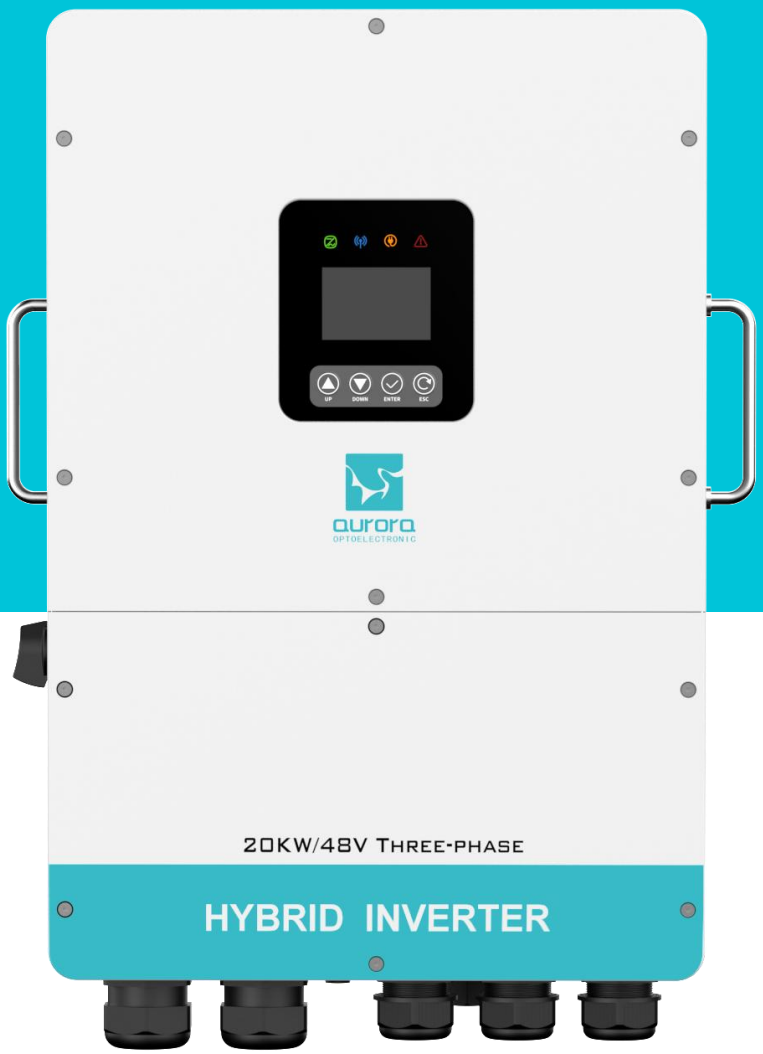
User Manual

aurora
OPTOELECTRONIC

HYBRID INVERTER

15KW~24KW

48V Three-Phase



MODEL:

YF-LV-P3E-15048
YF-LV-P3E-18048
YF-LV-P3E-20048
YF-LV-P3E-24048

https://www.yufai-aurora.com

Please read this manual before use and follow its guidance.
Keep this manual for future reference.

CONTENTS

1.About This Manual 1
1.1 Applicable Model 1
1.2 Target Group 1
1.3 Symbol Definition 1
2.Safety Precaution 1
2.1 General Safety 1
2.2 PV String Safety 2
2.3 Inverter Safety 2
2.4 Battery Safety 3
2.5 Personal Requirements 3
2.6 EU Declaration of Conformity 3
3.Product Introduction 4
3.1Product Features 4
3.2 Working Mode 5
3.3 Appearance 6
3.4 System Diagram 10
4. Check and Storage 10
4.1 Check Before Receiving 10
4.2 What's in the box? 11
4.3 Storage 12
5.Installation 12
5.1 Installation Requirements 12
5.2 Inverter Installation 15
6.Electrical Connection 16
6.1 Safety Precaution 16
6.2 Parallel connection notice 17
6.3 Connection Port Description 17
6.4 PE Cable Connection 18
6.5 PV Connection 19
6.6 EPS and Grid,Generator Connection 20
6.7 Battery Connection 21
6.8 Communication Cable Installation 23
6.9 CT Connection 26
6.10 Meter Connection 27
6.11 Wiring System for Inverter 28
6.12 Wiring System for Diesel Generator 31
6.13 Three phase parallel connection system 32
6.14 Wi-Fi&BLE stick installation 33
7.Operation 36
7.1 Indicator panel 36
7.2 LCD operation flow chart 37
7.3 LCD Display Icons 38
7.4 System Setup Menu 40
7.5 Basic Settings Menu 42
7.6 Work Mode Settings Menu 42
7.7 Battery Settings Menu 45

7.8 Grid Settings Menu 47
7.9 Generator Port Settings Menu 51
7.10 Advanced Settings Menu 53
7.11 Record Menu 56
7.12 Device Info Setup Menu 57
7.13 Factory Setting Menu 58
8.Trouble Shooting 59
9.Maintenance 64
9.1 Power ON the Inverter for first time 64
9.2 Power Off the Inverter 64
9.3 Removing the Inverter 64
9.4 Disposing of the Inverter 64
9.5 Routine Maintenance 65

1.About This Manual

This manual describes the product information, installation, electrical connection, commissioning, troubleshooting, and maintenance. Read through this manual before installing and operating the product. All the installers and users have to be familiar with the product features, functions, and safety precautions. This manual is subject to update without notice. For more product details and latest documents, visit our website.

1.1 Applicable Model

Model	Nominal Output Power	Nominal Output Voltage
YF-LV-P3E-15048	15kW	380 / 400 V a.c., 3W+N+PE
YF-LV-P3E-18048	18kW	380 / 400 V a.c., 3W+N+PE
YF-LV-P3E-20048	20kW	380 / 400 V a.c., 3W+N+PE
YF-LV-P3E-24048	24kW	380 / 400 V a.c., 3W+N+PE

1.2 Target Group

This manual is intended for qualified and knowledgeable electrical technical personnel who are responsible for hybrid inverter installation and commissioning in the energy storage system and electric system.

1.3 Symbol Definition

The following types of safety instructions and general information appear in this document as described below:

DANGER	WARNING	CAUTION	NOTICE
"Danger" indicates a hazardous situation with a high level of risk that, if not avoided, will result in death or serious injury.	"Warning" indicates a hazardous situation with a medium level of risk that, if not avoided, could result in death or serious injury.	"Caution" indicates a hazardous situation with a low level of risk that, if not avoided, could result in minor or moderate injury.	"Notice" provides some tips and methods to solve product-related problems to save time.

2.Safety Precaution

Please strictly follow these safety instructions in the user manual during the operation.

2.1 General Safety

NOTICE

• The information in this user manual is subject to change due to product updates or other reasons. This guide cannot replace the product labels or the safety precautions in the user manual unless otherwise specified. All descriptions here are for guidance only.

• Before installations, read through the quick installation guide. For additional information, please see the user manual.

• All installations should be performed by trained and knowledgeable technicians who are familiar with local standards and safety regulations.

• Use insulating tools and wear personal protective equipment when operating the equipment to ensure personal safety. Wear anti-static gloves, cloths, and wrist strips when touching electron devices to protect the inverter from damage.

• Strictly follow the installation, operation, and configuration instructions in this manual. The manufacturer shall not be liable for equipment damage or personal injury if you do not follow the instructions.

2.2 PV String Safety

DANGER

Connect the DC cables using the delivered PV connectors. The manufacturer shall not be liable for the equipment damage if other connectors or terminals are used.

WARNING

• Ensure the component frames and the bracket system are securely grounded.

• Ensure the DC cables are connected tightly, securely, and correctly.

• Measure the DC cables with a multimeter to avoid reverse polarity connection. Also, the voltage should be under the permissible range.

• Do not connect one PV string to more than one inverter at the same time. Otherwise, it may cause damage to the inverter.

• The PV modules used with the inverter must have an IEC61730 class A rating.

• When the photovoltaic array is exposed to light, it supplies a d.c. voltage to the inverter.

2.3 Inverter Safety

WARNING

• The voltage and frequency at the connecting point should meet the on-grid requirements.

• Additional protective devices like circuit breakers or fuses are recommended on the AC side. Specification of the protective device should be at least 1.25 times the AC rated output current.

• Make sure that all the groundings are tightly connected. When there are multiple inverters, make sure that all the grounding points on the enclosures are equip Potential bonding.

• Off-grid function is not recommended if the PV system is not configured with batteries. Otherwise, the risk in system power usage is beyond the equipment manufacturer's warranty scope.

• It should be taken into account the characteristics of photovoltaic power instability, if the battery is not connected, there is no EPS function.

DANGER			
• All labels and warning marks should be visible after the installation. Do not cover, scrawl, or damage any label on the equipment. • Warning labels on the inverter are as follows:			
	DANGER High voltage hazard. Disconnect all incoming power and turn off the product before working on it.		Delayed discharge. Wait 5 minutes after power off until the components are completely discharged.
	Read through the user manual before working on this device.		Potential risks exist. Wear proper PPE before any operations.
	High-temperature hazard. Do not touch the product under operation to avoid being burnt.		Grounding point.
	With CE mark & the inverter fulfills the basic requirements of the guideline governing Low-Voltage and electron-magnetic compatibility.		Do not dispose of the inverter as household waste. Discard the product in compliance with local laws and regulations, or send it back to the manufacturer.

2.4 Battery Safety

WARNING

• The battery used with the inverter shall be approved by the inverter manufacturer. The approved battery list can be obtained through the official website.

• Before installations, read through the corresponding battery's User Manual to learn about the product and the precautions. Strictly follow its requirements.

• If the battery discharged completely, please charge it in strict accordance with the corresponding model's User Manual.

• Factors such as: temperature, humidity, weather conditions, etc. may limit the battery's current and affect its load.

• Contact after-sale service immediately if the battery is not able to be started. Otherwise, the battery might be damaged permanently.

• Use the multimeter to measure the DC cable to avoid reverse polarity connection. Also, the voltage should be under the permissible range.

• Do not connect one battery group to several inverters at the same time. Otherwise, it may cause damage to the inverter.

2.5 Personal Requirements

NOTICE

• Personnel who install or maintain the equipment must be strictly trained, learn about safety precautions and correct operations.

• Only qualified professionals or trained personnel are allowed to install, operate, maintain, and replace the equipment or parts.

2.6 EU Declaration of Conformity

We hereby declares that the inverter without wireless communication modules sold in the European market meets the requirements of the following directives:

• Electromagnetic compatibility Directive 2014/30/EU (EMC)

• Electrical Apparatus Low Voltage Directive 2014/35/EU (LVD)

• Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863 (RoHS)

• Waste Electrical and Electronic Equipment 2012/19/EU

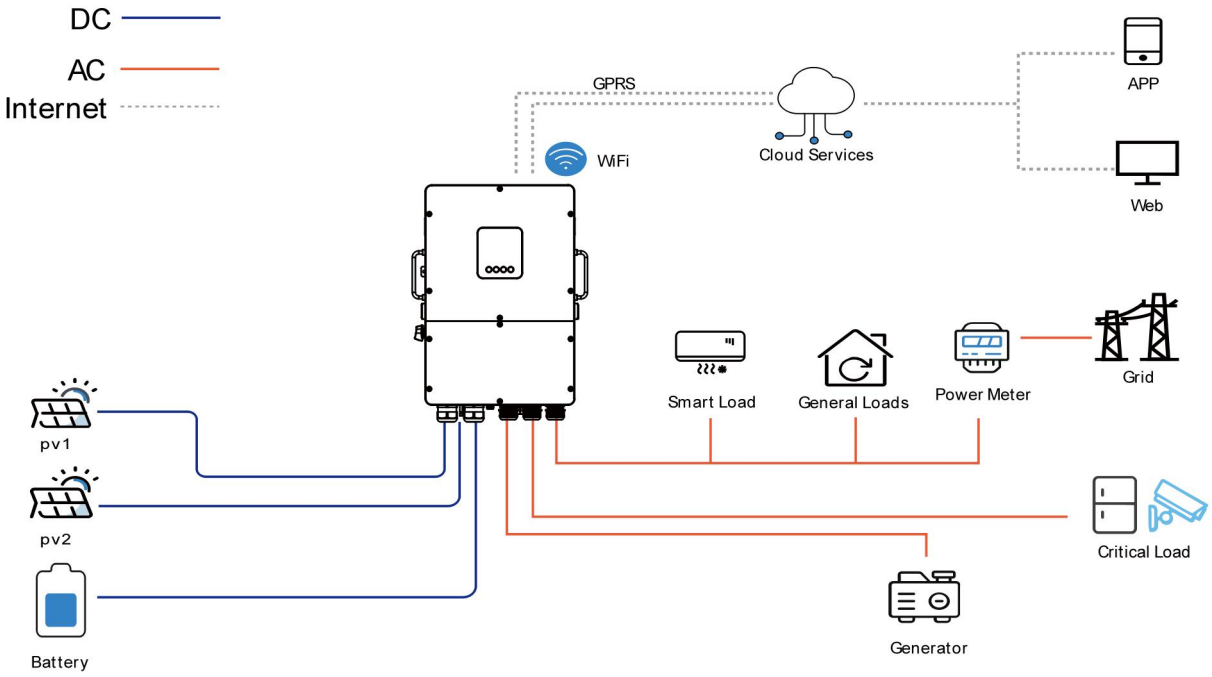
• Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)

3.Product Introduction

3.1Product Features

Intended usage

The YF-LV-P3E-15048~YF-LV-P3E-24048 series is a leading three-phase low-voltage hybrid inverter designed for resident ial and small commercial applications, supporting 15~24kW systems. It features up to 500A charge/discharge current an d three battery inputs for versatile energy storage solutions.Built with advanced SiC technology and a robust full alumin um IP66-rated enclosure, it delivers high efficiency, reliability, and durability. The inverter supports a wide voltage input range
(154–286V), automatic 50/60Hz frequency adaptation, strong surge resistance, and 150% unbalanced three-phase out put.



Series Code:
SN: SXXXXXXXX2401100001
Series Code description

No.	Referring to	Code	Description
1	Brand name	S	Brand
2	Product category	XXXXXXXX	Inverter model ID
3	Production date	24	The year of production
4	Production date	01	The month of production
5	Production date	11	The day of production
6	Production serial number	00001	serial number

3.2 Working Mode

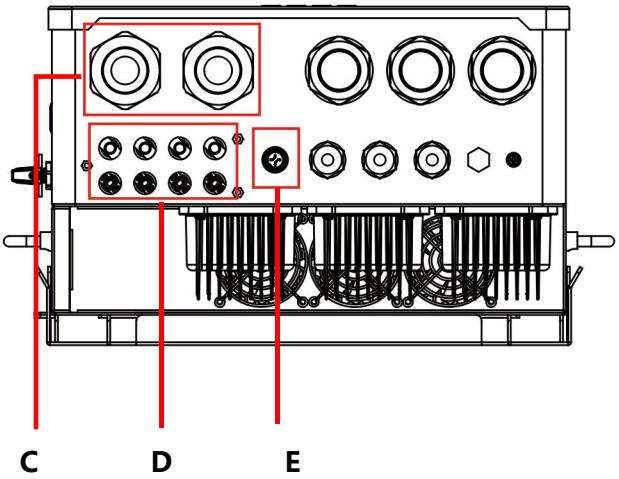
The YF-LV-P3E-15048~YF-LV-P3E-24048 Series hybrid inverter has the following work modes based on your configuration and layout conditions.

Work modes	Description
Self Use (with PV Power)	Priority: load>battery>grid The energy produced by the PV system is used to optimize self-consumption. The excess energy is used to charge the batteries, then exported to gird.
Self Use (without PV Power)	Priority: load>battery When no PV supplied, battery will discharge for local loads firstly, and grid will supply power when the battery capacity is not enough.
TOU[1] Balance	In this mode, users can set the time period, photovoltaic sufficient and time-of-use price area, in the case of large power consumption of users, to achieve the balance of photovoltaic utilization rate and economic benefits. **Peak price:**Run spontaneous self-use mode. **Flat price:**The photovoltaic gives priority to the load power supply, and when the photovoltaic power is insufficient, the battery is restricted to discharge to ensure the continuity of energy. **Valley price:**Charge the battery at full power priority until it is full.
TOU[1] Eco	This mode can be used to meet users' demand for peak cutting and valley filling and achieve maximum economic benefit in areas with large difference of peak and valley electricity price. **Peak price:**The battery is discharged at full power to sells electricity to the grid at a high price **Flat price:**Run spontaneous self-use mode. **Valley price:** Buy electricity from the grid at a low price to charge the battery at full power
Back up only	Priority: load>battery When entering this mode, the system will start to charge the battery until it is fully charged and remains fully charged, waiting for the power grid to fail. When the grid is off, system will supply emergency power from PV or battery to supply the home loads .
Grid Priority	Priority: load>grid When the system works in this mode, the electricity generated by the photovoltaic will be preferentially connected to the grid. Users can send requests to the grid at peak times, and in this mode, users can set the end of the battery SOC point.

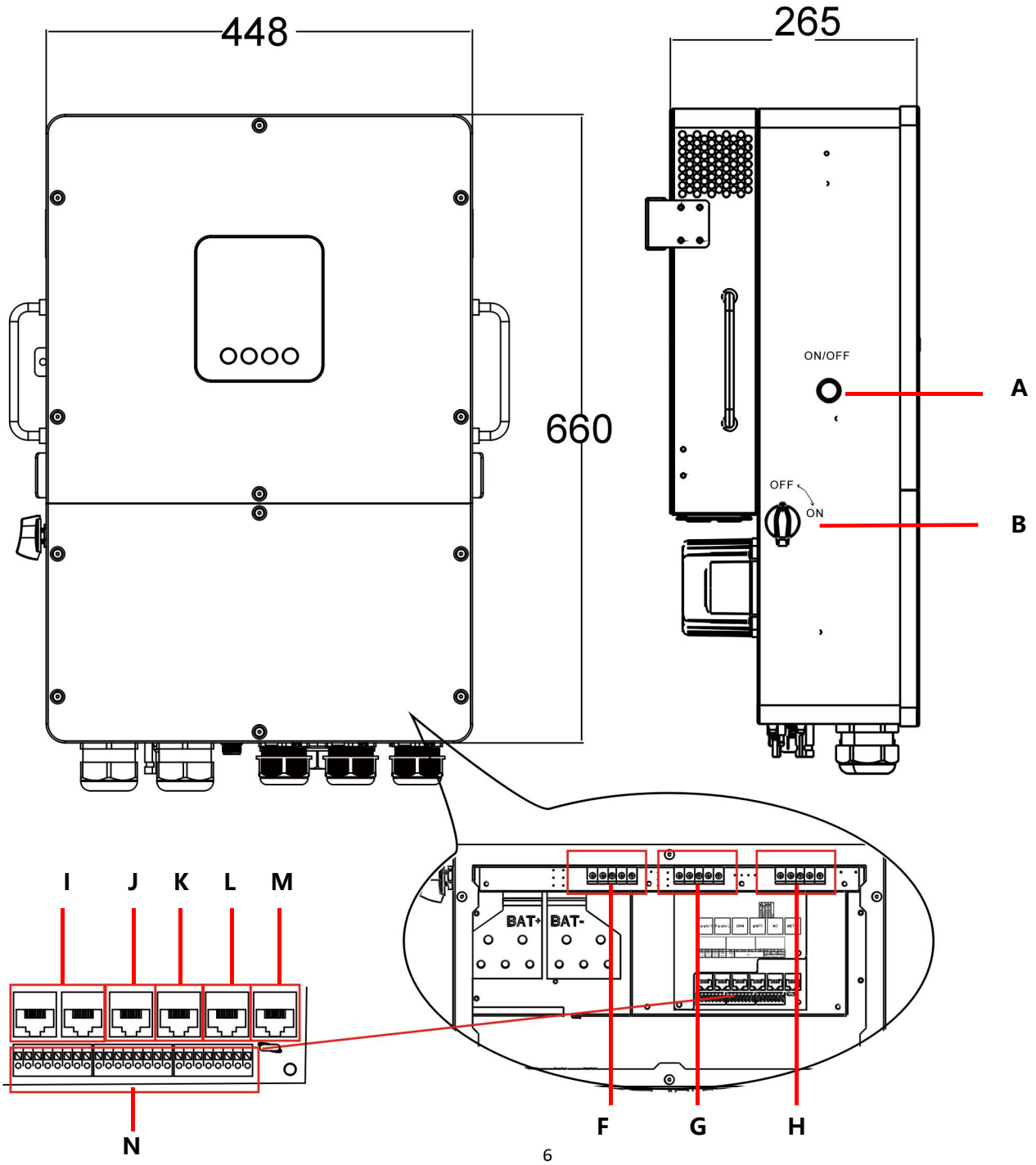
DANGER

Make sure the load powering rating in within the EPS's output rating. Or the inverter will shut down with an 'over load' warning.When an “over load” is appeared, adjust the load power make sure it is with the range of the EPS output, and turn the inverter on.For the nonlinear load, please pay attention to the inrush power make sure it is within the range of the EPS output.

