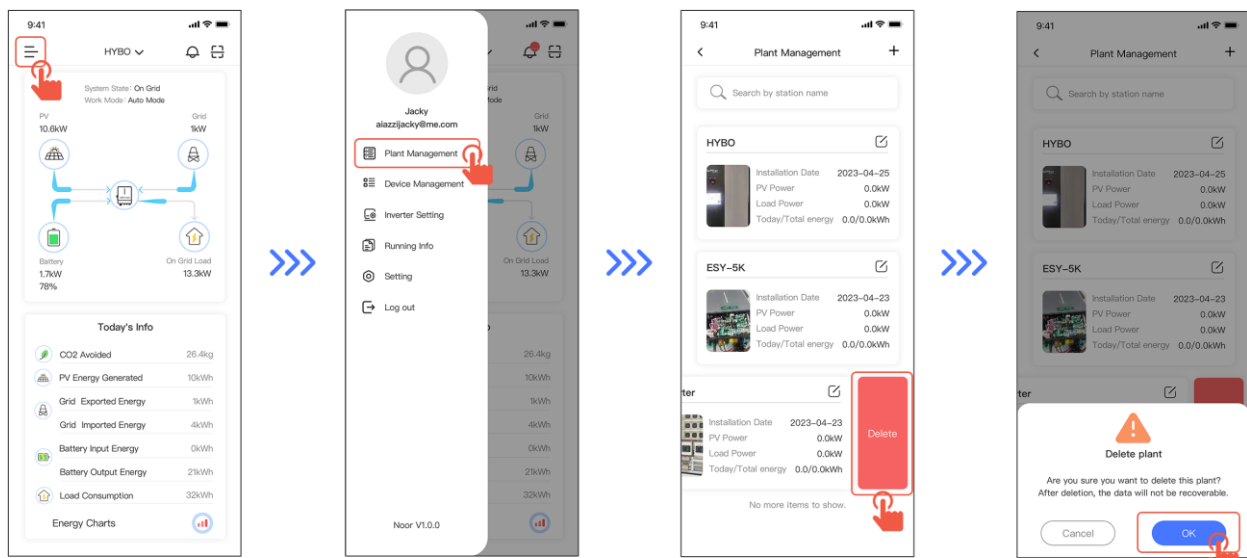
Step 4: Modify the relevant content according to your actual needs, and then click "Save".



7.11.3 Delete the plant

Procedure:

- Step 1: Click the “≡” icon in the upper left corner area of the homepage, and the page will pop up on the left side.
- Step 2: Click "Plant Management" to enter the plant list page.
- Step 3: Select a plant to slide left and the "Delete" button will appear.
- Step 4: Click "Delete" to display a confirmation pop-up window, and click "OK" in the pop-up window to delete the selected plant.



8 System Maintenance

8.1 Routine Maintenance

In order to ensure that the inverter can operate well for a long time, it is recommended to maintain it routinely as described in this section.



Caution!

Perform system power-down operations while performing maintenance such as system cleaning, electrical connections, grounding reliability, etc. (see 6.3 System Power-down).

Maintain lists:

Check content	Check method	Maintenance cycles
System cleaning	Regularly check the dust inside the box for dirt	Every six months to 1 time in a year
System operating status	Observe whether the appearance of the inverter is damaged or deformed. Listen to whether there is an abnormal sound during the operation of the inverter. When the inverter is running, check whether the parameters of the inverter are set correctly.	1 time every six months
Electrical connection	Check the cable connection for detachment and looseness. Check the cable for damage, focusing on whether the skin of the cable in contact with the metal surface has any traces of cuts.	Half a year after the first commissioning, and then once every six months to a year.
Grounding reliability	Check that the grounding cable is reliably grounded.	Half a year after the first commissioning, and then once every six months to a year.

8.2 Troubleshooting

Alarm levels are defined as follows:

Important alarm: the inverter fails, enters shutdown mode, and stops running.

Minor alarm: Some parts of the inverter have failed, but they are still able to work normally.

Prompt alarm: The inverter functions normally because external factors cause its output power to decrease.

List of common fault alerts:

Fault&Alarm Display	Code	Explanation	Solutions
Discharge Over Current	0	Battery discharge over current. When the load is too large and is requiring more current than available from the battery.	(1) Nothing needs to do, wait 1 minute for the inverter to restart. (2) Check whether the load follows the maximum power of the inverter. The inductive load should be calculated according to the instantaneous starting power. (3) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters. After disconnecting the load, wait 1 minute then power up the battery and inverter to check whether it runs normally in no-load condition. (4) Contact local installer or customer service if error continues occur.