3.3 Appearance

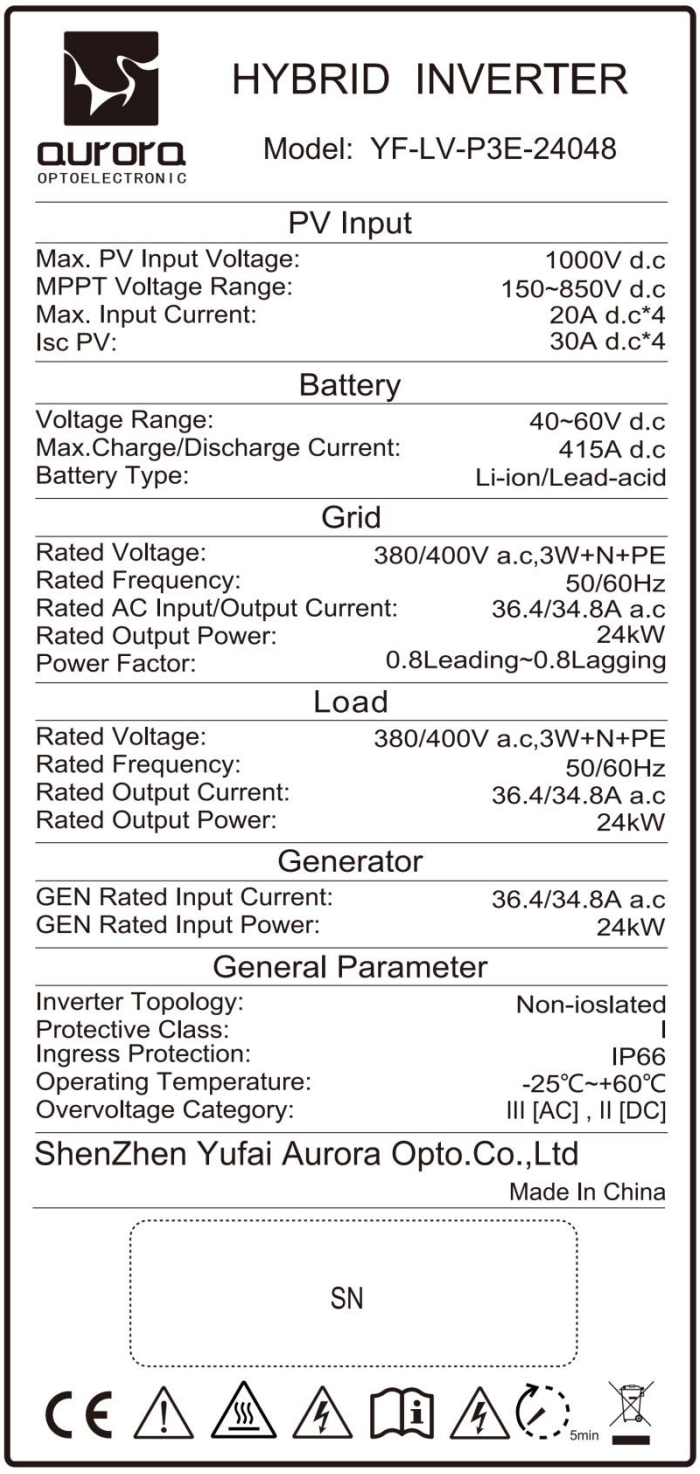


Item	Description	Item	Description
A	Power on/off	**H**	Grid
B	PV switch	**I**	Parallel port
C	BAT	**J**	DRM port
D	PV connector	**K**	BMS port
E	WIFI	**L**	NC
F	Generator input	**M**	Meter port
G	Load	**N**	Function port



3.3.3 Nameplate

The nameplate is for reference only.



3.3.4 Features

- Full-load operation from -25°C to +45°C without derating
- Max. 500A charge/discharge, supports three battery inputs
- 2× load surge for 10s, 150% three-phase unbalanced output
- 154V–286V input, 50/60Hz auto-adaptation, built-in SPD
- Up to 8 units parallel, supports AC coupling for retrofit
- High efficiency, lightweight, IP66 protection

3.3.5 Specification

Model	YF-LV-P3E-15048	YF-LV-P3E-18048	YF-LV-P3E20048	YF-LV-P3E-24048
Product Type	Hybrid Inverter			
Battery				
Battery type	Li-ion/Lead-acid			
Battery voltage range	40-60V d.c			
Full power Battery voltage range	48-60V d.c	51.2-60V d.c	51.2-60V d.c	58-60V d.c
Max.charge/discharge Power	15kW /15 kW	18kW /18 kW	20kW /20 kW	24kW /24 kW
Rated battery voltage	51.2V d.c			
Rated charge/discharge current	315A d.c.	350A d.c.	390A d.c.	415A d.c.
Max. charge/discharge current	315A d.c.	350A d.c.	390A d.c.	415A d.c.
Reverse Connect Protection	Yes			
Communication interface	CAN/RS485			
Input (PV)	**YF-LV-P3E-15048**	**YF-LV-P3E-18048**	**YF-LV-P3E20048**	**YF-LV-P3E-24048**
Recommended Max. PV module size	37.5~45kW	45~54kW	50~60kW	60~72kW
Max. PV input power	30kW	36kW	40kW	48kW
Max. operating PV input current (per string)	4*20A d.c.			
Max. Isc PV(per string)	4*30A d.c.			
Max PV (Max. PV input voltage)	1000V d.c			
MPPT Voltage Range	150~850 V d.c.			
PV input operating voltage range	125~920 V d.c.			
Full power MPPT voltage range	375-850V d.c	450-850V d.c	500-850V d.c	600-850V d.c
Start-up Voltage	180V d.c			
Number of MPP Trackers	2			
Strings per MPP Tracker	2			
Number of PV input	4			
Max.inverter backfeed current to the array	0A			
Grid AC input and AC output	**YF-LV-P3E-15048**	**YF-LV-P3E-18048**	**YF-LV-P3E20048**	**YF-LV-P3E-24048**
Grid rated voltage	380 / 400 V a.c., 3W+N+PE			
Grid rated frequency	50Hz/60Hz			
Grid rated input active power	15kW	18kW	20kW	24kW
Grid rated input apparent power	15kVA	18kVA	20kVA	24kVA
Grid Max. input active power	30kW	36kW	40kW	40kW
Grid Max. input apparent power	30kVA	36kVA	40kVA	40kVA
Grid rated output active power	15kW	18kW	20kW	24kW
Grid rated output apparent power	15kVA	18kVA	20kVA	24kVA
Grid Max. output active power	15kW	18kW	20kW	24kW
Grid Max. output apparent power	15kVA	18kVA	20kVA	24kVA
Grid rated input current	22.7/21.7A a.c	27.3/26.1A a.c	30.3/29A a.c	36.4/34.8A a.c
Grid Max. input current	45.4/43.4A a.c	54.6/52.2A a.c	60/58A a.c	60/60A a.c
Grid rated output current	22.7/21.7A a.c	27.3/26.1A a.c	30.3/29A a.c	36.4/34.8A a.c
Grid Max. output current	25.3/24.2A a.c	30.3/29A a.c	33.7/32.2A a.c	40.4/38.6A a.c
Grid power factor	0.8 leading to 0.8 lagging			
Grid input and output Inrush current	150A a.c @10ms			
Max. Grid input fault current	43.4A a.c @10s	52.2A a.c @ 10s	58A a.c @ 10s	69.6A a.c @ 10s
Max. Grid input overcurrent protection	400V a.c /100 A a.c			
Grid input Icc (Rated conditional short-circuit current)	150A a.c			
Grid input Icw (Rated short-time withstand current)	150A a.c			
Total Harmonic Distortion(THDi, rated power)	<3%			
Generator AC input	**YF-LV-P3E-15048**	**YF-LV-P3E-18048**	**YF-LV-P3E20048**	**YF-LV-P3E-24048**
Generator rated voltage	380 / 400 V a.c.,3W+N+PE			
Generator rated frequency	50Hz/60Hz			
Generator rated input active power	15kW	18kW	20kW	24kW

Generator rated input apparent power	15kVA	18kVA	20kVA	24kVA
Generator rated input current	22.7/21.7A a.c	27.3/26.1A a.c	30.3/29A a.c	36.4/34.8A a.c
Generator Max. input current	25.3/24.2A a.c	30.3/29A a.c	33.7/32.2A a.c	40.4/38.6A a.c
EPS output	**YF-LV-P3E-15048**	**YF-LV-P3E-18048**	**YF-LV-P3E20048**	**YF-LV-P3E-24048**
EPS rated output Voltage	380 / 400 V a.c., 3W+N+PE			
EPS rated output frequency	50Hz/60Hz			
EPS rated output active power	15kW	18kW	20kW	24kW
EPS rated output apparent power	15kVA	18kVA	20kVA	24kVA
EPS Max. output active power	16.5kW	19.8kW	22kW	26.4kW
EPS Max. output apparent power	16.5kVA	19.8kVA	22kVA	26.4kVA
Eps rated output current	22.7/21.7A a.c	27.3/26.1A a.c	30.3/29A a.c	36.4/34.8A a.c
Max. output current	25.3/24.2A a.c	30.3/29A a.c	33.7/32.2A a.c	40.4/38.6A a.c
EPS output power factor	0.8 leading to 0.8 lagging			
EPS output peak power	110% 600s/ 120% 300s/ 150% 60s/200% 10s			
EPS output Inrush current	150A a.c @ 10ms			
EPS Max. output fault current	150A a.c @ 10ms			
EPS Max. output overcurrent protection	400V a.c /47A a.c	400V a.c /57A a.c	400V a.c /64A a.c	400V a.c /76A a.c
Switch Time	<20ms			
Total Harmonic Distortion(THDv, linear Load)	<3%			
Compatible with the Generator	Optional			
Efficiency	**YF-LV-P3E-15048**	**YF-LV-P3E-18048**	**YF-LV-P3E20048**	**YF-LV-P3E-24048**
MPPT Efficiency	99 .90%			
Euro-efficiency(PV to AC)	97.20%			
Max.efficiency(PV to AC)	98.00%			
Max.efficiency(PV to BAT)	95.0%			
Max.efficiency(AC to BAT / BAT to AC)	94.5%/93.5%			
Standard				
Safety	IEC 62109-1/2, IEC 62477-1			
EMC	IEC 61000-6-1, IEC 61000-6-3			
Grid-interactive	EN 50549-1&-10,UL1741,NRS 097-2-1,ABNT NBR 16149,IEC 61727,IEC 61683,IEC 62116			
General Parameter				
Degree of ingress protection	IP66			
Protection class	I			
Environment category	Outdoor			
Wet location classification	Yes			
Pollution degree	PD3			
Operating altitude	4000 m(>2000 Derating)			
Operating ambient temperature	-25 - +60 ℃ (linely derating to 60% when exceed +45 to +60 ℃)			
Operating relative Humidity	0-100% (non-condensing)			
Storage Temperature	-25- +60 ℃			
Storage relative Humidity	0-95% (non-condensing)			
Noise Emission(typical)	<50 dB			
Overvoltage Category	AC: III, PV: II			
Electrical supply system	TN, TT			
Dimension (WxHxD)	448*660*265mm			
Net Weight	45kg			
Cooling Mode	Intelligent Air Cooling			
Topology	Non-isolated			
Active anti-islanding method	Active frequency drift			
Communication	RS485/WiFi/Bluetooth/LAN/CAN/DRM/Meter, Yes/ Yes/ Opt/Opt/ Yes/ Yes/ Opt			
Display	LCD+APP			

3.4 System Diagram

Diagram Ⅰ:General System

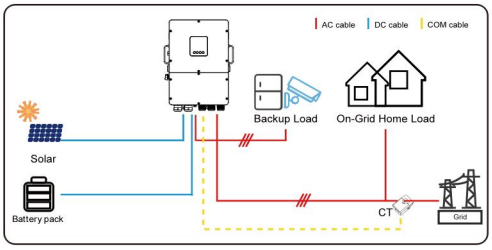


Diagram Ⅱ:System With Generator

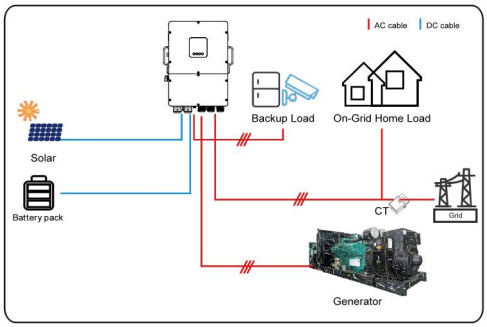


Diagram Ⅲ:System With Smart Load

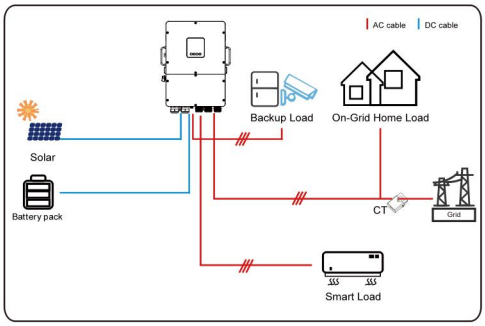
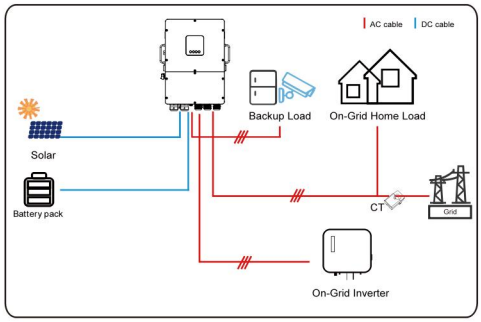


Diagram Ⅳ: AC Couple System



4. Check and Storage

4.1 Check Before Receiving

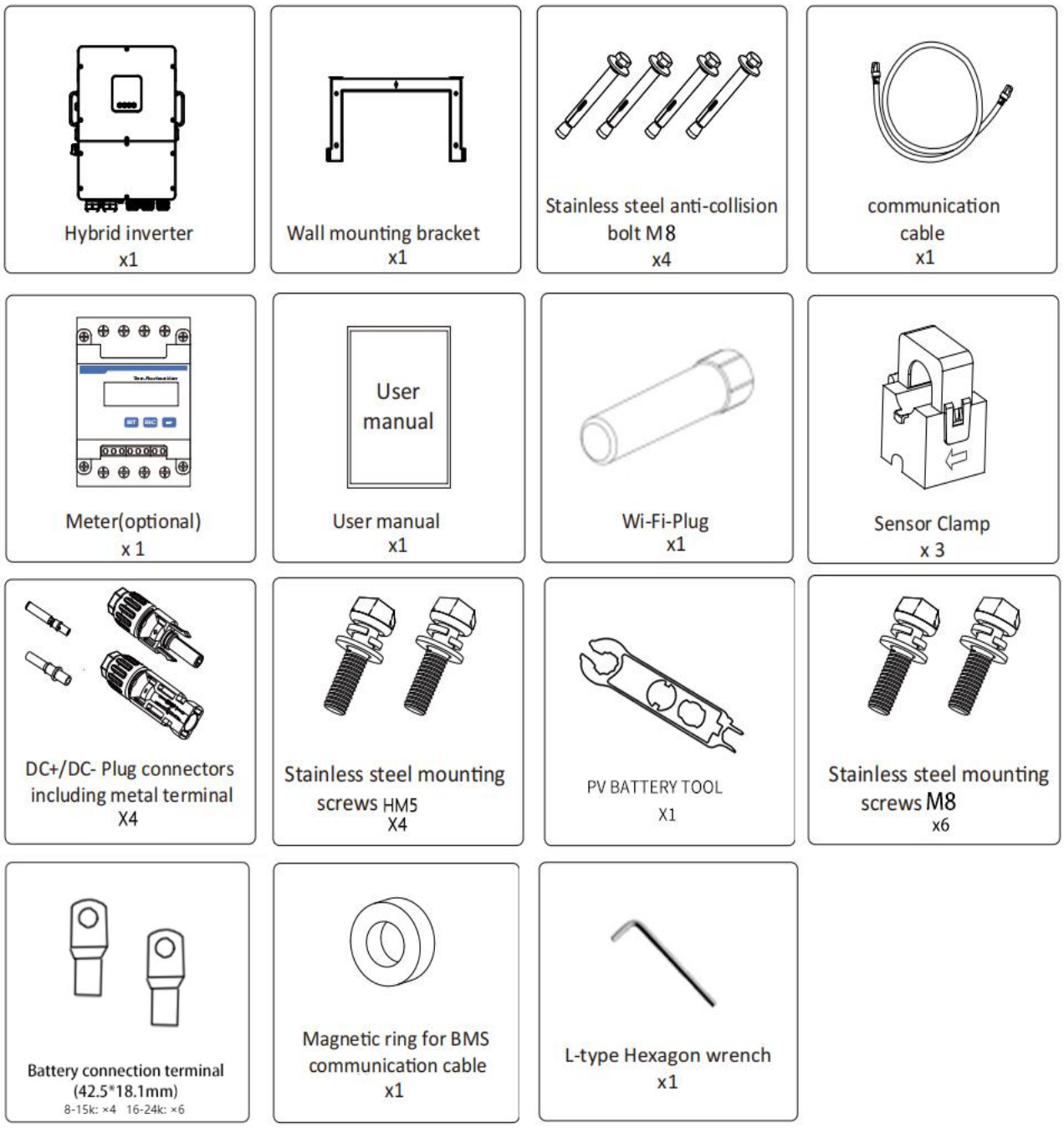
Check the following items before receiving the product.

1. Check the outer packing box for damage, such as holes, cracks, deformation, and others signs of equipment damage. Do not unpack the package and contact the supplier as soon as possible if any damage is found.

2. Check the inverter model. If the inverter model is not what you requested, do not unpack the product and contact the supplier.

3. Check the deliverable for correct model, complete contents, and intact appearance. Contact the supplier as soon as possible if any damage is found.

4.2 What's in the box?



4.3 Storage

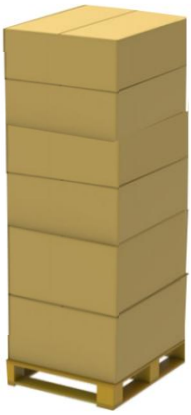
If the equipment is not to be installed or used immediately, please ensure that the storage environment meets the following requirements:

1. Do not unpack the outer package or throw the desiccant away.
2. Store the equipment in a clean place. Make sure the temperature and humidity are appropriate and no condensation.
3. The height and direction of the stacking inverters should follow the instructions on the packing box.
4. The inverters must be stacked with caution to prevent them from falling.
5. If the inverter has been long term stored, it should be checked by professionals before being put into use.
6. The storage temperature range is: -25℃~60℃, and the storage humidity is 0~100%.

7.The box should be suitable for loads more than 75kg.







5.Installation

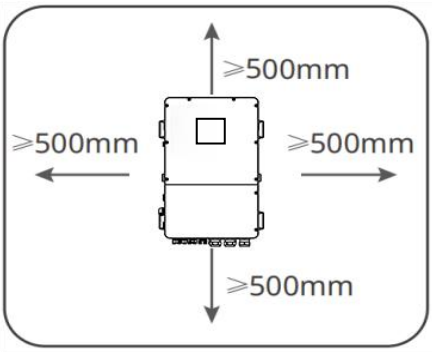
5.1 Installation Requirements

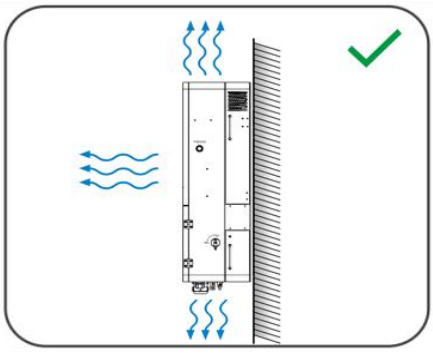
Installation Environment Requirements

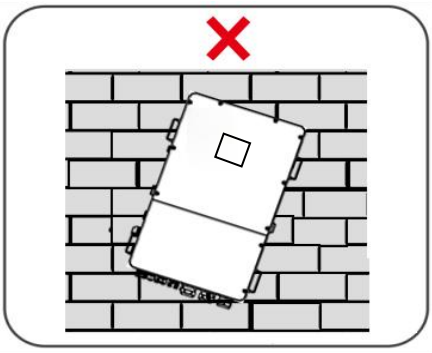
1. Do not install the equipment in a place near flammable, explosive, or corrosive materials.
2. Do not install the equipment in a place that is easy to touch, especially within children's reach. High temperature exists when the equipment is working. Do not touch the surface to avoid burning.
3. Avoid the water pipes and cables buried in the wall when drilling holes.
4. Install the equipment in a sheltered place to avoid direct sunlight, rain, and snow. Build a sunshade if it is needed.
5. The place to install the equipment shall be well-ventilated for heat radiation and large enough for operations.
6. The equipment with a high ingress protection rating can be installed indoors or outdoors. The temperature and humidity at the installation site should be within the appropriate range.
7. Install the equipment at a height that is convenient for operation and maintenance, electrical connections, and checking indicators and labels.
8. The altitude to install the inverter shall be lower than the maximum working altitude 4000m.
9. The PV modules used with the inverter must have an IEC61730 class A rating.
10. There should be provided an over current protection (such as a breaker rated 100A) before AC input and after EPS output, and make sure that the installation position shall not prevent access to the disconnection means.
11. Please ensure that there is adequate ventilation space for the inverter after installation, refer to the installation diagram below.
12. This inverter does not provide an internal isolated transformer between PV input and Battery / AC output circuits, But a basic insulation is provided between PV input / Battery / AC output circuits and metal enclosure / earth, and reinforced / double insulation between PV input / Battery / AC output and communication circuits (DRM / Meter / WiFi/ RS485)
13. The PV input ratings please refer to the specification table of subclause 3.3.5, and please make sure that PV array should not be grounded.
14. Install the equipment away from electromagnetic interference. If there are radio stations or wireless communication equipment below 30 MHz near the installation location, please install the equipment as follows:

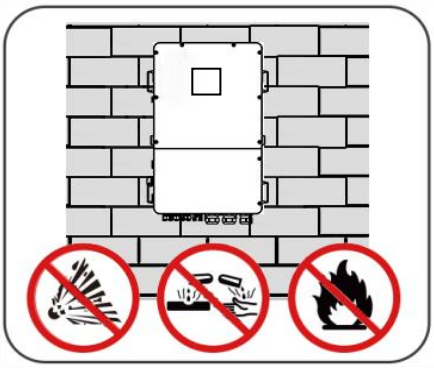
• Add a multi-turn winding ferrite core at the DC input line or AC output line of the inverter, or add a low-pass EMI filter.
• The distance between the inverter and the wireless EMI equipment is more than 30m.

15.In lightning-prone areas, please install proper surge protection devices (SPDs) at PV, grid, and load terminals, and ensure re liable grounding. Damage caused by lightning is not covered under warranty-adequate lightning protection is strongly recom mended.