Over Load	1	The load power is too high.	(1) Check whether the load follows the maximum power of the Inverter. The inductive load should be calculated according to the instantaneous starting power. (2) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters. After disconnecting the load, wait 1 minute then power up the battery and inverter, check the fault has been cleared or not, check the load again for a short circuit. (3) Contact local installer or customer service if error continues occur.
Battery Disconnected	2	Battery Disconnect. (Battery voltage not identified)	(1) Check and make sure the battery is connected using the right terminals and communication ports. (2) Check and make sure the battery wiring port is no open circuited and if batteries have voltage. (3) Contact local installer or customer service if error continues occur.
Battery Under Volt / Battery Under Capacity	3	Battery voltage lower than normal range.	(1) Checking System Settings, if so, power off and disconnect whole system, Wait 1 minute then restart. (2) Check if there is Grid outage or not. If so, wait for the Grid comes back on, the inverter will automatically charge. (3) Check if there is PV outage or not. If so, wait the PV back on, the inverter will automatically charge. (4) Contact local installer or customer service if error continues occur.
Battery Low Volt / Battery Low Capacity	4	Nattery capacity is lower than the set value	(1) Battery SoC lower that setting. (SOC< 100%- DOD) (2) Checking System Settings, if so, power off and disconnect whole system, Wait 1 minute then restart. (3) Check is there is Grid or PV outage or not. If so, wait for the Grid/PV comes back on, the inverter will automatically charge. (4) Contact local installer or customer service if error continues occur.
Battery Over Volt	5	The battery voltage is greater than the maximum voltage.	(1) Checking System Settings, if so, power off and disconnect whole system, wait 1 minute then restart. (2) Contact local customer service if error warning continues.
Gird low volt	6	Grid voltage is abnormal	(1) Check if there is Grid outage or anomalies. (2) Check grid standard and set parameters to improve the upper and lower limits of the Grid voltage. (3) Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (4) Contact local installer or customer service if error continues occur.
Grid over volt	7		
Grid low Freq	8	Grid Frequency is abnormal.	(1) Check if there is Grid outage or anomalies. (2) Check grid standard and set parameters to improve the upper and lower limits of the Grid Frequency. (3) Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (4) Contact local installer or customer service if error continues occur.
Grid over Freq	9		
GFCI over	10	Inverter GFCI exceeds standard.	(1) Check PV string for direct or indirect grounding phenomenon. (2) Check whether inverter wiring leakage is present or not. (3) Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (4) Contact local installer or customer service if error continues occur.

Parallel CAN Fail	11	The communication of parallel Inverter has fault	(1) Check and make sure the communication cable and connection sequence is right and not broken. (2) Check and make sure all the inverter switch is turned on or the switch is working properly. (3) Check and make sure if the system parallel setting is right. Make sure the RJ45 internet cable does not exceed 20m. Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (4) Contact local installer or customer service if error continues occur.
Grid CT Reverse	12	Check the external CT wiring	(1) Check and make sure if the external CT is correctly connected. (2) Check and make sure the external CT arrow orientation is towards the grid. (3) Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (4) Contact local installer or customer service if error continues occur.
Bus under volt	13	Bus voltage is lower than normal.	(1) Check and make sure the input mode setting is correct. (2) Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (3) Contact local installer or customer service if error continues occur.
Bus over volt	14	BUS voltage is over maximum value.	(1) Check and make sure the input mode setting is correct. (2) Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (3) Contact local installer or customer service if error continues occur.
INV over current	15	The inverter current exceeds the normal value.	(1) Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (2) Contact local installer or customer service if error continues occur.
Charge Over Current	16	Battery charge current over than the maximum.	(1) Check and measure the battery wire make sure there is no short circuit. (2) Check and measure the charging current, make sure the settings is right. (3) Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (4) Contact local installer or customer service if error continues occur.
Bus volt OSC	17	Bus voltage instability.	(1) Check the input and output make sure the mode setting is correct. (2) Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (3) Contact local installer or customer service if error continues occur.
INV under volt INV over volt	18	INV voltage is abnormal	(1) Check and measure the Inverter Input voltage. Make sure there is no anomaly. (2) Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (3) Contact local installer or customer service if error continues occur.
	19		
INV Freq Abnor	20	INV frequency is abnormal	(1) Check and measure the Inverter Input frequency. Make sure there is no anomaly. (2) Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (3) Contact local installer or customer service if error continues occur.
IGBT Temp. High	21	The inverter temperature is higher than the allowed value	(1) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters. After disconnecting the load, wait 1 hour to let the system cooling, then power up the battery and inverter to check whether it runs normally or not.