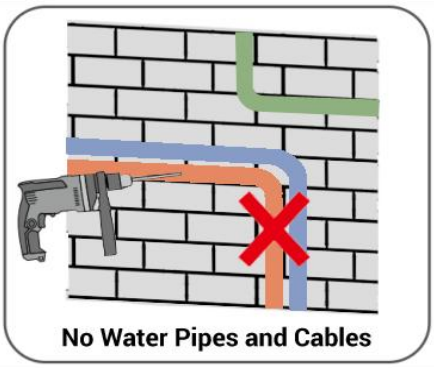

≥500mm
≥500mm
≥500mm
≥500mm

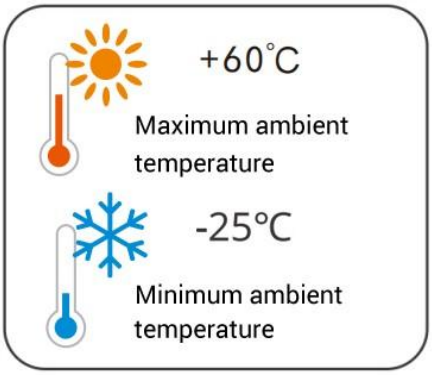


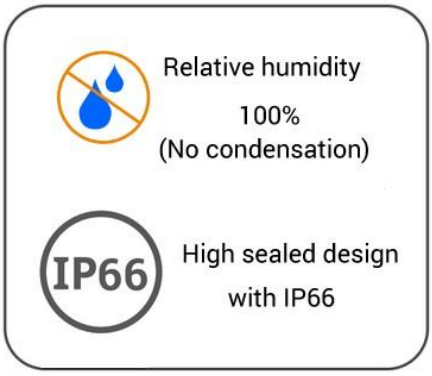


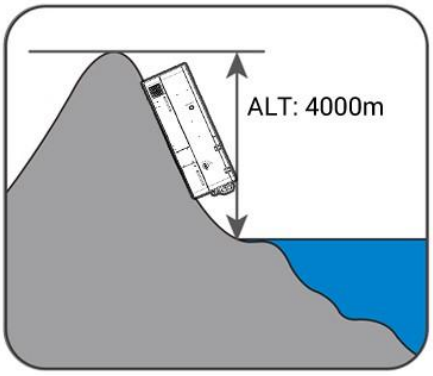


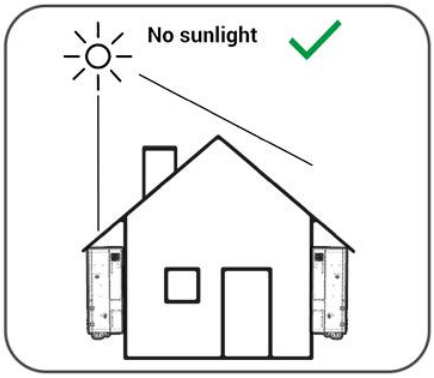

Children No Reach

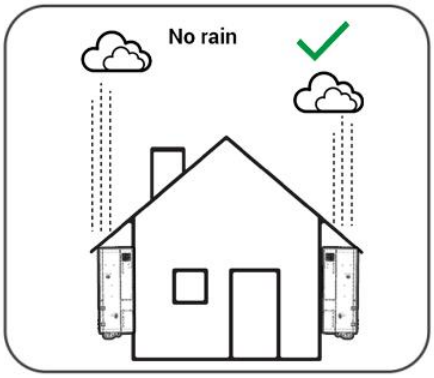

No Water Pipes and Cables

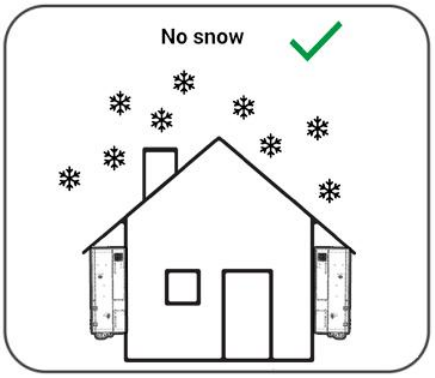

+60°C
Maximum ambient temperature
-25°C
Minimum ambient temperature

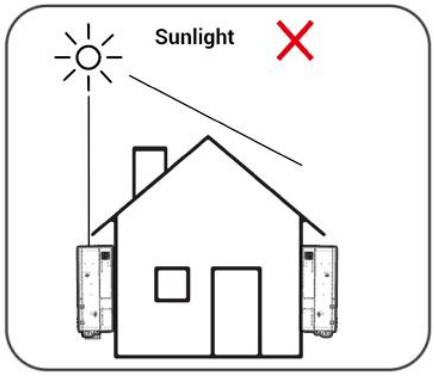

Relative humidity
100%
(No condensation)
IP66
High sealed design with IP66

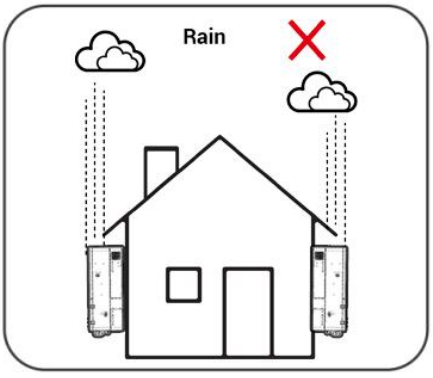

ALT: 4000m

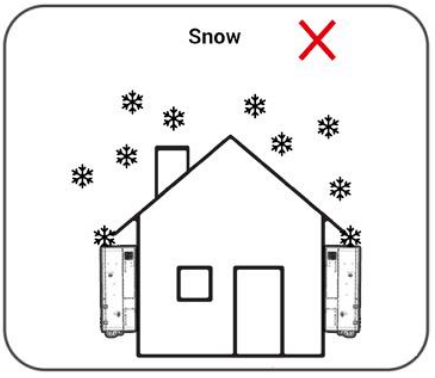

No sunlight


No rain


No snow


Sunlight

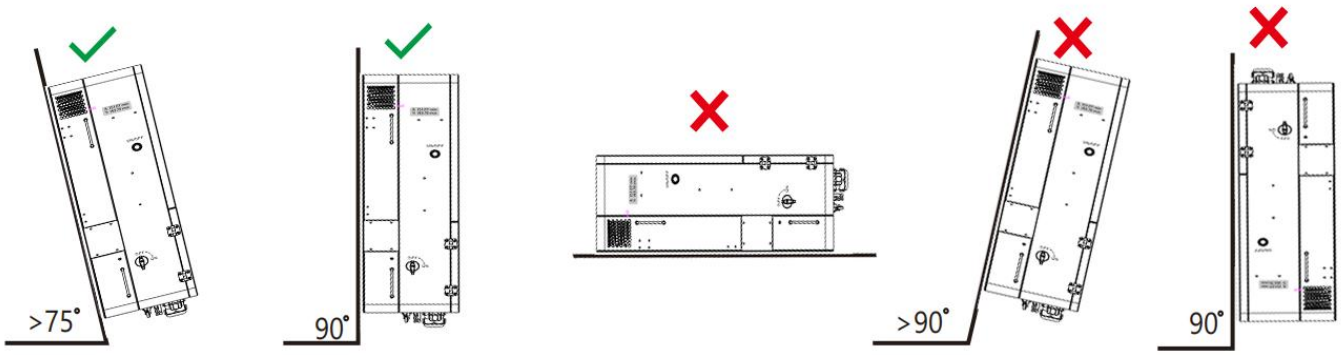

Rain


Snow

Installation Angle Requirements

• Install the inverter vertically or at a maximum back tilt of 15 degrees.

• Do not install the inverter upside down, forward tilt, back forward tilt, or horizontally.



Installation Tool Requirements

The following tools are recommended when installing the equipment. Use other auxiliary tools on site if necessary.

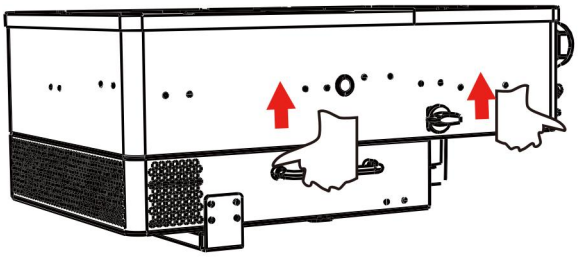


5.2 Inverter Installation

5.2.1 Moving the Inverter

CAUTION

• The unit is heavy. Do not lift it alone During lifting procedures ensure that the unit is firmly secured to avoid the risk of accidental tipping or dropping.Parts serving for support or immobilization of unit shall be designed and manufactured so as to minimize the risk of physical injuries and of accidental loosening of fixing.Ensure that the method of lifting will not allow the unit to slip from chains and slings or turn-over or slide from lifting devices.



transport

• Transportation must be carried by specialized person (truck operators. Hook-up personal), equipped with the necessary protection equipment(overalls, safe shoes, protective gloves, helmets, goggles)

• Do not walk or stand beneath or in the proximity of the load.Avoid sudden movements and jolts when unloading and positioning the unit, Internal handling procedures must be conducted with care.

• Do not exert leverage on the components of the machine.If the unit is not balanced apply ballast, Any protruding parts should not be supported by hand. The inverter should be installed so that the operating panel shall be easily accessible- easy access to the electrical power connection point.

• Accessible for maintenance and repair work. Parts serving for support or immobilization of unit shall be designed and manufactured so as to minimize the risk of physical injuries and accidental loosening of fixings.

• Loading capacity and hardness of the supporting surface,load rating of mounting bracket should be at least four times the weight of the devices according to lEC62109-1. And supporting characteristics will be impaired by wear, corrosion, material fatigue or ageing, This should be calculated by inspection of the design data of supporting material and consulting construction engineer.

5.2.2 Installing Steps

NOTICE

• Avoid the water pipes and cables buried in the wall when drilling holes.

• Wear goggles and a dust mask to prevent the dust from being inhaled or contacting eyes when drilling holes.

• Make sure the inverter is firmly installed in case of falling down.

Step 1 : Put the mounting plate on the wall or the support horizontally and mark positions for drilling holes.

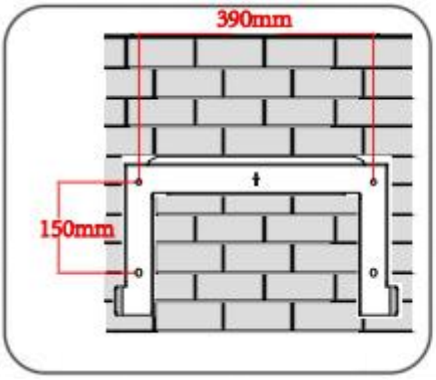
Step 2 : Drill holes to a depth of 80mm using the hammer drill. The diameter of the drill bit should be 13mm.

Step 3 : Secure the mounting plate using the expansion bolts.

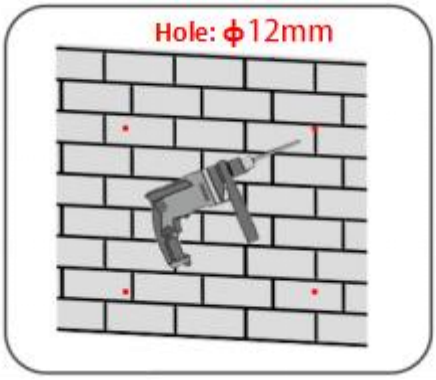
Step 4 : Install the inverter on the mounting plate.

Step 5: Make sure the pin hook the inverter

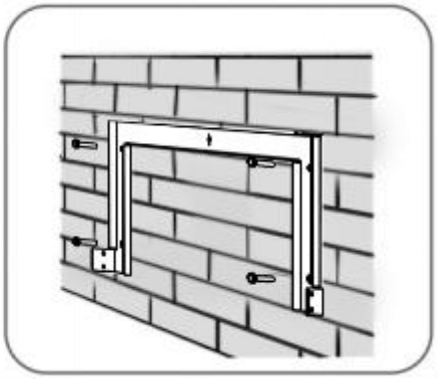
Step 6 : Install the screw to lock it tight.



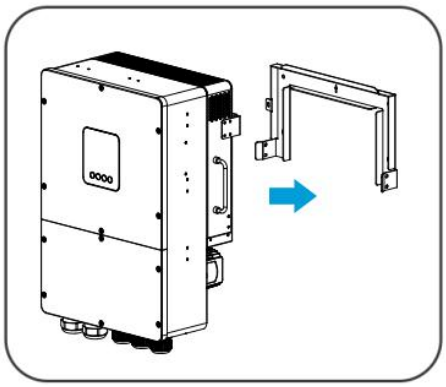
Step 1



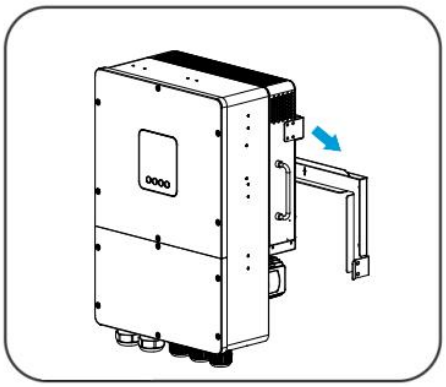
Step 2



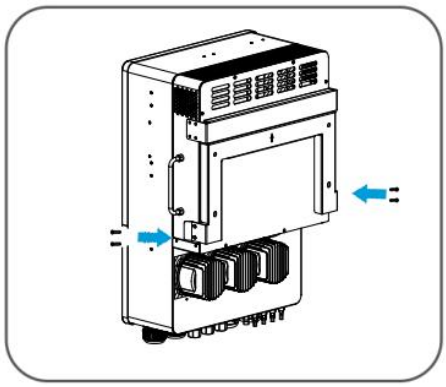
Step 3



Step 4



Step 5



Step 6

6.Electrical Connection

6.1 Safety Precaution

DANGER

• All operations, cables and parts specification during the electrical connection shall be in compliance with local laws and regulations.

• Disconnect the DC switch and the AC output switch of the inverter to power off the inverter at lest 5 minutes for the capacitor to be electrically discharged before any electrical connections. Do not work with power on. Otherwise, an electric shock may occur.

• Tie the same type cables together, and place them separately from cables of different types. Do not place the cables entangled or crossed.

• If the cable bears too much tension, the connection may be poor. Reserve a certain length of the cable before connecting it to the inverter cable port.

• When crimping the terminals, ensure that the conductor part of the cable is in full contact with the terminals. Do not crimp the cable jacket with the terminal. Otherwise the inverter may not operate, or its terminal block getting damaged due to heating and other phenomenon because of unreliable connection after operation.

NOTICE

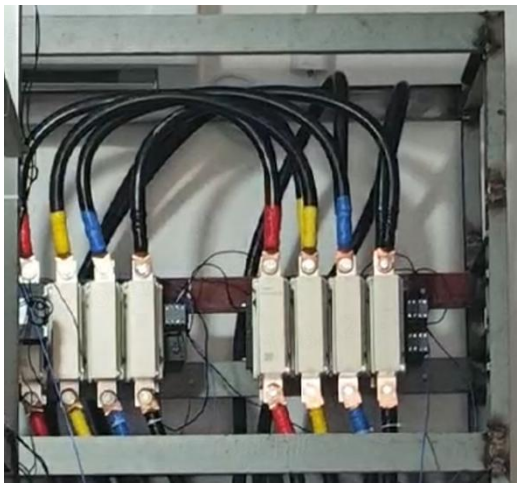
• Wear personal protective equipment like safety shoes, safety gloves, and insulating gloves during electrical connections.

• All electrical connections should be performed by qualified professionals.

• Cable colors in this document are for reference only. The cable specifications shall meet local laws and regulations.

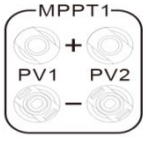
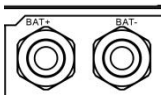
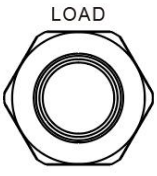
6.2 Parallel connection notice

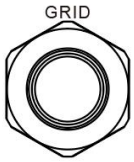
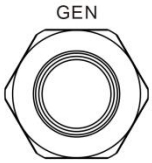
If Parallel quantity equal to 4 or bigger than 4, need add a parallel cabinet like follow, for detail can ask sales person.



6.3 Connection Port Description

Wire /Cable(mm²) Size Table		
PV	10AWG~12AWG/4mm²~6mm²	
Power	15~20k	24k
Load&Gen	6AWG~8AWG	6AWG
	8mm²~10mm²	10mm²
Ground	8AWG	6AWG
	8mm²	10mm²
Battery	1/0AWG	1/0AWG
	50mm²	50mm²

Connector	Description		Recommend cable type
	+：Connect the positive electrode of photovoltaic cell		Industry common outdoor Photovoltaic cable
	-：Connect the negative electrode of photovoltaic cell		
	+：Connect the positive electrode of lithium battery		Outdoor multi-core copper cable
	-：Connect the negative electrode of lithium battery		
	Load(EPS)	L1	Outdoor multi-core copper cable L1/L2/L3: Brown/Red/Green or Yellow Wire N: Blue/Black Wire PE: Yellow & Green Wire
		L2	
		L3	
		N	
		PE	

GRID 	Grid(AC)	L1 L2 L3 N PE	Outdoor multi-core copper cable L1/L2/L3: Brown/Red/Green or Yellow Wire N: Blue/Black Wire PE: Yellow & Green Wire
GEN 	Generator	L1 L2 L3 N PE	Outdoor multi-core copper cable L1/L2/L3: Brown/Red/Green or Yellow Wire N: Blue/Black Wire PE: Yellow & Green Wire
WIFI 	WiFi		

6.4 PE Cable Connection

WARNING

• The PE cable connected to the enclosure of the inverter cannot replace the PE cable connected to the AC output port. Both of the two PE cables must be securely connected

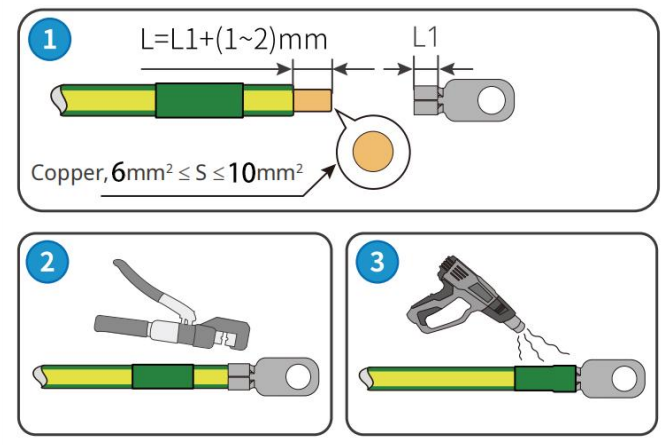
• Make sure that all the grounding points on the enclosures are equipotential connected when there are multiple inverters.

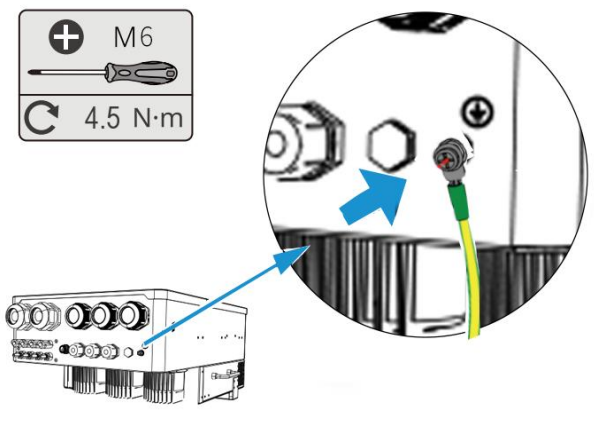
• To improve the corrosion resistance of the terminal, it is recommended to apply silica gel or paint on the ground terminal after installing the PE cable.

• Prepare PE cables with the recommended specification:

• Type: Outdoor single-core copper wire

• Cross-sectional area: Please refer to **Wire /Cable(mm²) Size Table**





6.5 PV Connection

6.5.1 PV String Connection

DANGER

Confirm the following information before connecting the PV string to the inverter. Otherwise, the inverter may be damaged permanently or even cause fire and cause personal and property losses.

1. Make sure that the max short circuit current and the max input voltage per MPPT are within the permissible range.
2. Make sure that the positive pole of the PV string connects to the PV+ of the inverter. And the negative pole of the PV string connects to the PV - of the inverter.

Model for EU	YF-LV-P3E-15048~YF-LV-P3E-24048
Max. DC Voltage	1000V d.c
MPPT Voltage Range	150V-850V d.c

WARNING

1-Please choose a suitable external DC switch if the inverter does not have a built-in DC switch.

2-PV module voltage is very high and within a dangerous voltage range, please comply with the electric safety rules when connecting

3-Please **DO NOT** make PV positive or negative to ground.

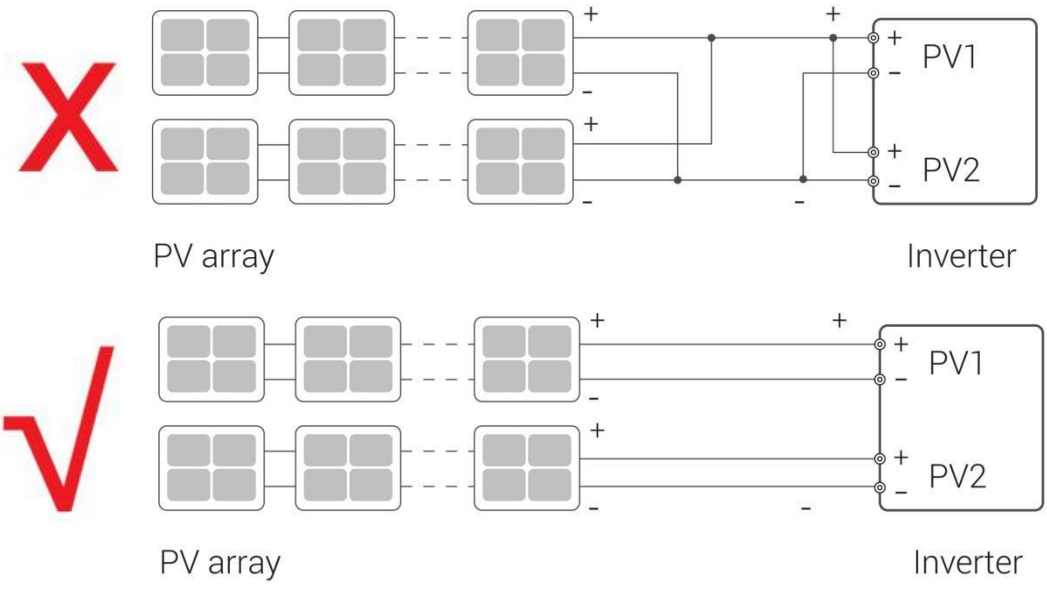
4-PV modules: Please ensure they are the same type, have the same output and specifications,are aligned identically, and are tilted to the same angle. In order to save cable and reduce DC loss, we recommend installing the inverter as near to the PV modules as possible.