			(2) Contact local installer or customer service if error continues occur.
BMS System Error	22	Internal communication of the battery has error	(1) Check and make sure the battery communication wire is connected and with the right terminal. (2) Check and make sure the battery DIP and Setting is right. (4) Contact local installer or customer service if error continues occur.
Battery Over Temp	23	Battery temperature is higher than the allowed value.	(1) Disconnect all power supplies (PV, Inverter) and shutdown the battery. Wait 1 hour to let the battery system cooling, then power up the battery and inverter to check whether it runs normally or not . (2) Contact local installer or customer service if error continues occur.
Battery Under Temp	24	Battery temperature is lower than the allowed value.	(1) Check and make sure the ambient temperature near the battery is meet the working conditions. (2) Contact local installer or customer service if error continues occur.
Battery Cell Unbal	25	Battery cell voltage or current unbalance.	(1) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters. After disconnecting the load, wait 1 minute then power up the battery and inverter, check the fault has been cleared or not. (2) If it occurs by chance, it may be caused by temporary change in the system, and the device will return to normal after the system is stable. (3) Contact local installer or customer service if error continues occur.
Battery Reverse	26	The wiring connection between battery and inverter may have fault.	(1) Check if the positive and negative wire connection between inverter and battery is right. Warning: Reverse of the wire connection will damage the system and not repairable. (2) Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (3) Contact local installer or customer service if error continues occur.
Battery Comm Fail	27	Communication between battery and inverter is abnormal.	(1) Check and make sure the communication cable and pinout sequence are right. (2) Check and make sure the battery switch is turned on or the switch is working properly. (3) Check and make sure the system setting is right. Correct the system setting when it not right, power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (4) Contact local installer or customer service if error continues occur.
Battery Fault	28	The battery module is abnormal	(1) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters. After disconnecting the load, wait 1 minute then power up the battery and inverter, check the fault has been cleared or not. (2) Contact local installer or customer service if error continues occur.
Grid Over Load	29	Inverter Grid input exceed the standards.	(1) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters. After disconnecting the load, wait 1 minute then power up the battery and inverter, check the fault has been cleared or not. (2) Check the battery charging current; with all loads, make sure it does not exceed the inverter grid input limit. (3) Contact local installer or customer service if error continues occur.
Grid Phase Error	30	The power grid phase sequence is incorrectly connected.	(1) Check and make sure the Grid power wiring is correct. (2) Check and make sure the external CT phase also connected accordingly to the phase sequence.

Grid LN Reverse			(3) Power off and disconnect whole system, Wait 1 minute then restart.wait until it functions normally. (4) Contact local installer or customer service if error continues occur.
ARC Fault	32	PV ARC Fault	(1) Please contact your PV provider or installer to check the PV panels and wires. Make sure all is working well. (2) Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (3) Contact local installer or customer service if error continues occur.
Bus Soft Fault	33	Bus soft start fault. Inverter soft start fault. Bus line short circuit. Inverter short circuit. Warning: May cause the Inverter damage.	(1) Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (2) Contact local installer or customer service if error continues occur.
INV Soft Fault	34		
Bus Short	35		
INV Short	36		
Fan Fault	37	Fan startup failure	(1) Check and confirm the Inverter is working in high temperature or high-power condition or not. If not, the system is good. (2) Check whether the fan runs properly. (If you can see it or hearing it) (3) Power off and disconnect whole system, wait 1 minute then restart. Wait until it functions normally. (4) Contact local installer or customer service if error continues occur.
PV Isolate low	38	PV insulation impedance is low.	(1) Check if the PV line is connected to the inverter and connected to the ground. (2) Set parameters to improve the upper and lower limits of the PV insulation values. (3) Contact local installer or customer service if error continues occur.
Bus Relay Fault	39	The Bus Relay may have fault; Warning: May cause the Inverter damage.	(1) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters; after disconnecting the load, wait 1 minute then power up the battery and inverter, check the fault has been cleared or not. (2) Contact local installer or customer service if error continues occur.
Grid Relay Fault	40	The Grid Relay may have fault; Warning: May cause the Inverter damage.	(1) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters; after disconnecting the load, wait 1 minute then power up the battery and inverter, check the fault has been cleared or not. (2) Turning on-off the Grid breaker of Inverter, listen there has relay on-off "click" sound or not; If have and system has grid power, The fault is fake. (3) Contact local installer or customer service if error continues occur.
EPS Relay Fault	41	The EPS Relay may have fault; Warning: May cause the Inverter damage.	(1) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters; after disconnecting the load, wait 1 minute then power up the battery and inverter, check the fault has been cleared or not. (2) Contact local installer or customer service if error continues occur.
GFCI Fault	42	The GFCI device may have fault; Warning: May cause the Inverter damage.	(1) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters; after disconnecting the load, wait 1 minute then power up the battery and inverter, check the fault has been cleared or not. (2) Contact local installer or customer service if error continues occur.
CT Fault	43	The CT device may have fault; Warning: May cause the Inverter damage.	(1) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters; after disconnecting the load, wait 1 minute then power up the battery and inverter, check the fault has been cleared or not. (2) Check and make sure the external CT orientation is towards to the grid power in.