NOTICE

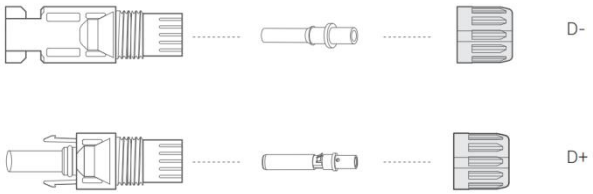
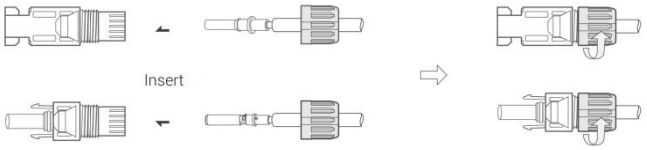
The DC input cable is prepared by the customer. Recommended specifications:

• Type: the outdoor photovoltaic cable that meets the maximum input voltage of the inverter.

• Conductor cross-sectional area: Please refer to **Wire /Cable(mm²) Size Table**



6.5.2 PV Wiring

<table>
<tr><td colspan="2">Step 1: Inspect PV modules
1. Measure the module array voltage with a voltmeter.
2. Check the PV+ and PV - from the PV string combiner box correctly.
3. Please make sure the impedance between the positive pole and negative pole of PV to ground should be MΩ level.</td></tr>
<tr><td>
</td><td>Step 2: Separate DC Connector</td></tr>
<tr><td>Step 3: Wiring
1. Connect the 10 AWG wire to the cold crimp terminal.
2. Remove 10mm of insulation from the end of the wire.
3. Insert the insulator into the pin contact and clamp it with crimping pliers.</td><td>
</td></tr>
<tr><td>
</td><td>Step 4: Insert the pin contact through the nut and into the male or female
plug, when a "click" is felt or heard, the pin contact assembly is properly
seated. Then tighten the nut.</td></tr>
<tr><td colspan="2">Step 5: Plug the PV connector into the corresponding interface on the inverter.</td></tr>
</table>

6.6 EPS and Grid,Generator Connection

NOTICE

YF-LV-P3E-15048~YF-LV-P3E-24048 series inverters are designed for three-phase grid. Voltage range is 380/400V; frequency is 50/60Hz. Other technical requests should comply with the requirement of the local public grid.

WARNING

•Before connecting to the grid, a separate AC breaker must be installed between the inverter and the grid, and also between the backup load and the inverter.This will ensure the inverter can be securely disconnected during maintenance and fully protected from over current. For the 15/18/20/24kW model, the recommended Ac breaker for backup load is 100A. For the 15/18/20/24kW model, the recommended Ac breaker for grid is 100A. any load SHOULD NOT be connected with the inverter directly.

•There are three terminal blocks with "Grid" "Load"and "GEN" markings. Please do not misconnect input and output connectors.

NOTICE

Check the grid voltage and compare with the permitted voltage range (refer to technical data).

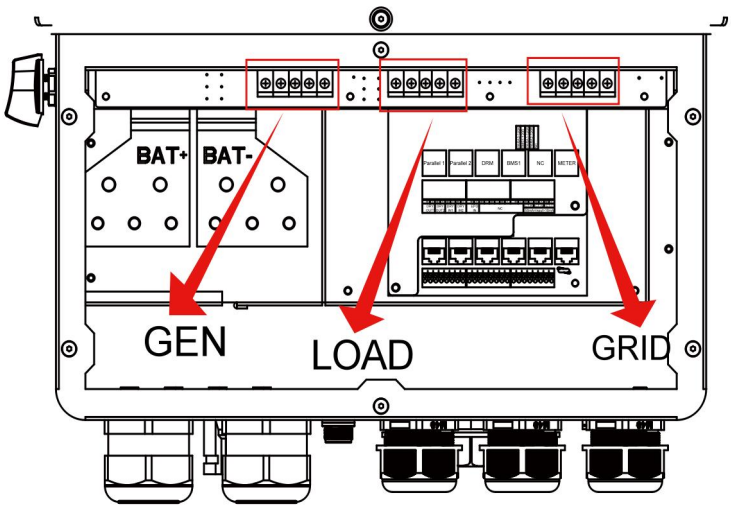
• Disconnect the circuit-breaker from all the phases and secure against re-connection.

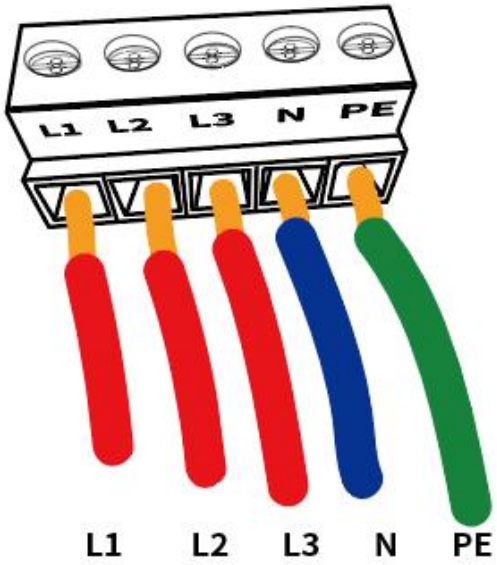
• Please follow below steps to implement Grid, load and Gen port connection:

- Please refer to local cable type and color for actual installation.

- Cross-sectional area: Please refer to **Wire /Cable(mm²) Size Table**

6.6.1 Wiring(as shown in picture)





6.7 Battery Connection

DANGER

• The battery used with the inverter shall be approved by the inverter manufacturer. The approved battery list can be obtained through the official website.

• A short circuit in the battery may cause personal injury. The instantaneous high current caused by a short circuit can release a large amount of energy and may cause a fire.

• Before connecting the battery cable, ensure the inverter and the battery, and downstream&upstream switches, are all disconnected.

• It is forbidden to connect and disconnect the battery cables when the inverter is running. Otherwise it may cause electric shock.

• Do not connect one battery pack to more than one inverter at the same time. Otherwise, it may cause damage to the inverter.

• It is forbidden to connect loads between the inverter and batteries.

• When connecting battery cables, use insulated tools to prevent accidental electric shock or short circuit to the batteries.

• Ensure that the open circuit voltage of the battery is within the permissible range of the inverter.

• Install a DC switch between the inverter and the battery

WARNING

•Please use approved DC cable for battery system.

• Connect the battery cables to the corresponding terminals such BAT+, BAT- and grounding ports correctly. Otherwise it will cause damage to the inverter.

• Ensure that the whole cable cores are inserted into the terminal holes. No part of the cable core can be exposed.

• Ensure that the cables are connected securely. Otherwise it will cause damage to the inverter due to overheat during its operation.

• Servicing of batteries should be performed or supervised by personnel knowledgeable about batteries and the required precautions.

• When replacing batteries, replace with the same type and number of batteries or battery packs.

• CAUTION: Do not dispose of batteries in a fire. The batteries may explode.

• CAUTION: Do not open or damage batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

• CAUTION: A battery can present a risk of electrical shock and high short-circuit current. The following precautions should be observed when working on batteries:

a) Remove watches, rings, or other metal objects.

b) Use tools with insulated handles.

c) Wear rubber gloves and boots.

d) Do not lay tools or metal parts on top of batteries.

e) Disconnect charging source prior to connecting or disconnecting battery terminals.

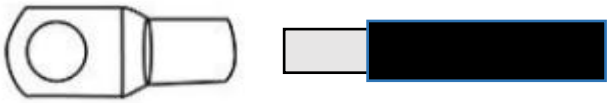
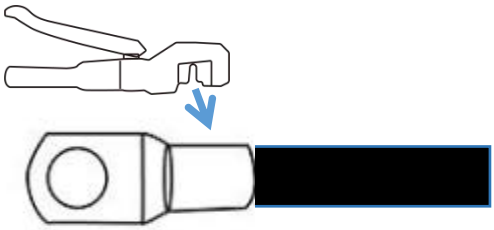
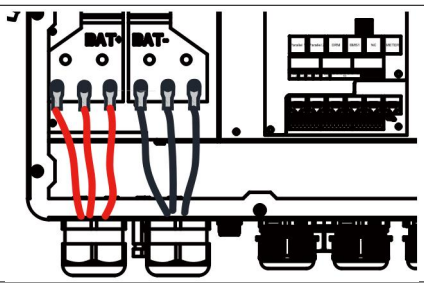
f) Determine if battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit)

NOTICE

Battery breaker

Before connecting to the battery, install a non-polarized DC circuit breaker to ensure that the inverter can be safely disconnected during maintenance.

Connection steps:

• Turn off the PV and battery switch . • Choose 1/0AWG/50mm² wire to connect the battery. • Trim 17mm of insulation from the wire end.	
	•ake a ϕ 12.5mm copper terminal as shown in the picture.
•Insert the cable into the copper terminal port • Crimp pin contact by using a crimping plier. Put the pin contact with striped cable into the corresponding crimping pliers and crimp the contact.	
	•Tighten the cables to the designated position inside t he machine, as shown in the figure •The battery copper plate can connect three sets of batteries at the same time, 3*BAT(+) & 3*BAT(-)

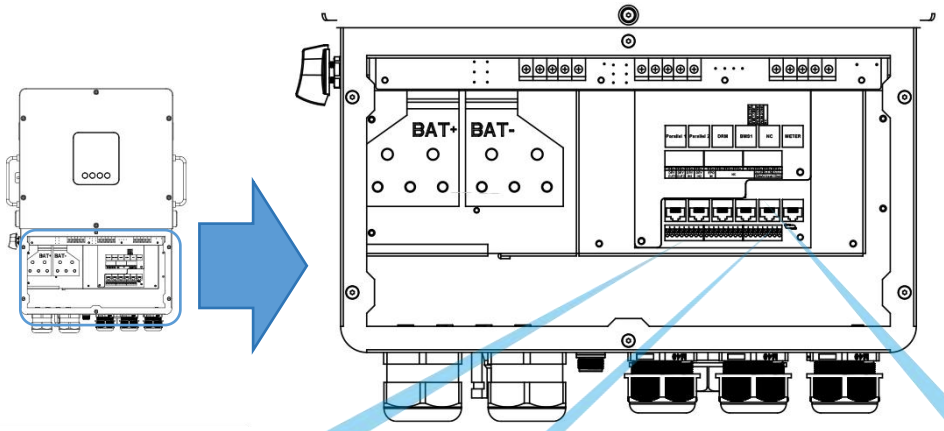
6.8 Communication Cable Installation

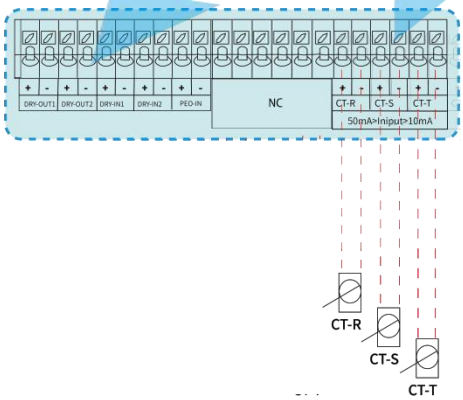
NOTICE

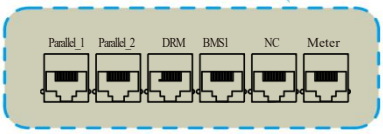
YF-LV-P3E-15048~YF-LV-P3E-24048 series inverter are available with multiple communication options such as WiFi,Bluetooth, RS485 and Meter with an external device.

Operating information like output voltage, current, frequency, fault information, etc., can be monitored locally or remotely and cellphone App via these interfaces.

6.8.1 Communication Ports







DRY-OUT1 : Dry contact output.When the inverter is in off -grid mode
and the "signal island mode" is checked,the dry contact will switch on.

DRY-OUT2: reserved.

CT-R : current transformer (CT-R) for"zero export to CT" mode clamps on L1 when in three phase system.

CT-S : current transformer (CT-S) for"zero export to CT" mode clamps on L2 when in three phase system.

CT-T: current transformer (CT-T) for"zero export to CT" mode clamps on L3 when in three phase system.

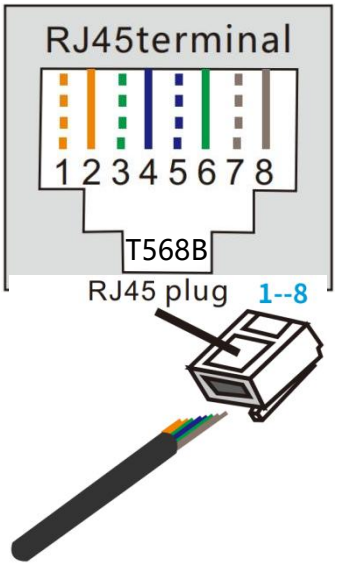
Meter: for energy meter communication.

Parallel_1: Parallel communication port 1.

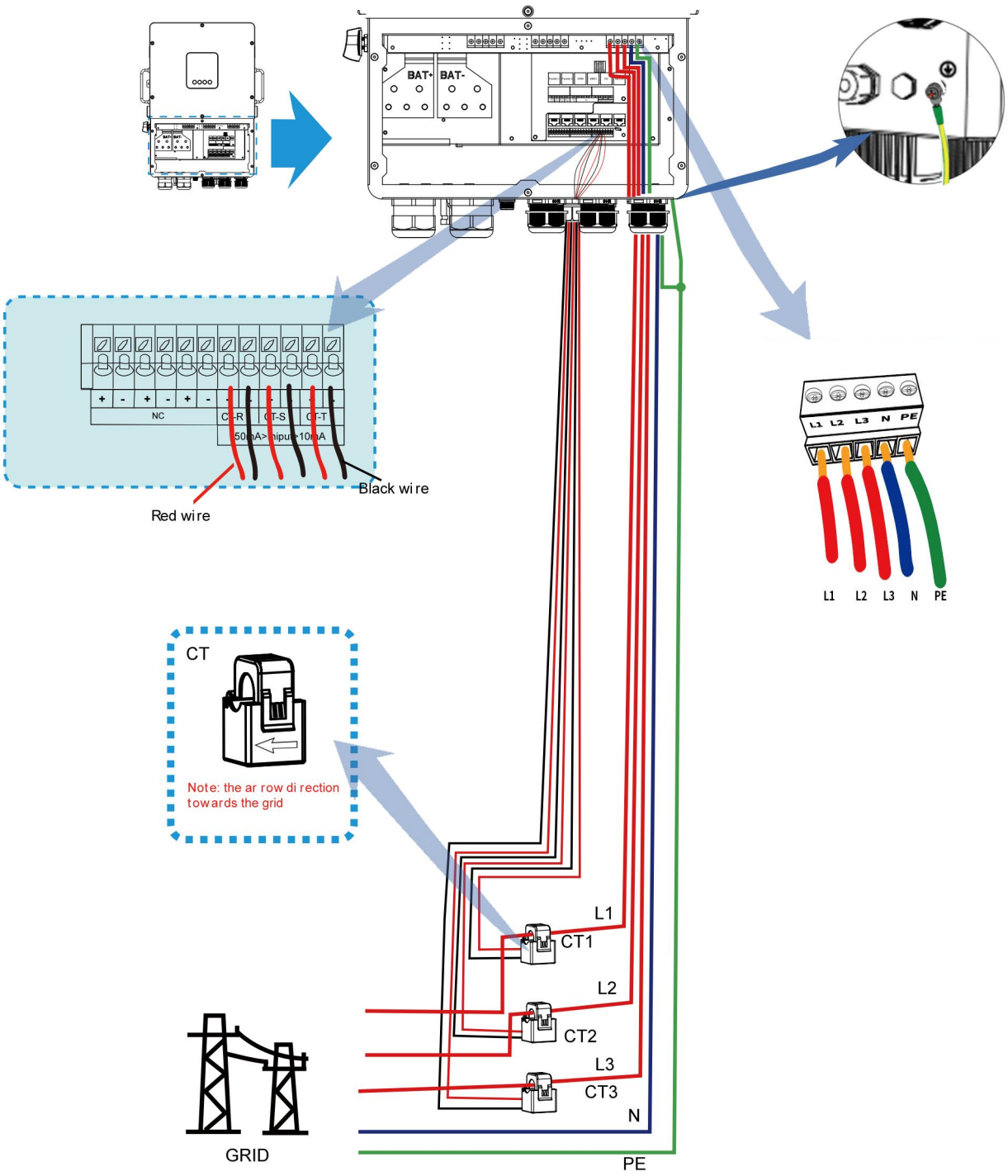
Parallel_2: Parallel communication port 2 .

DRM: Logic interface for AS/ NZS 4777.2:2020.

BMS1: BMS port for battery communication port 1.

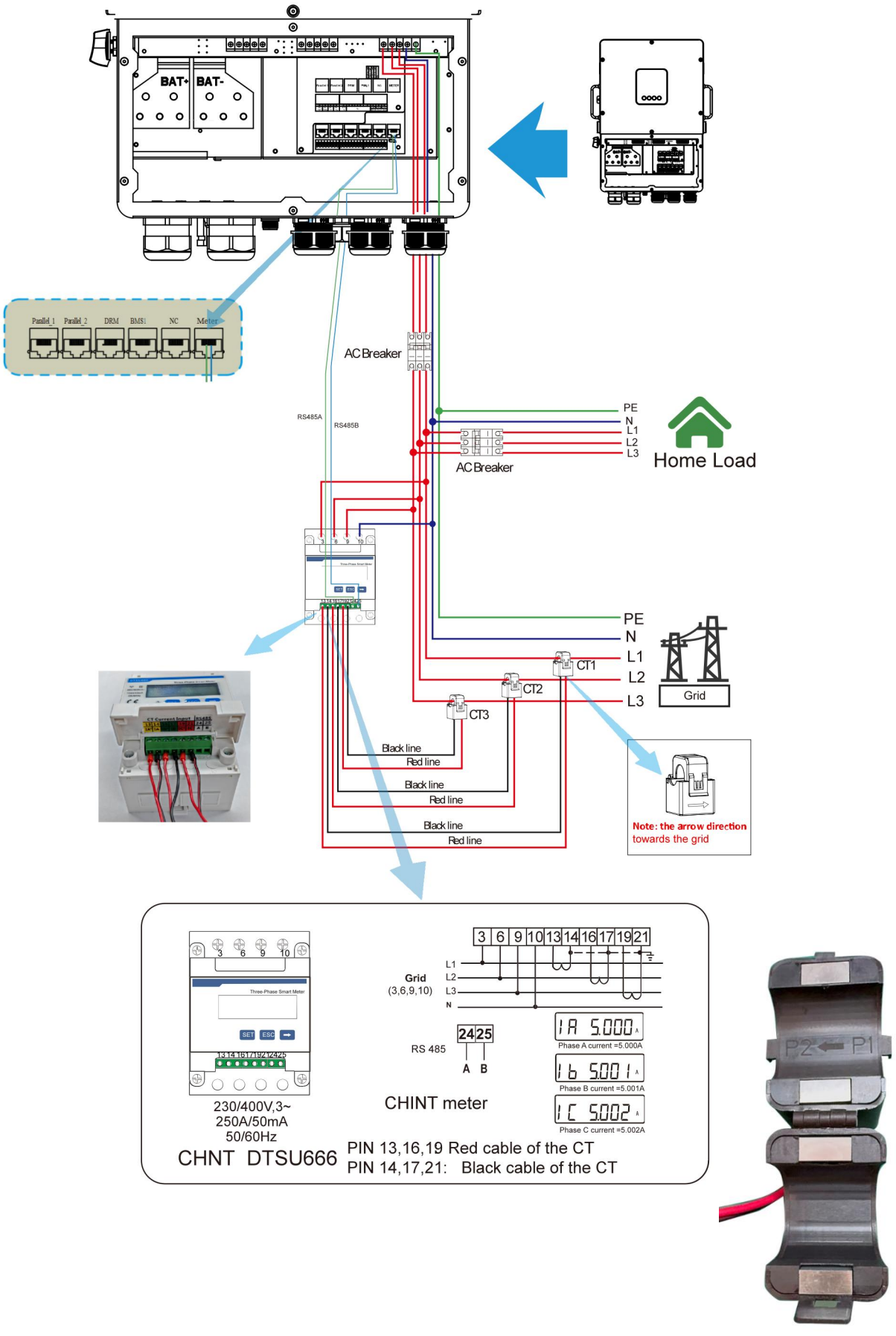
PIN	Meter	BMS RJ45	PARA1/2	DRM	
1	Meter RS485A	Lead-acid cell NTC	Para Display CAN_H	DRM1/5	
2	Meter RS485B	GND	Para Display CAN_L	DRM2/6	
3	/	/	/	DRM3/7	
4	5V_VCC	BMS_CAN1_H	Para Power CAN1_H	DRM4/8	
5	FR_ALM_IN	BMS_ CAN1_L	Para Power CAN1_L	REFGEN	
6	GND	GND	/	COM/DRM0	
7	AFCI_485A	BMS_485A	Para Power CAN2_ H	+12VS	
8	AFCI_485B	BMS_485B	Para Power CAN2_L	GND	

6.9 CT Connection



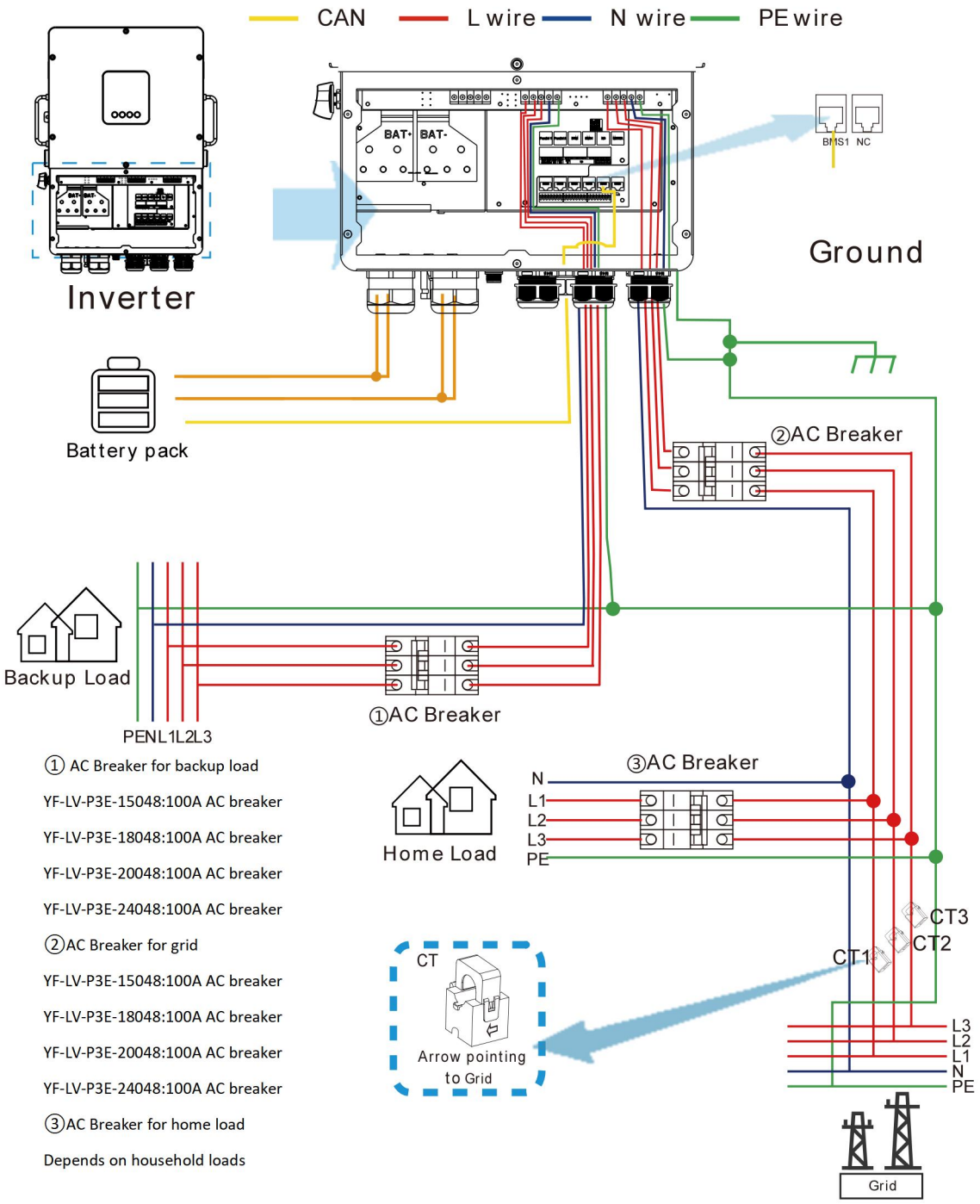
*Note： when the reading of the load power on the APP is not correct, please reverse the CT arrow.

6.10 Meter Connection



6.11 Wiring System for Inverter

This diagram is an example for an application that neutral connects with the PE in a distribution box.
For countries such as Australia, New Zealand, South Africa, etc., please follow local wiring regulations!



① AC Breaker for backup load

YF-LV-P3E-15048:100A AC breaker

YF-LV-P3E-18048:100A AC breaker

YF-LV-P3E-20048:100A AC breaker

YF-LV-P3E-24048:100A AC breaker

②AC Breaker for grid

YF-LV-P3E-15048:100A AC breaker

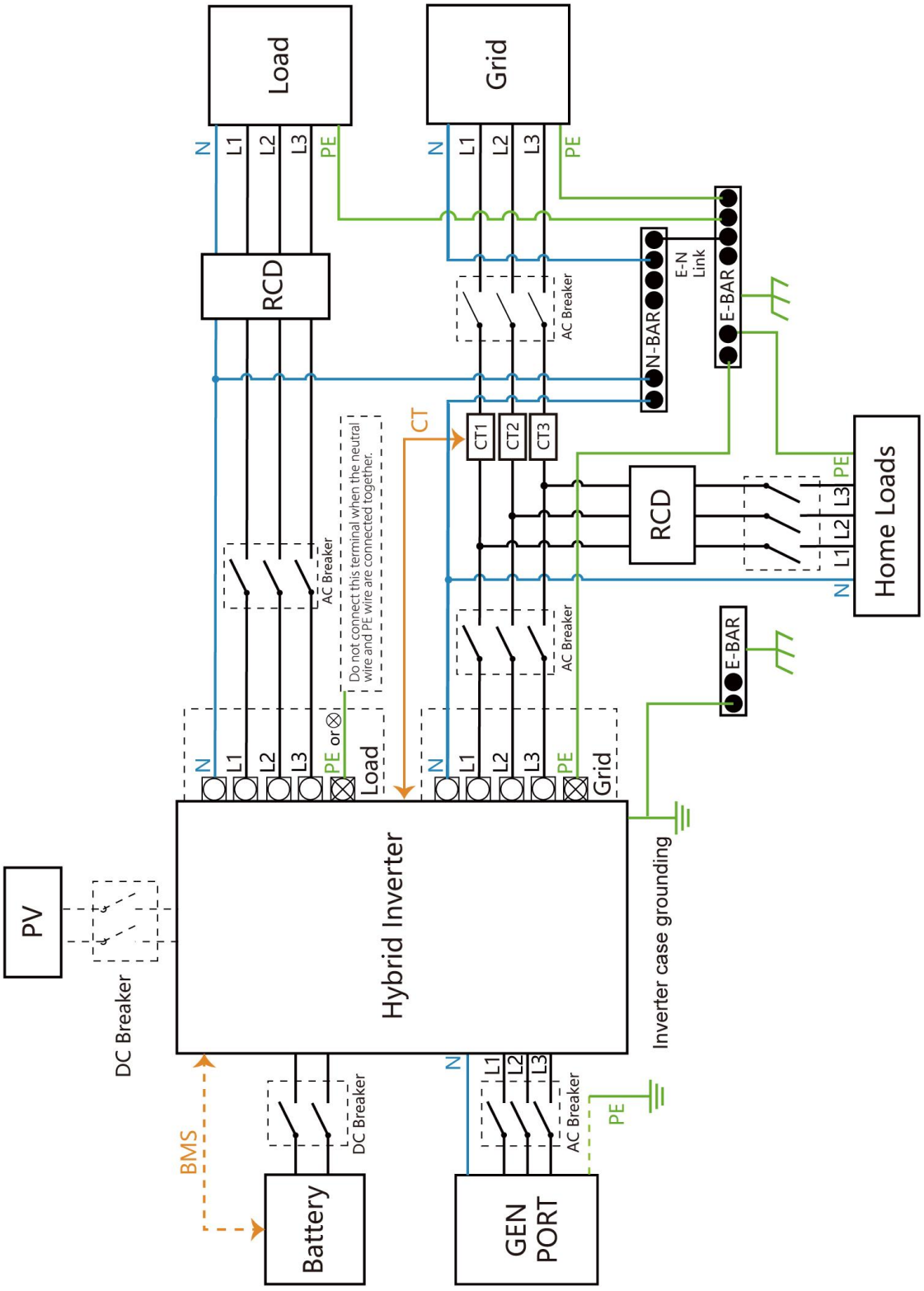
YF-LV-P3E-18048:100A AC breaker

YF-LV-P3E-20048:100A AC breaker

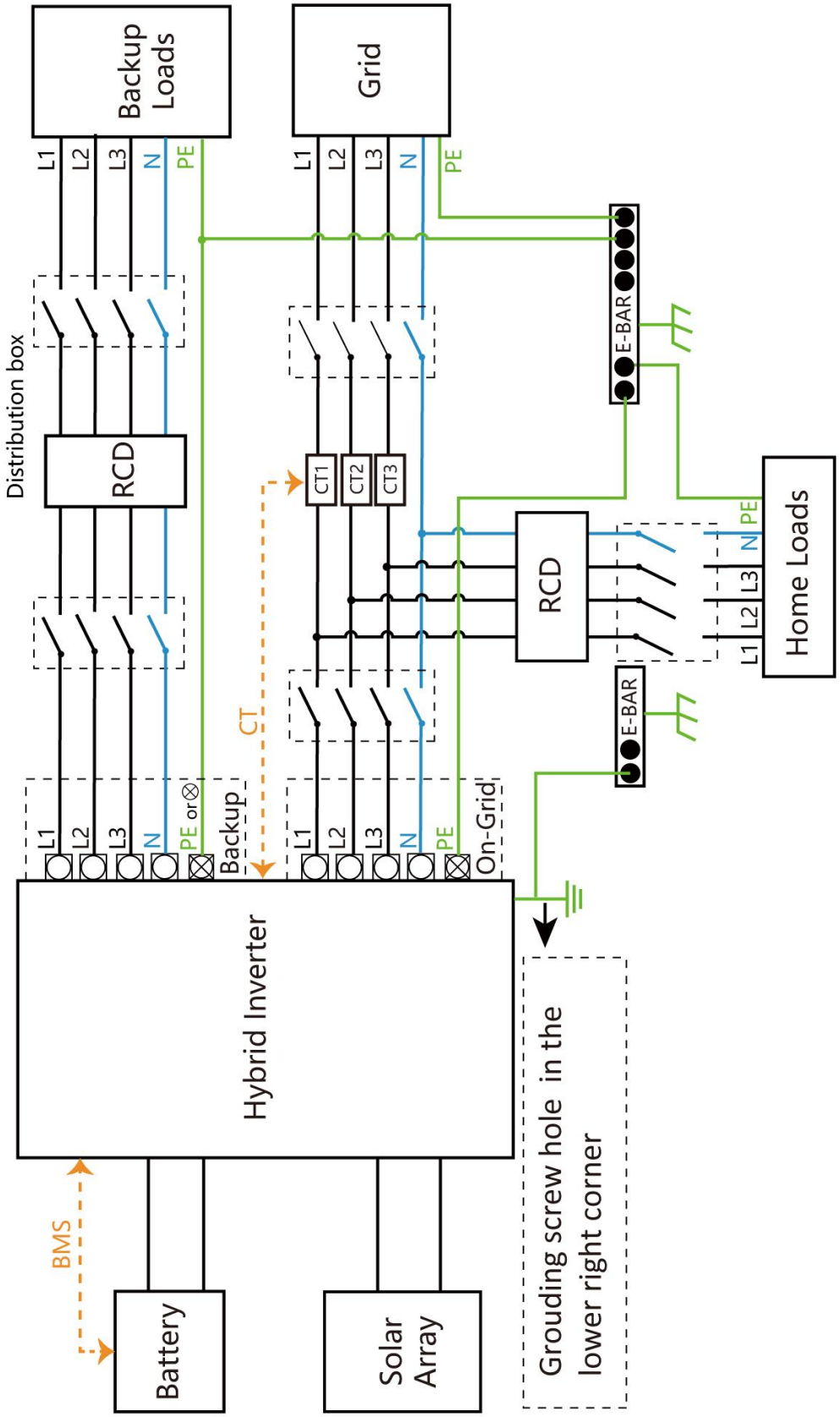
YF-LV-P3E-24048:100A AC breaker

③AC Breaker for home load

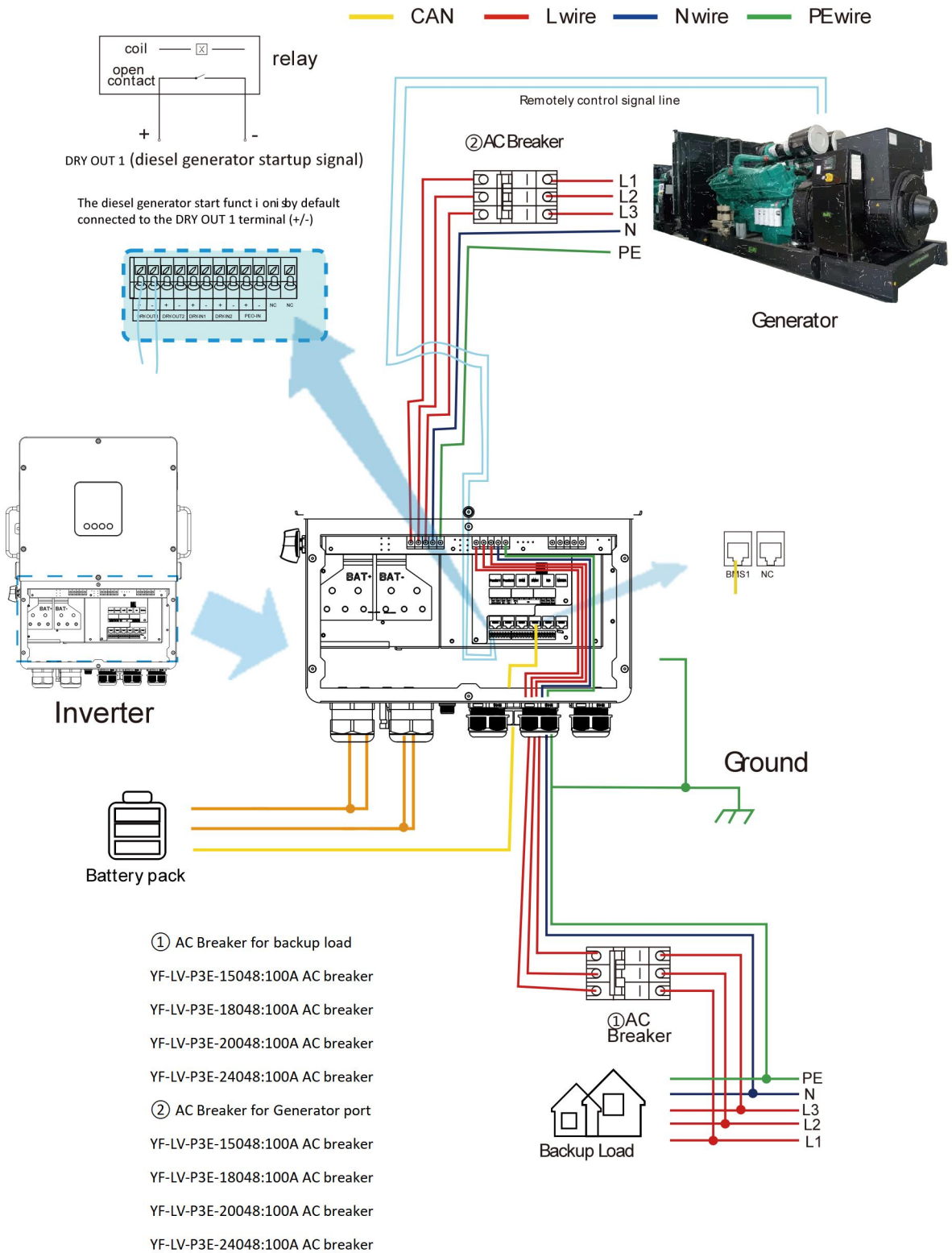
Depends on household loads



This diagram is an example for an application in which neutral is separated from the PE in the distribution box.
For countries such as China, Germany,the Czech Republic, Italy, etc., please follow local wiring regulations!


Backup Loads
Grid
L1
L2
L3
N
PE
Distribution box
RCD
CT1
CT2
CT3
E-BAR
RCD
Home Loads
CT
PE or⊗
Backup
On-Grid
Hybrid Inverter
BMS
Battery
Solar Array
Grouding screw hole in the lower right corner

6.12 Wiring System for Diesel Generator



① AC Breaker for backup load

YF-LV-P3E-15048:100A AC breaker

YF-LV-P3E-18048:100A AC breaker

YF-LV-P3E-20048:100A AC breaker

YF-LV-P3E-24048:100A AC breaker

② AC Breaker for Generator port

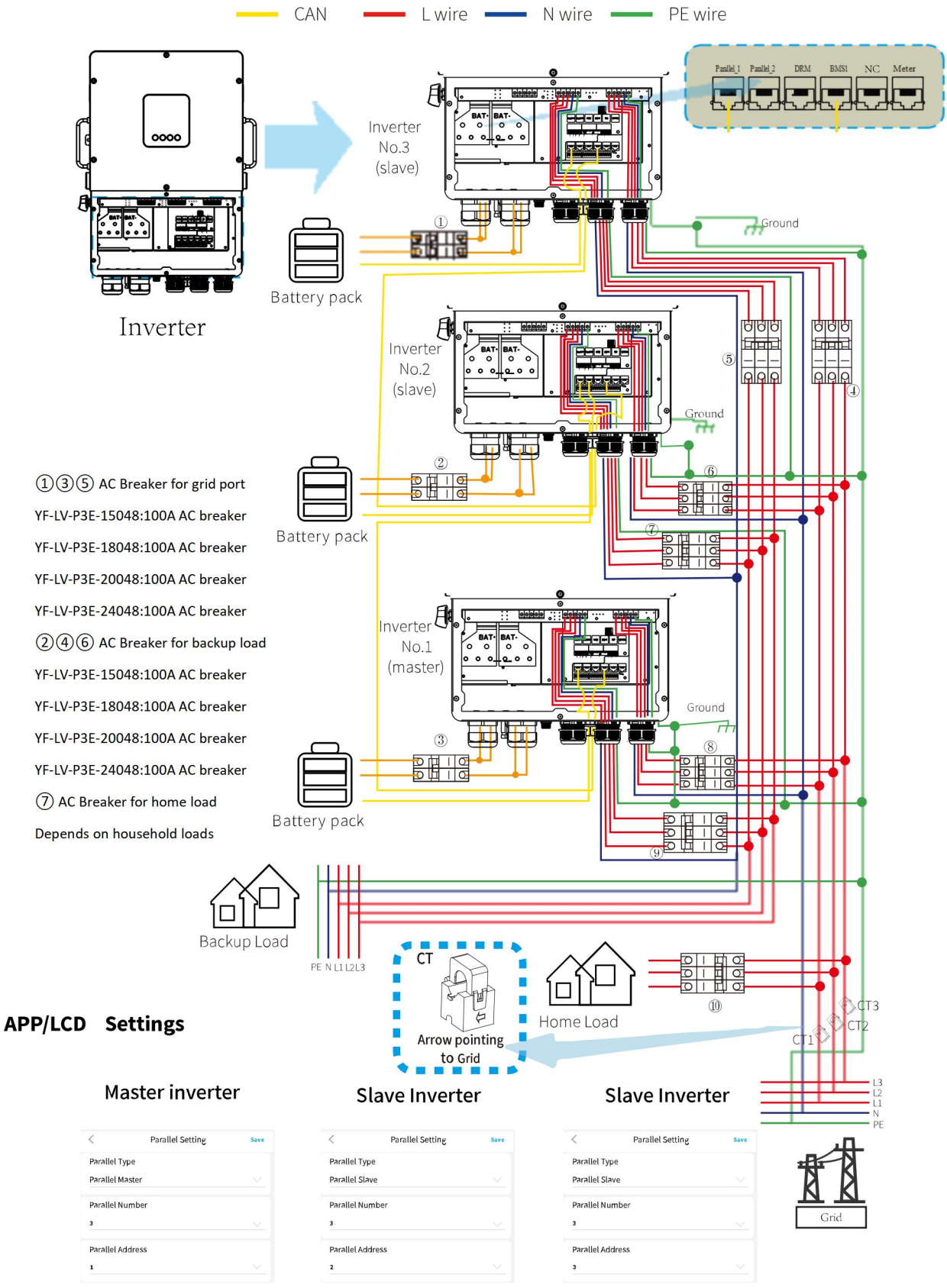
YF-LV-P3E-15048:100A AC breaker

YF-LV-P3E-18048:100A AC breaker

YF-LV-P3E-20048:100A AC breaker

YF-LV-P3E-24048:100A AC breaker

6.13 Three phase parallel connection system



APP/LCD Settings

Master inverter

Slave Inverter

Slave Inverter

Additional Notes for Parallel Systems

1.Only One Master Inverter in a Parallel System

a.In a parallel configuration, the system must have one and only one master inverter to manage overall operations and coordinate communication among the connected inverters.

2.CT Sampling Line or Meter Communication Line Must Be Connected to the Master Inverter

a.The CT sampling line or the electric meter communication line must be connected directly to the master inverter, which is designated to handle critical data such as current sampling and power measurement.

b.The master inverter is always assigned as Address 1.

3.Slave Inverter Addresses Start from 2 and Are Assigned Sequentially

a.The slave inverters should be assigned addresses starting from 2, with each subsequent inverter receiving the next sequential address (e.g., 2, 3, 4, etc.).

b.Proper address assignment ensures accurate communication and coordination within the system.

6.14 Wi-Fi&BLE stick installation

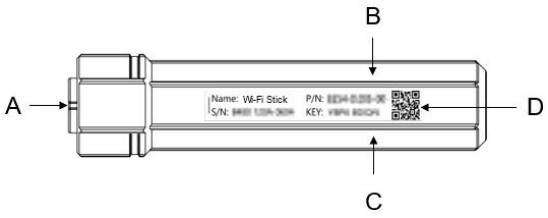
6.14.1 Indication

A:Circular Connector Interface: Connect to inverter and communication

B:Red LED: Inverter communication indication

C:Green LED: Network communication indication

D:Product label: Show product information



1.LED glow only when the Wi-Fi&BLE stick is powered on.