			(3) Check and make sure the external CT wires connect to the right terminal. (4) Contact local installer or customer service if error continues occur.
PV short	44	The Inverter device or PV may have fault. Warning: May cause the Inverter damage.	(1) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters; after disconnecting the load, wait 1 minute then power up the battery and inverter, check the fault has been cleared or not. (2) Check and measure the PV string and check the PV wiring to confirm there is fake alarm or not. (3) Contact local installer or customer service if error continues occur.
Byp Relay Fault	45	The Bypass relay device may have fault. Warning: May cause the Inverter damage.	(1) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters; after disconnecting the load, wait 1 minute then power up the battery and inverter, check the fault has been cleared or not. (2) Contact local installer or customer service if error continues occur.
System Fault	46	The Inverter system may have fault or working in system protection mode. Warning: May cause the Inverter damage.	(1) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters; after disconnecting the load, wait 1 minute then power up the battery and inverter, check the fault has been cleared or not. (2) Contact local installer or customer service if error continues occur.
Current Dcover	47	The DC bias current of Inverter AC output is too high, or device have fault. Warning: May cause the Inverter damage.	(1) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters; after disconnecting the load, wait 1 minute then power up the battery and inverter, check the fault has been cleared or not. (2) Contact local installer or customer service if error continues occur.
Voltage Dcover	48	The DC bias voltage of Inverter AC output is too high, or device have fault. Warning: May cause the Inverter damage.	(1) Disconnect all power supplies (PV, Grid, Battery) and shutdown the battery and inverters; after disconnecting the load, wait 1 minute then power up the battery and inverter, check the fault has been cleared or not. (2) Contact local installer or customer service if error continues occur.

9 Inverter Disposal

9.1 Disassemble the inverter

Procedure

Step 1. Perform a system power-down operation (see 6.3 System Power-down).

Step 2. Disconnect all electrical connections to the inverter, including signal lines, PV input lines, energy storage input lines, AC output lines, and protective ground wires.

Step 3. Remove the inverter fixing screws.

9.2 Packaging inverters

If you also have the original packaging of the inverter, please put it inside the original packaging and seal the package securely with tape.

If you can't find the original packaging of the inverter anymore, use a wooden box suitable for the weight and size of this inverter to seal it firmly.

9.3 Scrap inverters

At the end of the inverter's useful life, dispose of it in accordance with the electrical waste disposal law applicable at the place of installation.

Appendix A Grid Standard Code

The list of grid standard codes will be refreshed from time to time, please refer to the actual product.

Table A-1 List of grid standard codes

serial number	Grid standard code name	illustrate	Grid voltage	Grid frequency
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Appendix B abbreviations

A	
AC	Alternating Current
D	
DC	Direct Current
I	
ID	Identifier
L	
LED	Light Emitting Diode
LVRT	Low Voltage Ride-Through
M	
MAC	Media Access Control
MPPT	Maximum Power Point Tracking
P	
PC	Personal Computer
PE	Protective Earthing
PV	Photovoltaic
R	
RCD	Residual Current Device
RCMU	Residual Current Monitoring Unit
RH	Relative Humidity
S	
SN	Serial Number
T	
THDI	Total Harmonic Current Distortion
WEEE	Waste Electrical and Electronic Equipment
WiFi	Wireless Fidelity