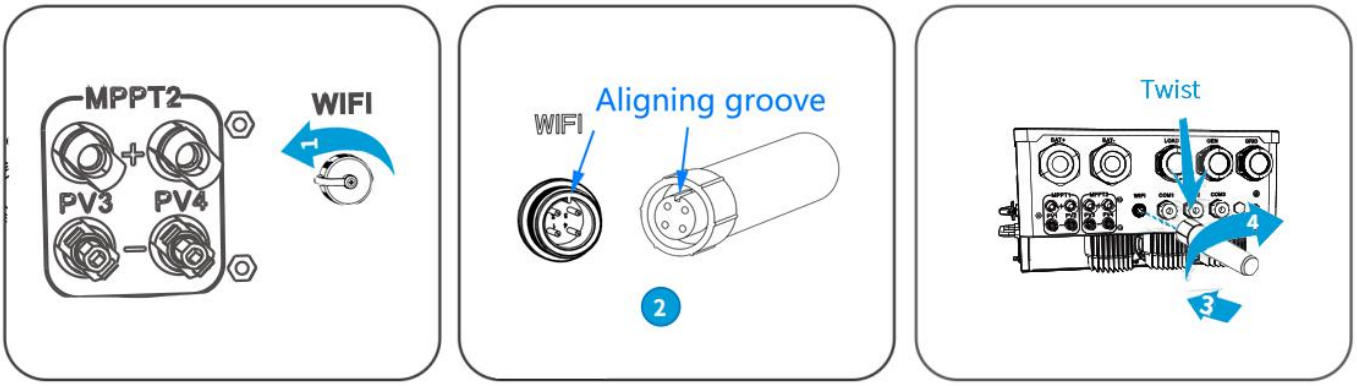
2.When the Wi-Fi&BLE stick is powered on, the green LED glows for 3S as a power on indication.

3.The more detail LED indication please refer chapter 9 “LED indication and trouble shooting”.

6.14.2 Install the Wi-Fi&BLE stick

Follow the installation steps!

1.Remove the waterproof cover.	2.Aligning groove.
3.Plug in WiFi module.	4.Revolve to lock the WiFi module.



6.14.3 Web/APP

Item	Web View	APP	
QR Code			
Website	https://pv.inteless.com	iOS: search"PV pro" in Apple Store	Android: search "PV pro"in Google Play

6.14.4 Wi-Fi Connection

The Wi-Fi connection diagram of Wi-Fi&BLE stick is shown in the figure below. The specific process can be downloaded the APP, and configure the network connection according to the operation guide of the APP.



NOTICE

Wi-Fi Trouble Shooting

1. Make inverter from the WiFi router less than 10 meters ;
2. Make phone from the device's Bluetooth less than 5 meters ;
3. Make sure you enter the correct WiFi name and password;
4. The router need to be set to 2.4GHz band;
5. Set the router security mode to WPA2 or WPA, and it can not support WPA3.
6. Is the whitelist enabled on the router?

6.14.5 Installation qualification

If the Wi-Fi&BLE stick works normally, red LED and green LED are always glowing. Otherwise, it needs to be corrected by referring to chapter 9 "LED indication and trouble shooting"

6.14.6 LED indication and trouble shooting

LED	State	Indication	
	Red LED:Inverter communication indication		Green LED:Network communication indication
	Cycle for 2S: flash once quickly, then glowing	Cycle for 2S: flash once quickly, then glowing	
	Not glow more than 20S	The power supply to the Wi-Fi&BLE stick is abnormal or damaged： 1. Check whether the power supply of the Aerial Plug Interface on the inverter is normal 2. Wi-Fi&BLE stick abnormal, contact the dealer	
	Cycle for 2S: flash once quickly, then off	Communication failure： Check whether the connection between the Wi-Fi&BLE stick and inverter is loose or poor contact	
	When powered on, continuously glows 3S, and then off	Power on indication	
	Glow more than 5S	Communication is normal	
	During the long glowing, flash occasionally	Network transmit data	
	Cycle for 20S: flash once quickly, then off	The route is not connected: 1. Check whether the password is right 2. Check the strength of the router	
	Cycle for 20S: flash 3 times continuously, then off	Connect to the route, but can't connect to the cloud server： 1. Check whether the router has Internet access permission 2. Check the firewall setting	
	Cycle for 20S: flash 4 times continuously, then off	Wi-Fi&BLE stick information error: Please contact the dealer	

7.Operation

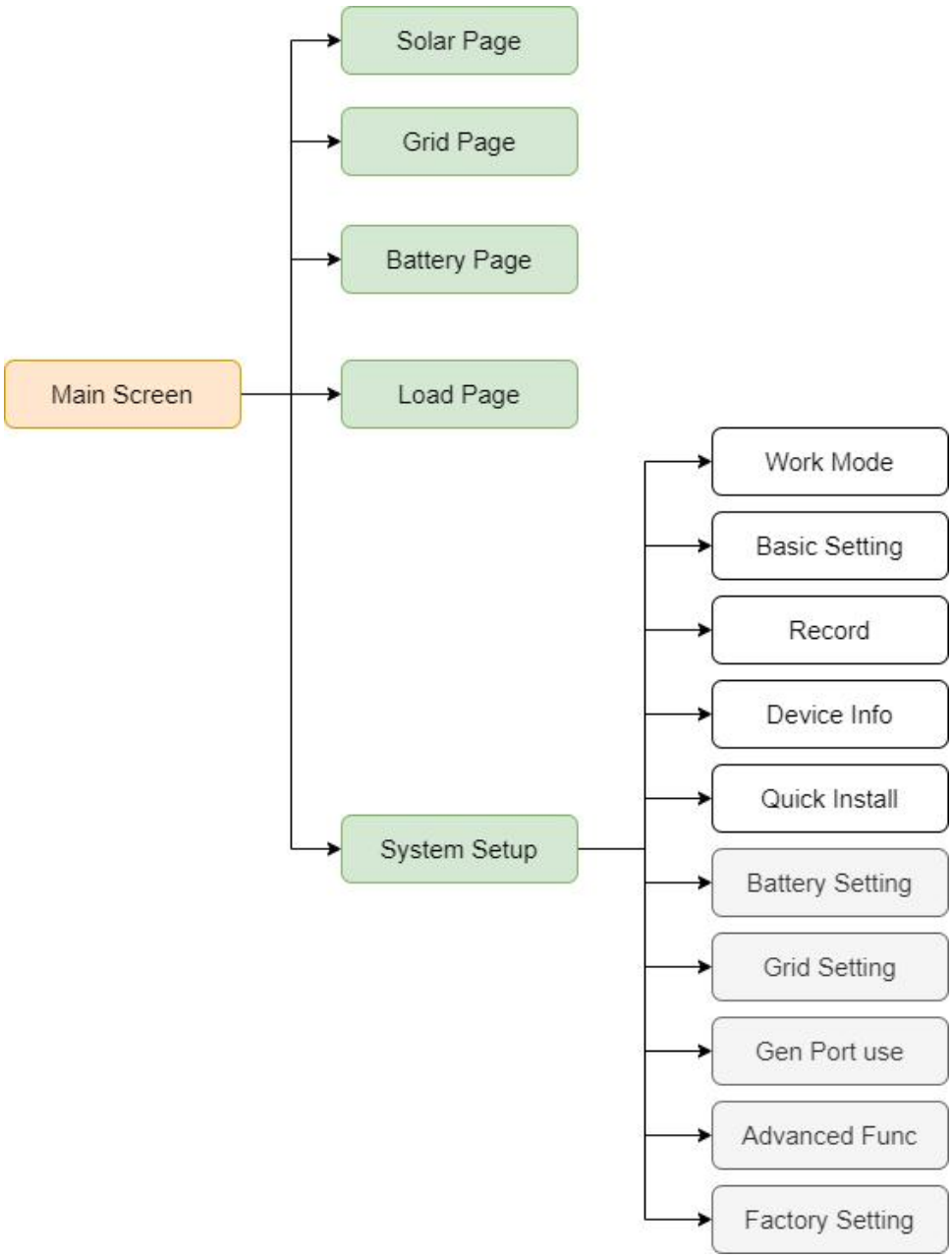
7.1 Indicator panel





Name	Object	Function
Indicator LED	A	Green : ON, The inverter is running ; Flash is Standby.
	B	Blue : ON, Communication with BMS normal.
	C	Yellow : ON, The inverter is in EPS mode.
	D	Red : The inverter is in fault mode.
	E	UP:To go to previous selection
	F	DOWN:To go to next selection
	G	ENTER:To confirm the selection
	H	ESC:To exit setting mode

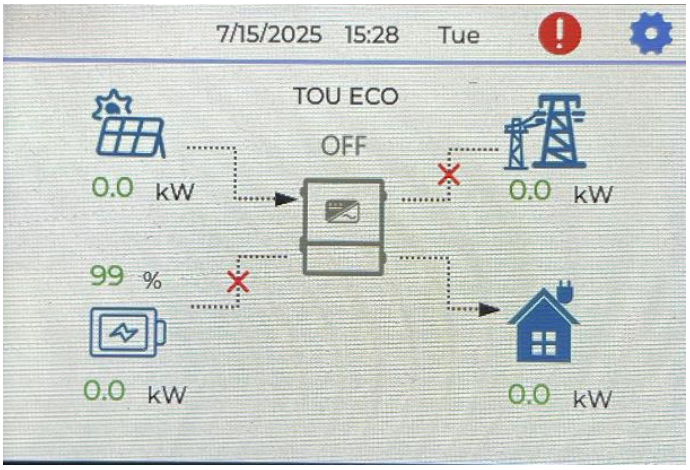
7.2 LCD operation flow chart



7.3 LCD Display Icons

7.3.1 Main Screen

The LCD is touchscreen,below screen shows the overall information of the inverter.



1.System Information Display

1.1 Date and Time

At the top of the screen displays the current system date and time.

1.2 Warning Icon ('!')

A red '!' mark indicates a system fault or abnormal condition.

Clicking the icon opens the fault detail page,where users can check the alarm messages and fault codes.

Follow the on-screen guidance or troubleshooting manual to resolve issues.

1.3 Settings Icon (Gear)

Click to access the system settings menu.

Includes configuration options such as operation mode,battery parameters,grid settings,etc.

2.Inverter Status and Operating Mode

2.1 Inverter Power Status

The icon in the center represents the inverter unit.

Its power status is clearly shown as ON or OFF.

2.2 Current Operating Mode Display

The active system mode is shown above the inverter icon.

Possible modes include:TOU ECO,Self-Use,Backup,etc.

This helps users understand how the system is currently

3.Real-Time Energy Device Overview

The four blue icons visually represent the status and power of key energy components.Each icon is interactive:

3.1 Top Left--PV

Displays real-time solar generation power.

Click to view detailed PV status.

3.2 Top Right--Grid

Shows grid import power.

Click to view grid connection information.

3.3 Bottom Left--Battery

Displays current battery state of charge and charge/discharge power.

Click to view battery details.

3.4 Bottom Right--Load

Shows real-time load consumption.

Click to access detailed load information.

4.Energy Flow and Connection Indicators

4.1 Arrow Indicators

Arrows illustrate real-time energy flow paths.

The direction indicates the power flow direction (e.g.,from PV to Load).

4.2 Red“X"Icons

Indicate that a path or device is not connected or inactive.

Examples include:battery not installed,grid offline,etc.

-PV power and Load power always keep positive.

-Grid power negative means get from grid,positive means sell to grid.

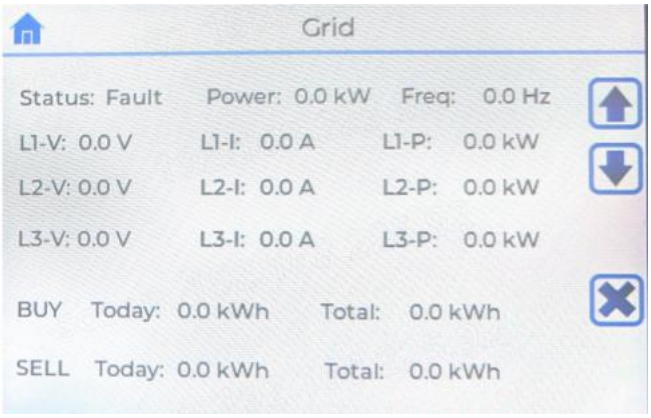
-Battery power negative means charge,positive means discharge.

7.3.2 PV Information Page Overview



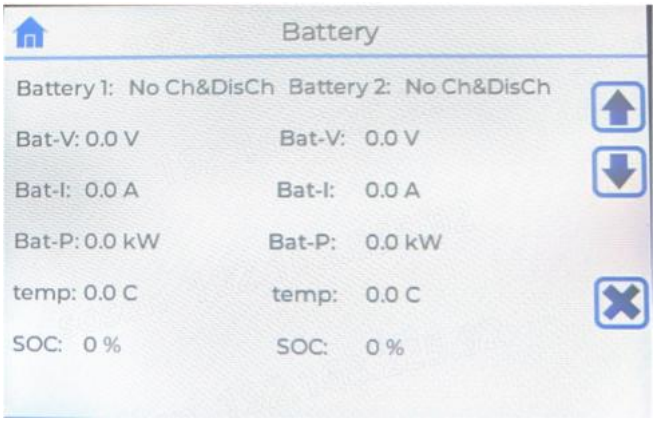
(Subject to variation depending on project configuration)
When the PV icon on the main interface is clicked, the system navigates to the PV information page. Here, PV1 to PV4 display the voltage, current, and power data for each of the four PV input channels. Below these readings, users can view the total current PV power, the energy generated today, and the historical cumulative generation. Page navigation arrows on the side of the screen allow users to scroll through additional PV data pages

7.3.3 Grid Information Page Overview



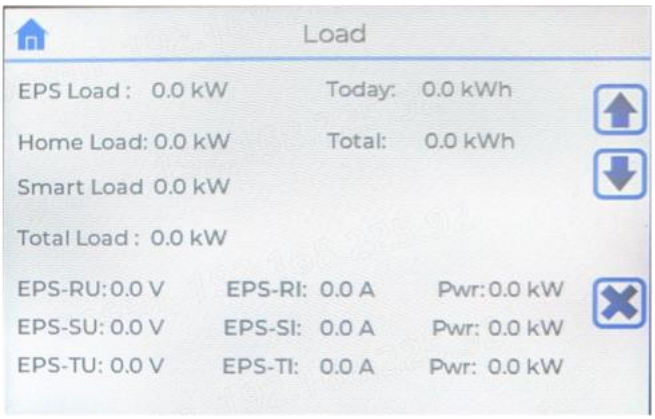
The Status field indicates the operating condition of the inverter; in this example, the current status is “Fault.”
The Power field displays the total grid power.
Freq refers to the present grid frequency.
L1, L2, and L3 represent the three AC phases (R, S, T), each showing their respective voltage, current, and power values.
At the bottom of the page, the energy purchased from the grid is displayed, including both the daily purchased energy and cumulative purchased energy. (Note: These fields may vary depending on the specific project configuration.)

7.3.4 Battery Information Page Overview



This page displays the operating information of Battery 1 and Battery 2 (subject to variation depending on the project configuration).
Key parameters include the current battery status, voltage, current, power, temperature, and State of Charge (SOC).

7.3.5 Load Information Page Overview

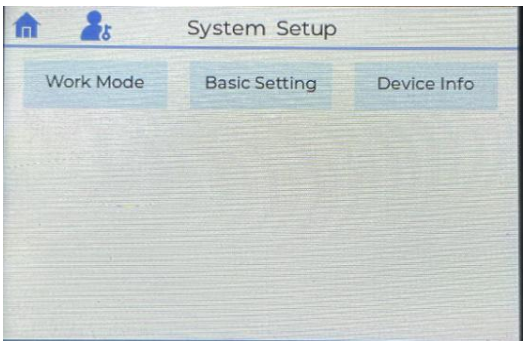


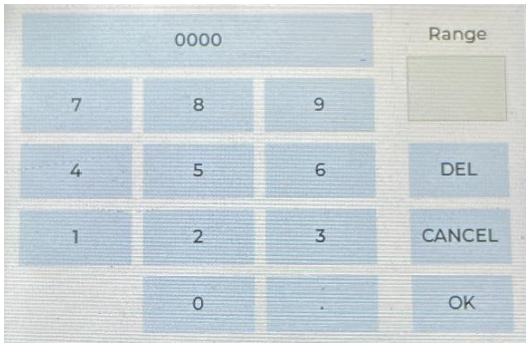
(Subject to variation depending on the project configuration)
This page includes readings for EPS load power, household load power, smart load power, and the total load power.
Below these values, the page also displays the voltage, current, and power for the three AC phases: R, S, and T (corresponding to L1, L2, and L3).

7.4 System Setup Menu

System Settings Page (Standard User Access)

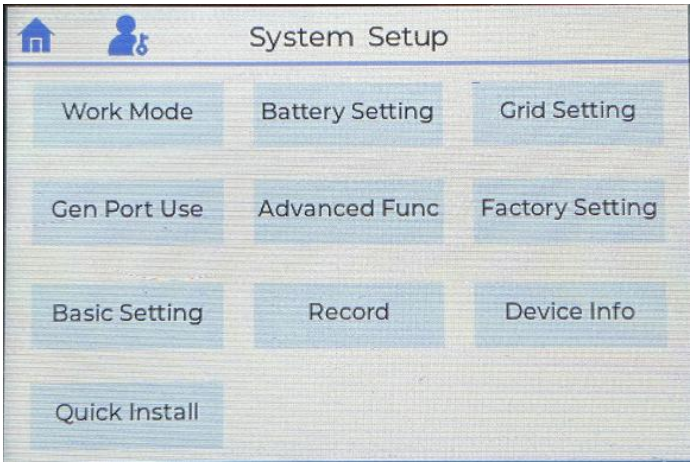
This is the settings page available under standard user permissions.

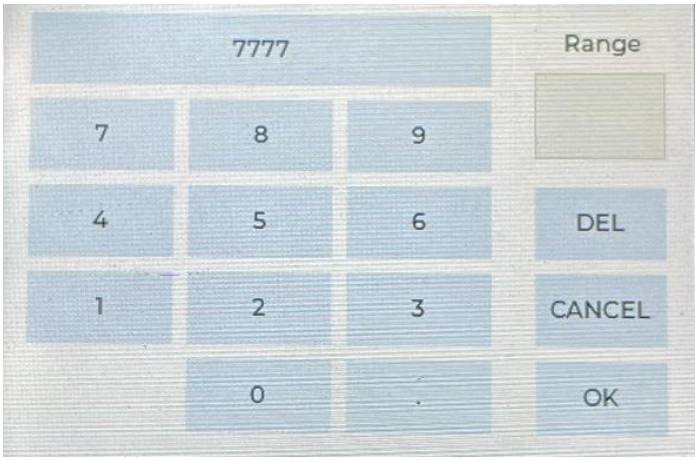




To enter basic settings mode, click the icon  in the upper-left corner and enter the password **0000**.

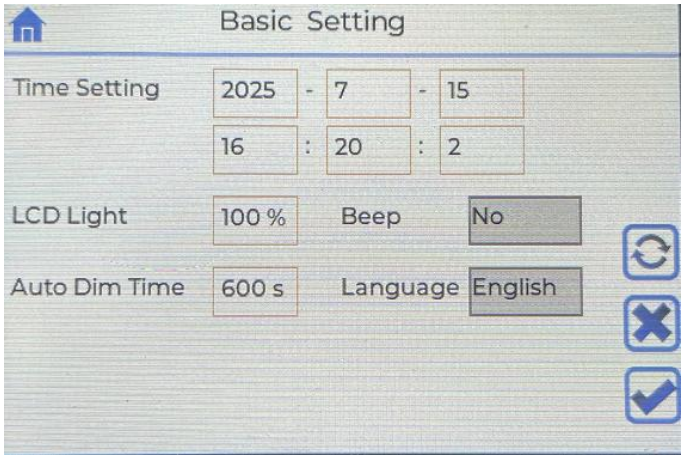
Advanced User Access





To enter advanced settings mode, click the icon  in the upper-left corner and enter the password 7777.
Once verified, the system will open the Advanced Settings Page, where users can access additional configuration options not available under standard permissions.

7.5 Basic Settings Menu



-Time Setting:

Set the system's date and time, including year, month, day, hour, and minute.

-LCD Light:

Adjust the screen brightness level.

-Beep:

Enable or disable the buzzer.

Enabled by default; the buzzer will sound upon touch or key press.

-Auto Dim Time:

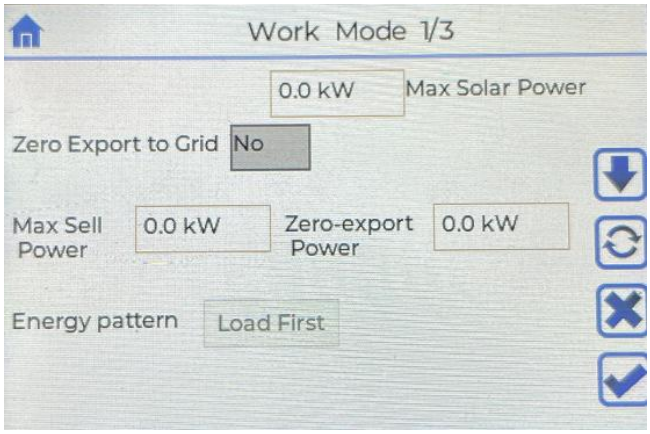
Set the duration before the screen automatically dims or turns off.

-Language:

Select the system display language.

7.6 Work Mode Settings Menu

Work Mode Settings-Page 1



-Max Solar Power:

Sets the maximum PV input power.

Zero Export to Grid:

When enabled,the inverter limits the amount of power exported to the grid.

The actual export limit is defined by the Zero-export Power setting.

-Zero-export Power:

Specifies the inverter's export power limit to the grid.

This setting takes effect only when Zero Export to Grid is enabled.

-Max Sell Power:

Sets the maximum power that can be exported to the grid.

-Energy Pattern:

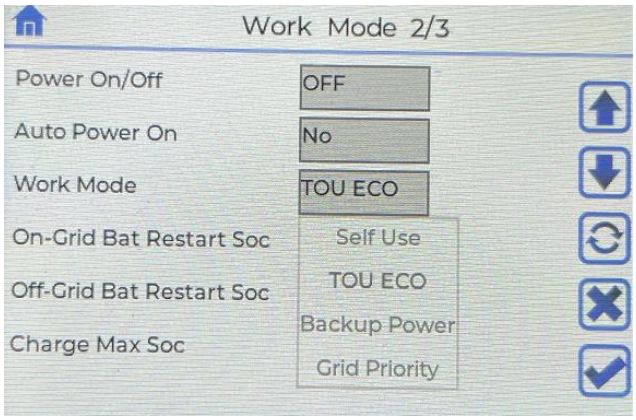
Defines the system's energy priority strategy.Currently,only **Load First** mode is supported.

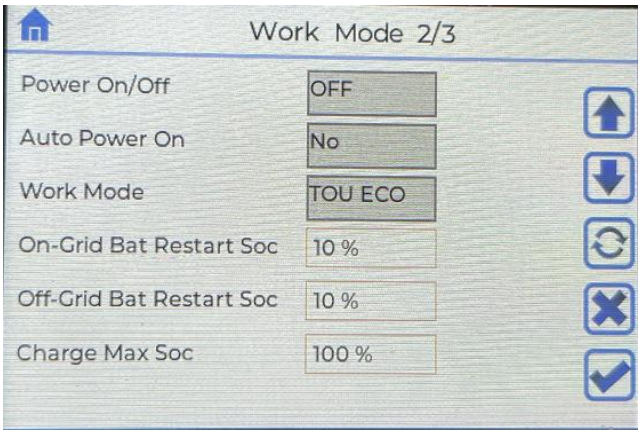
-Load First:

PV power is used first to supply the load.

Any surplus PV energy is then used to charge the battery. If PV is insufficient,the grid will supply the load.

Work Mode Settings-Page 2





-Power On/Off:

Manually switches the inverter ON or OFF.

-Auto Power On:

Enables automatic startup and shutdown.

When enabled,the inverter will power on automatically.

-Work Mode:

Sets the system's working mode.Available options include:

Self-USE,TOU ECO,Backup Power,and Grid Priority.

-On-Grid Bat Restart SOC:

When the inverter is connected to the grid:

Battery is allowed to discharge if SOC 10%.

If battery SOC drops below(Restart SOC-3),the inverter will trigger forced charging to

raise SOC back to 10%.

-Off-Grid Bat Restart SOC:

When the inverter is off-grid (not connected to the utility):

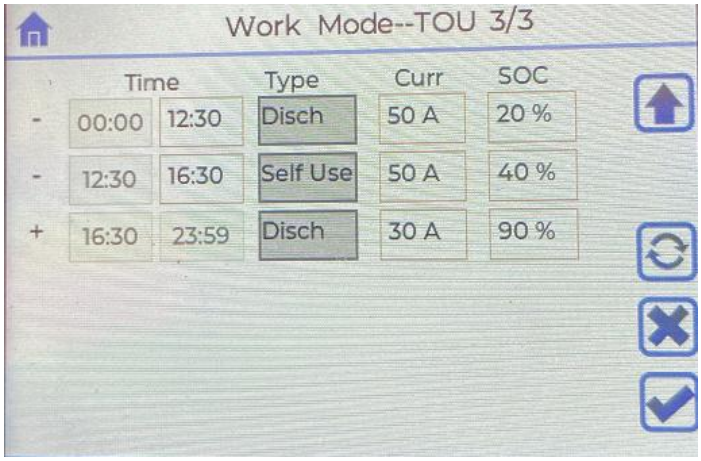
Battery is allowed to discharge if SOC 10%.

-Charge Max SOC:

Sets the maximum battery SOC for charging.

Once this limit is reached,charging will stop automatically.

Work Mode Settings-Page 3(TOU Mode Settings)



To enable TOU scheduling, the Work Mode on **Work Mode Settings – Page 2** must be set to **TOU ECO**. Only then will the time-based configuration become effective.

-Time:Defines the time slots used for energy management.

The full 24-hour day must be divided into continuous,non-overlapping periods.Each time slot includes a start time and an end time.Up to 6 time slots can be added by clicking the "+"icon.

-Type:Defines the behavior of the system during the time slot:

Discharge:Battery discharges according to the specified parameters.

Charge:Battery charges using PV or grid power.

Self-Use:Prioritizes self-consumption from PV.

-Curr:Sets the maximum charging or discharging current for the battery.

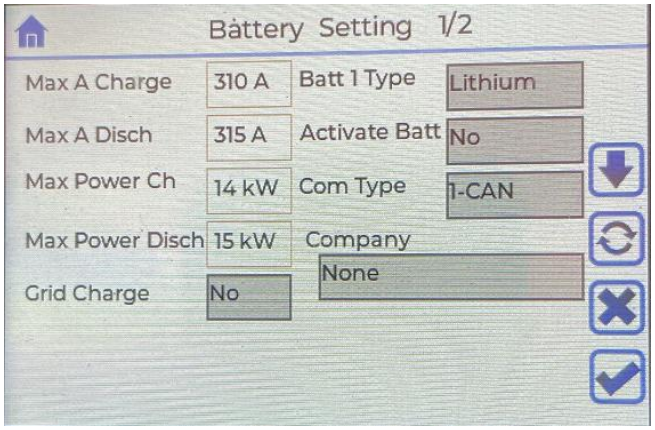
-SoC:Target SOC value for the battery during the time slot.

Example Schedule:

Time Period	Priority Type	Zero Export Disabled	Zero Export Enabled
00:00 – 12:30	Discharge	- Battery discharges if SOC > 20% (up to 50A limit) - Excess PV is exported to the grid	- Same discharge behavior - Excess PV charges battery to avoid waste
12:30 – 16:30	Self Use	- Battery discharges if SOC > 40% when PV cannot meet load - Battery charges if SOC < 36% using PV or grid - Remaining PV is exported	- Same behavior - No export allowed: Excess PV not used for load or charging is curtailed
16:30 – 23:59	Charge	- Battery charges if SOC < 90% using PV + grid (up to 30A) - Excess PV is exported	- Same charging behavior - No export allowed: Any excess PV after charging is curtailed

7.7 Battery Settings Menu

Battery1 Setting1 – Page 1



1.-Max A Charge / Max A Disch:
Set the **maximum battery charging current** and **maximum battery discharging current**, respectively.

-Max Power Ch / Max Power Disch:
Set the **maximum charging power** and **maximum discharging power** for the battery.

-Grid Charge:
Enables or disables battery charging from the utility grid.

2.-Parallel Bat & Bat2:
For inverter models with two battery ports, enabling this function allows a single battery to be connected to both **Battery Port 1** and **Battery Port 2** simultaneously.
In this case, the battery communication cable should be connected to the inverter's **BMS1 port**.

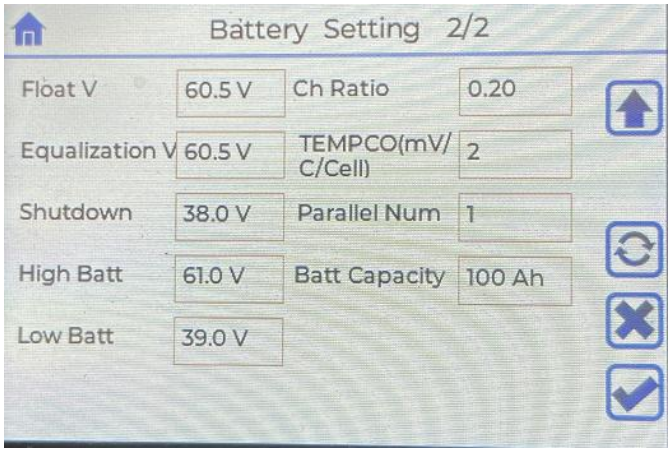
-Batt1 Type:
Select the battery type. Available options include: **Lithium**, **Lead-acid**, **DC Source**, and **No Battery**.

-Activate Batt:
Manually triggers battery activation or wake-up.

3.-Com Type:
Select the battery communication protocol: **CAN** or **RS485**

-Company:
Select the battery manufacturer. The system will automatically match the correct communication protocol based on the selected brand.

Battery1 Setting2 – Page 2



Float V:

Sets the **battery float charging voltage**.

Ch Ratio:

Sets the **charging C-rate** (charging ratio), applicable **only to lead-acid batteries**.

Equalization V:

Sets the **equalization charging voltage**.

TEMPCO:

Battery **temperature compensation coefficient**, applicable **only to lead-acid batteries**.

Shutdown:

Sets the **battery discharge cutoff voltage** for protection.

Parallel Num:

Sets the **number of parallel-connected battery groups**. This setting is required **only for lead-acid batteries** used in multiple parallel clusters.

High Batt / Low Batt:

Define the **battery port over-voltage** and **under-voltage protection thresholds**, respectively.

Batt Capacity:

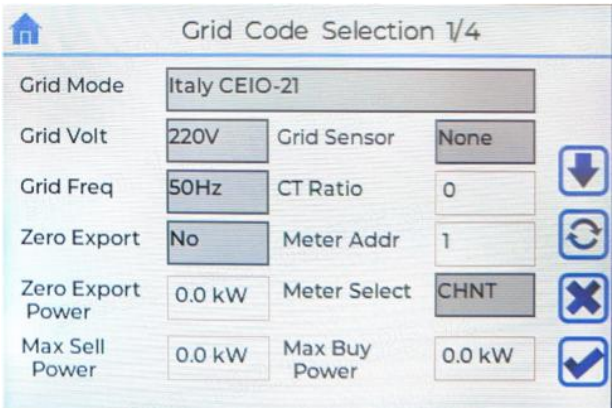
Set the **battery capacity**, applicable **only to lead-acid batteries**.

Recommended battery settings

Battery Type	Absorption Stage	Float Stage	Equalization Voltage (every 30 days 3hr)
AGM(or PCC)	14.2V (57.6V)	13.4V (53.6V)	14.2V (57.6V)
Gel	14.1V (56.4V)	13.5V (54.0V)	
Wet	14.7V (59.0V)	13.7V (55.0V)	14.7V (59.0V)
Lithium	Follow its BMS voltage parameters		

7.8 Grid Settings Menu

Grid Settings – Page 1



Grid Mode: Select the national grid standard according to the installation region (e.g.,Italy-CEl0-21,Spain UNE217002).

Grid Sensor: Configuration of the grid-side current sampling method.Options include:

None:Inverter samples current internally at the grid port.

CT:External current transformer(CD)is used for sampling.

Meter:External smart meter connected via RS485 for grid data acquisition.

Grid Volt:Set the nominal grid voltage according to the country standard.

Grid Freq:Set the nominal grid frequency based on the local grid specification.

CT Ratio:Set the CT transformation ratio.

Zero Export:When enabled,the inverter will limit the power exported to the grid.

The limit is defined by the Zero-export Power setting.

Zero-export Power: Sets the maximum inverter export power.This is only effective when Zero Export is enabled.

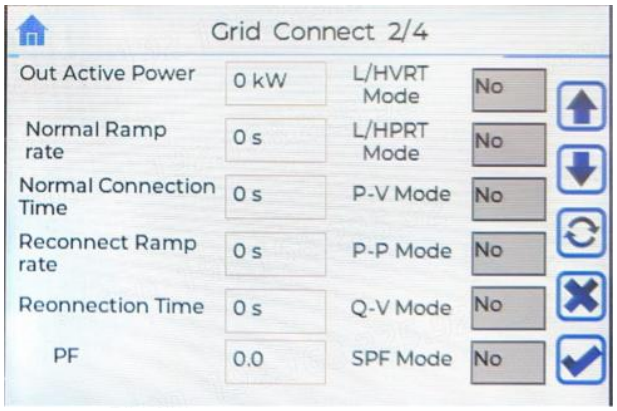
Meter Addr: Set the RS485 address of the external energy meter.

Meter Select:Select the meter manufacturer.Please ensure the selected model matches the actual hardware.

Max Sell Power:Sets the maximum allowed output power exported to the grid.

Max Buy Power:Sets the maximum allowed input power drawn from the grid to the inverter

Grid Settings – Page 2



Reserved:This function is reserved.It is not recommended.Please inform the manufacturer/installer before setting up

Out Active Power:

Sets the maximum apparent power output to the grid.

Normal Ramp Rate:

Sets the power ramp-up time after inverter startup.

Normal Connection Time:

Sets the time delay before the inverter injects active power to the grid after startup.

Reconnect Ramp Rate:

Sets the ramp-up time for active power after fault recovery.

Reconnection Time:

Sets the reconnection delay time after a fault is cleared.

Grid Settings-Page 3



Reserved:This function is reserved.It is not recommended.
Please inform the manufacturer/installer before setting up

High Volt 1/High Volt 2:Level 1 and Level 2 overvoltage protection thresholds (as a percentage of nominal voltage).

High Volt Time 1/High Volt Time 2:Time delays for triggering Level 1 and Level 2 overvoltage protection.

High Volt Recv:Grid overvoltage recovery threshold.

Low Volt 1 Low Volt 2:Level1 and Level 2 undervoltage protection thresholds,also defined as percentages of the nominal voltage.

Example

To adjust the acceptable voltage range of the inverter for grid connection:

Simply configure High Volt 1 and Low Volt 1 values.

If the nominal voltage is 230V:

High Volt 1 at 120%-Overvoltage point 276V

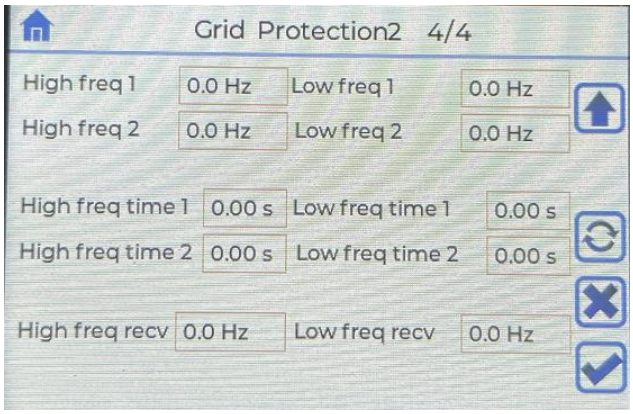
Low Volt 1 at 80%-Undervoltage point 184V

If the nominal voltage is 220V:

High Volt 1 at 120%-Overvoltage point 264V

Low Volt 1 at 80%-Undervoltage point 176V

Grid Settings-Page 4



Reserved:This function is reserved.It is not recommended.
Please inform the manufacturer/installer before setting up

High Freq 1 and High Freq 2 refer to the first- and second-level over-frequency protection thresholds (in Hz). These values are typically based on the system's nominal frequency (e.g., 50Hz or 60Hz).

High Freq Time 1 and High Freq Time 2 define the delay time before triggering protection actions when the grid frequency exceeds the corresponding threshold.

High freq recv: The recovery point frequency value of the power grid overfrequency protection. When the frequency recovers from too high to below this value, the system will allow reconnection to the grid or resume operation.

Low Freq 1 and Low Freq 2 represent the first- and second-level under-frequency protection thresholds. If the frequency falls below these values, protection will be triggered accordingly.

Low Freq Time 1 and Low Freq Time 2 set the delay durations before activating under-frequency protection once the frequency drops below the set limits.

Low Freq Recv:The recovery threshold for under-frequency protection. The system will reconnect or resume operation when the grid frequency rises above this value.

Example:
If the system nominal frequency is 50Hz, and the settings are as follows:

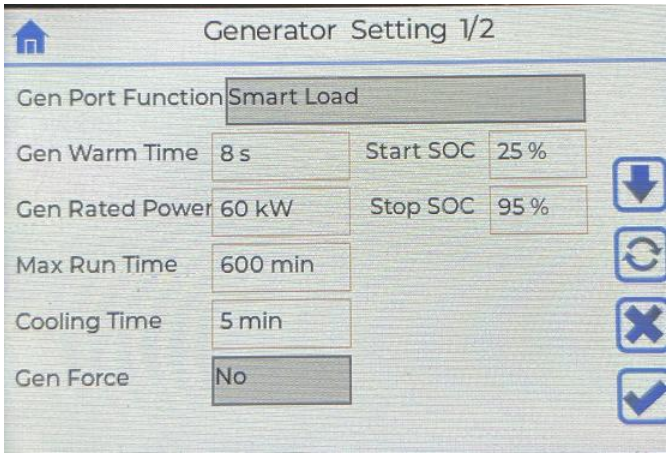
High Freq 1 = 52Hz, Low Freq 1 = 47Hz
The system will trigger first-level protection when the frequency goes above 52Hz or below 47Hz, based on the defined time delays.

High Freq 2 = 53Hz, Low Freq 2 = 46Hz
More severe deviations will activate second-level protection mechanisms.High Freq 1 and High Freq 2 refer to the first- and second-level over-frequency protection thresholds (in Hz). These values are typically based on the system's nominal frequency (e.g., 50Hz or 60Hz).

7.9 Generator Port Settings Menu

Gen Port Function

Select the functional mode of the generator port. Available options:



None:No function assigned.This is the default setting.

Generator:The port is used as an input for generator power.Once the generator starts,its

power is used to charge the battery.

Smart Load:The port is used as a dedicated load output,with user-defined working conditions for smart load control.

When Gen Port Function is set to Generator, the following parameters become effective:

Gen Warm Time:
Generator warm-up time. After the inverter sends the start signal, it waits for this duration before accepting generator input.

Start SOC / Stop SOC:
Battery SOC thresholds for starting and stopping the generator automatically.

Gen Rated Power:
Maximum power output of the generator.

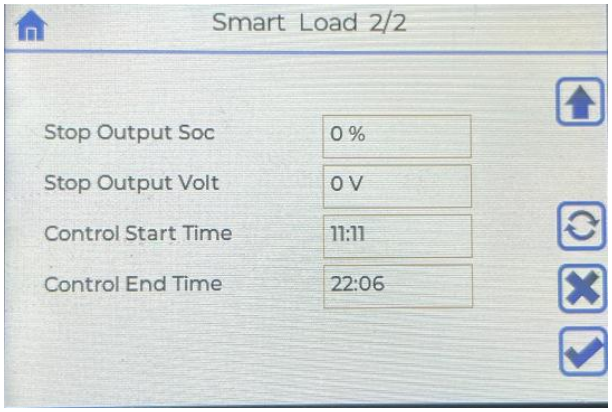
Max Run Time:
Maximum continuous run time for the generator. Applies when the inverter is automatically controlling the generator.

Cooling Time:
Generator cooldown period after stopping. Applies to inverter-controlled generator operation.

Gen Force:
Force Start Generator function. Should be enabled during the first-time connection of a generator to ensure recognition and activation.

Smart Load Configuration

This configuration page becomes effective only when Gen Port Function is set to Smart Load.



Stop Output SOC:

When the battery SOC drops to this threshold, the smart load output will automatically disconnect.

Stop Output Volt:

If voltage-based control is selected, the smart load output will disconnect when the battery voltage reaches this value.

Control Start Time:

Start of the time window during which the SOC or voltage control conditions are valid.

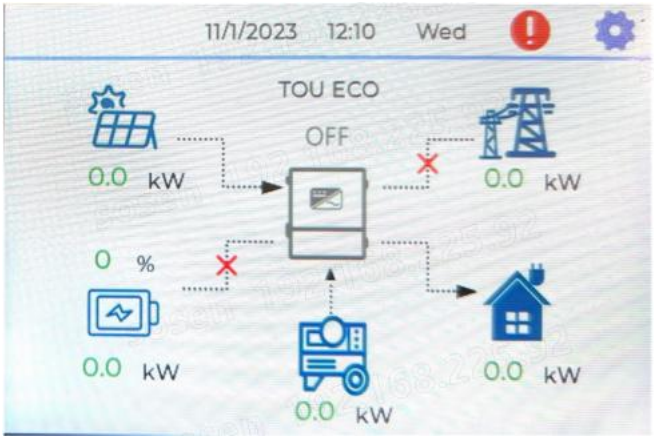
Control End Time:

End of the time window during which the SOC or voltage control conditions are valid.

Note:

Outside the defined time window, the smart load output is not restricted by SOC or voltage conditions, and will follow the same discharge behavior as the EPS output.

Accessing Generator Data from the Home Page



Once the generator function is enabled, a generator icon will appear on the home screen.
Clicking this icon will navigate to the Generator Details Page.

Generator Details Page



L1 / L2 / L3:
Displays the voltage, current, and power of each phase.

Additional Information:

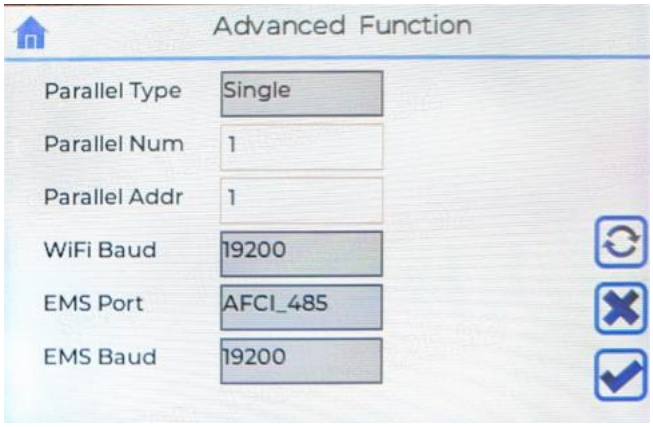
Today's Generated Energy

Total Historical Generation

Total Generator Power Output

7.10 Advanced Settings Menu

This page allows configuration of parallel settings, Wi-Fi baud rate, and EMS communication parameters.



1.Parallel Settings
Parallel Type:
Sets the parallel operation mode of the system.

Parallel Num:
Specifies the total number of inverters in the system (Master + Slaves).

Parallel Addr:
Sets the inverter address in the system.

The master inverter is always set to address 1.

Slave inverters follow in sequential order (2, 3, ...).

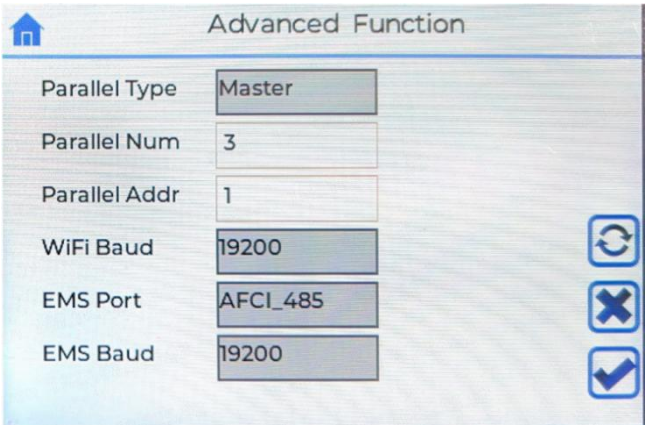
2.WiFi Baud:
Baud rate for communication between inverter and d ata logger.

EMS Port:
Designates the spare RS485 port on the inverter for E MS (Energy Management System) communication.
Default setting: AFCI_485 (can be changed based on a ctual use).

EMS Baud:
Sets the communication baud rate for the EMS Port.
Default value: 19200.

3. Parallel Configuration Screens – Example of 3-Inverter System
The following screenshots demonstrate how to configu re a parallel system with one master inverter and two s lave inverters. All settings must be consistent across de vices, except for Parallel Addr, which should be unique per unit.

(1)Master Inverter Configuration



Parallel Type: Master

Parallel Num: 3 (total number of inverters)

Parallel Addr: 1

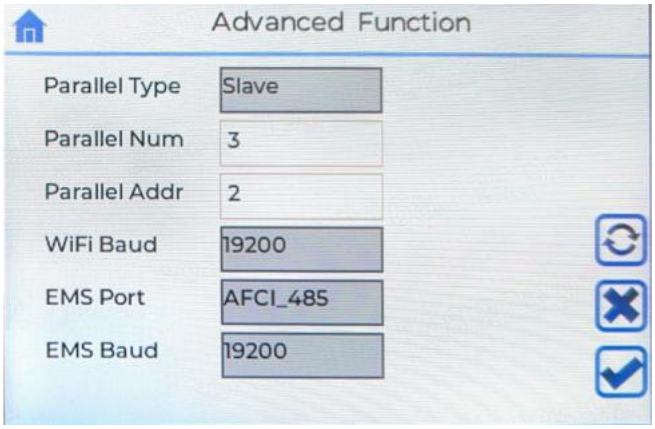
WiFi Baud: 19200

EMS Port: AFCI_485

EMS Baud: 19200

This inverter is designated as the master unit, responsible for synchronization and control across the entire system.

(2) Slave Inverter 1 Configuration



Parallel Type: Slave

Parallel Num: 3

Parallel Addr: 2

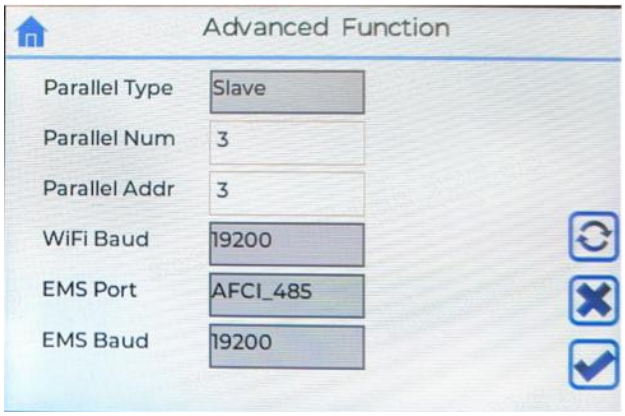
WiFi Baud: 19200

EMS Port: AFCI_485

EMS Baud: 19200

This inverter operates as Slave 1, assigned address 2.

(3)Slave Inverter 2 Configuration



Parallel Type: Slave

Parallel Num: 3

Parallel Addr: 3

WiFi Baud: 19200

EMS Port: AFCI_485

EMS Baud: 19200

This inverter operates as Slave 2, assigned address 3.
-Important Notes:

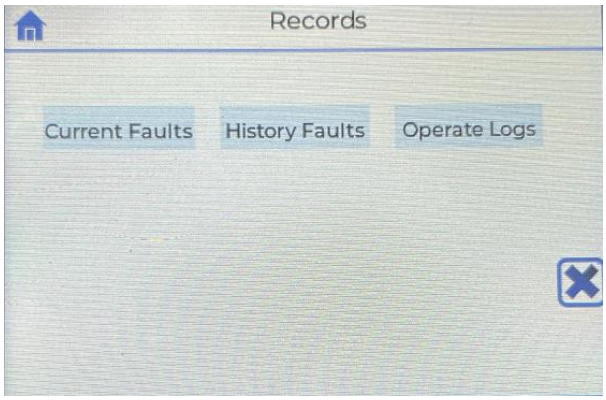
1.
All inverters must have the same WiFi Baud rate and EMS Baud rate.

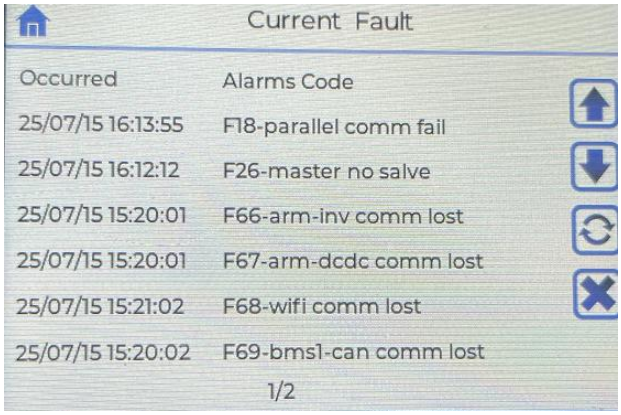
2. Ensure proper wiring and grounding between all units.

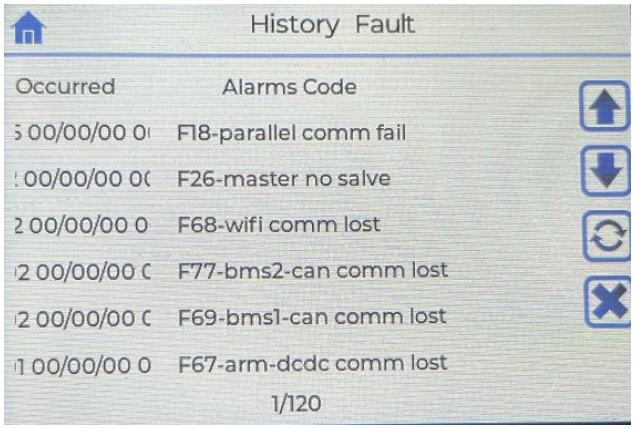
3.
Make sure firmware versions are consistent across all inverters.

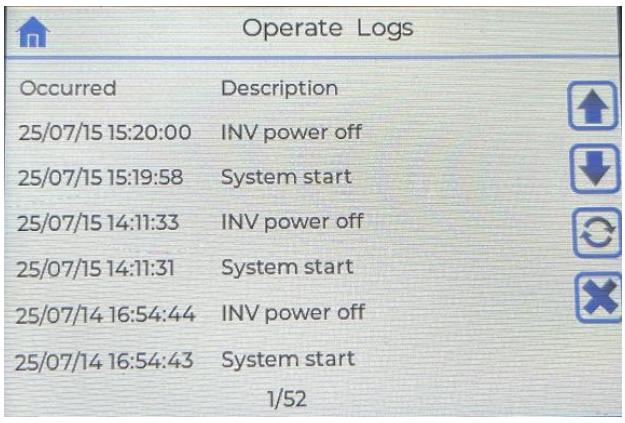
4.
Communication cables (e.g. RS485 or CAN) must be securely co nnected.

7.11 Record Menu







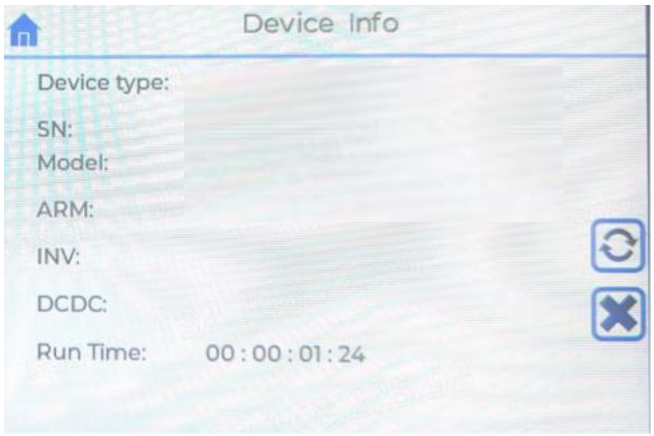


Fault and Operation Logs
Current Fault:
Displays the inverter's active faults and alarms.
It includes the timestamp, fault code, and fault descripti on of the current issue.

History Fault:
Shows the inverter's fault and alarm history.
It records the start time, recovery time, and details of e ach fault event.

Operate Logs:
Contains logs of user operations such as changing invert er modes, powering the system on/off, or adjusting syst em settings.
These logs are useful for tracking system changes and u ser actions.

7.12 Device Info Setup Menu



This page displays basic information about the inverter, including:

Device Type:The category or class of the inverter.

Model Number:The specific model identifier.

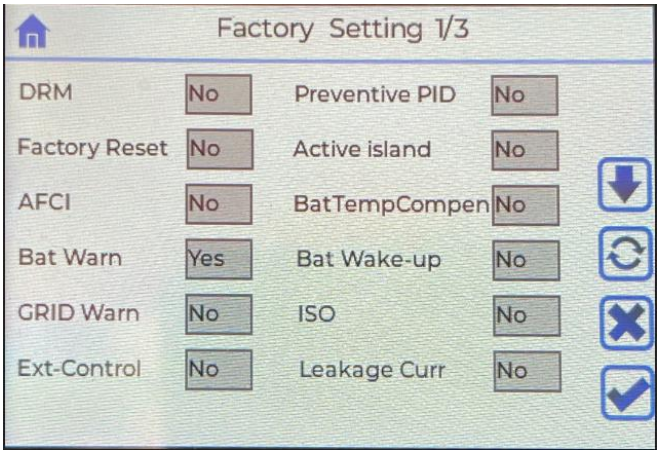
Serial Number:The unique identifier assigned to each u nit.
Software Version:The currently installed firmware/soft ware version.(ARM,INV,DCDC)

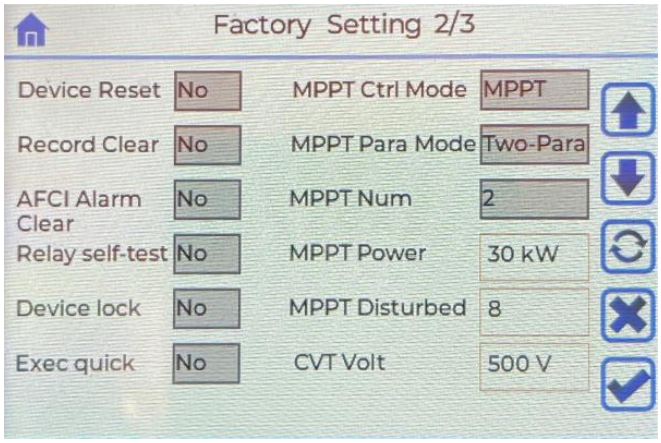
Run Time:Total runtime of the inverter since initial oper ation.

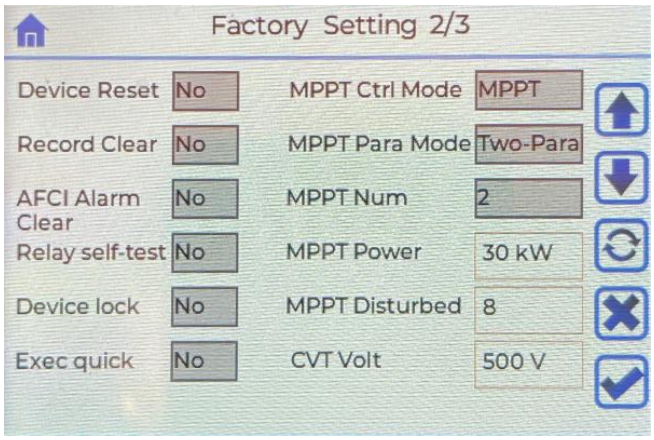
This page is useful for system diagnostics, firmware trac king, and technical support.

7.13 Factory Setting Menu

Reserved:This function is reserved.It is not recommended. Please inform the manufacturer/installer before setting up







8.Trouble Shooting

This section contains information and procedures for solving possible problems with the YF-LV-P3E-15048~YF-LV-P3E-24048 series inverters, and provides you with trouble shooting tips to identify and solve most problems that could occur with the YF-LV-P3E-15048~YF-LV-P3E-24048 series inverters.

This section will help you narrow down the source of any problems you may encounter.Please read the following trouble' shooting steps.

Check the warning or fault messages on the System Control Panel or Fault codes on the inverter information panel.If a message is displayed, record it before doing anything further.Attempt the solution indicated in below table.

Error code	Description	Solutions
F01	inv over volt	The inverter is faulty. Turn off the PV, grid, and battery, and wait 5 minutes before turning on the inverter. Check whether the problem is resolved.Or seek help from us, if not go back to normal state.
F02	inv under volt	
F03	short circuit	
F04	inv over curr	
F05	over load	If the load power is too high or the device is downgraded, please reduce the power consumption. Or seek our help if you are unable to return to a normal state.
F07	inv bus over volt	The inverter is faulty. Turn off the PV, grid, a nd battery, and wait 5 minutes before turnin g on the inverter. Check whether the proble m is resolved.Or seek help from us, if not go back to normal state.
F08	inv bus under volt	
F09	bus unbalance	
F10	leakage self-test fail	
F11	leakage over limit	
F12	relay self-test fail	The inverter is faulty. Turn off the PV, grid, and battery, and wait 5 minutes before turning on the inverter. Check whether the problem is resolved.Or seek help from us, if not go back to normal state.
F13	inv locked	
F14	busbar buffer fail	
F15	inv over temp	
F17	parallel total count err	Check whether the parallel communication cable is properly connected.Or seek help from us, if not go back to normal state.
F18	parallel comm fail	
F19	parallel SW mismatch	
F20	parallel HW mismatch	
F21	parallel model mismatch	
F22	parallel para sync	
F23	master conflict	
F24	slave id conflict	

F25	parallel signal err	
F26	master no salve	
F33	inv flash fault	The internal communication and storage are abnormal. Turn off the PV, grid, and battery, and wait 5 minutes before turning on the inverter. Check whether the problem is resolved.Or seek help from us, if not go back to normal state.
F34	inv-dc comm fault	
F35	inv phase-locked	
F36	inner para match fail	
F37	self-test fail(Italy)	
F38	inv master fault	
F39	inv parallel comm fail	
F40	inv parallel signal err	
F41	inv curr DC component high	
F42	inv parallel overload	
F43	inv load curr unbalance	
F44	inv parallel system fault	
F49	dc bus over volt	The inverter is faulty. Turn off the PV, grid, and battery, and wait 5 minutes before turning on the inverter. Check whether the problem is resolved.Or seek help from us, if not go back to normal state.
F50	dc bus under volt	
F51	midbus over volt	
F52	midbus under volt	
F53	dc bat disch OC	
F54	dc bat ch OC	
F55	LLC HW over curr	
F56	dc bat over volt	
F57	dc bat under volt	
F60	bat reverse connect	Check whether the positive and negative terminals of the battery power line are connected in reverse mode.
F63	dc over temp	Ensure that the inverter is installed in a place without direct sunlight. Make sure the inverter is installed in a cool/well-ventilated area. Ensure that the inverter is installed vertically and the ambient temperature is lower than the upper limit of the inverter temperature.
F65	meter comm lost	Check whether the meter communication line is normal.
F66	arm-inv comm lost	The internal communication and storage are abnormal. Turn off the PV, grid, and battery, and wait 5 minutes before turning on the inverter. Check whether the problem is resolved.Or seek help from us, if not go back to normal state.
F67	arm-dcdc comm lost	
F68	wifi comm lost	Please check wifi LED light status.Or seek help from us, if not go back to normal state.
F69	bms1-can comm lost	Make sure the battery you use is compatible with the inverter. Check whether the communication cables or ports between the

		battery and the inverter are properly connected
F70	dsp para match err	The internal communication and storage are abnormal. Turn off the PV, grid, and battery, and wait 5 minutes before turning on the inverter. Check whether the problem is resolved.Or seek help from us, if not go back to normal state.
F71	EPO	Seek help from us, if not go back to normal state.
F72	ambient temp high	Ensure that the inverter is installed in a place without direct sunlight. Make sure the inverter is installed in a cool/well-ventilated area. Ensure that the inverter is installed vertically and the ambient temperature is lower than the upper limit of the inverter temperature.
F73	bms1-485 comm lost	Make sure the battery you use is compatible with the inverter. Check whether the communication cables or ports between the battery and the inverter are properly connected
F74	arm flash error	The internal communication and storage are abnormal. Turn off the PV, grid, and battery, and wait 5 minutes before turning on the inverter. Check whether the problem is resolved.Or seek help from us, if not go back to normal state.
F75	NTC disconnect	
F76	dsp para set fail	
F81	dc-inv comm lost	
F82	dc flash fault	
F83	dc fault locked	
F84	12V aux fault	Seek help from us, if not go back to normal state.
F87	PV1 over volt	The inverter is faulty. Turn off the PV, grid, and battery, and wait 5 minutes before turning on the inverter. Check whether the problem is resolved.Or seek help from us, if not go back to normal state.
F88	PV2 over volt	
F89	PV1 over curr	
F90	PV2 over curr	
F91	PV1 reverse connect	Check whether the PV cables are correctly connected.
F92	PV2 reverse connect	
F96	ISO fault	Seek help from us, if not go back to normal state.
Warning code	**Description**	**Solutions**
W01	over load	If the load power is too high or the device is downgraded, please reduce the power consumption. Or seek our help if you are unable to return to a normal state.

W02	inv over temp	Ensure that the inverter is installed in a place without direct sunlight. Make sure the inverter is installed in a cool/well-ventilated area. Ensure that the inverter is installed vertically and the ambient temperature is lower than the upper limit of the inverter temperature.
W03	grid over freq	If the power grid is abnormal, the inverter automatically returns to the normal working state after the power grid recovers. Or seek help from us, if not go back to normal state. *GARDA(Power grid amplitude quick check alarm)
W04	grid under freq	
W05	grid over volt	
W06	grid under volt	
W07	grid lost phase	
W08	grid long time OV	
W09	grid phase error	
W10	GARDA	
W11	grid DC component rapid detection	
W12	grid phase rapid inspection	
W13	dc bat over volt	If the internal fault of the lithium battery occurs, Turn off the PV, grid, and battery, and wait 5 minutes to turn on the inverter and lithium battery. Check whether the problem is resolved. Or seek help from us, if not go back to normal state.
W14	dc bat under volt	
W15	bat none-connected	The inverter does not detect the battery voltage. Ensure that the battery switch system is started and cables are properly connected.
W16	dc over temp	Ensure that the inverter is installed in a place without direct sunlight. Make sure the inverter is installed in a cool/well-ventilated area. Ensure that the inverter is installed vertically and the ambient temperature is lower than the upper limit of the inverter temperature.
W17	soc1 low	Check Battery communication status.Or seek help from us, if not go back to normal state.
W18	bat ch&disch limit	
W21	PV1 under volt	Turn off the PV, grid, and battery, and wait 5 minutes before turning on the inverter. Check whether the problem is resolved.Or seek help from us, if not go back to normal state.
W22	PV2 under volt	
W28	gen volt abnormal	Measure the generator output voltage using a multimeter. Ensure the generator is operating within its

		rated voltage (typically 220/230V or 380/400V depending on the system). Check for loose or faulty wiring between the generator and inverter input.
W29	gen freq abnormal	Check the generator frequency output with a frequency meter. Make sure the generator engine speed is sta ble (RPM too high or low will affect frequenc y). Adjust the engine governor if needed. Avoid overloading the generator, which may cause frequency fluctuations.
W30	gen phase abnormal	Verify the phase sequence (e.g., R-S-T) using a phase rotation tester. Ensure all generator output phases are prop erly connected and no wires are loose or da maged. Check for any single-phase load imbalance or internal generator phase loss. For three-phase systems, confirm that gener ator and inverter phase sequences match.
W31	slave comm fail	Check parallel settings.Or seek help from us, if not go back to normal state.

NOTICE

If your inverters information panel is not displaying a Fault light, check the following list to make sure that the present state of the installation allows proper operation of the unit.

Is the inverter located in a clean, dry, and adequately ventilated place?

Have the DC input breakers been opened?

Are the cables adequately sized and short enough?

Are the input and output connections and wiring in good condition?

Are the configurations settings correct for your particular installation?

Are the display panel and the communications cable properly connected and undamaged?

Contact Customer Service for further assistance. Please be prepared to describe details of your system installation and provide the model and serial number of the unit.

9.Maintenance

9.1 Power ON the Inverter for first time

DANGER

Important: Please follow these steps to turn on the inverter.
Step 1:Press the Power on/off button to turn on the device, and keep the button pressed.
Step 2: make the PV SWITCH to the ON position.
Step 3: Turn on the battery. Turn on the DC switch between battery and inverter.
Step 4: Turn on the AC circuit breaker between the inverter port and the power grid.
Step 5: Open the AC circuit breaker between the inverter load port and the emergency load.
Step 6: Manually send the startup command through the APP (for safety, it can be set to automatic startup after the initial power-on).
Step 7: The inverter should start running now.

9.2 Power Off the Inverter

DANGER

- Power off the inverter before operations and maintenance. Otherwise, the inverter may shocks or occur.
- Delayed discharge. Wait until the components are discharged after power off.

Step 1: Turn off the AC breaker on the ON-GRID side of the inverter.
Step 2: Turn off the AC breaker on the BACK-UP side of the inverter.
Step 3: Turn off the battery breaker between the inverter and the battery.
Step 4: Turn off the PV switch of the inverter.

9.3 Removing the Inverter

WARNING

- Make sure that the inverter is powered off.
- Wear proper PPE before any operations.

Step 1: Disconnect all the cables, including DC cables, AC cables, communication cables, the communication module, and PE cables.
Step 2: Remove the inverter from the mounting plate.
Step 3: Remove the mounting plate.
Step 4: Store the inverter properly. If the inverter needs to be used later, ensure that the storage conditions meet the requirements.

9.4 Disposing of the Inverter

If the inverter cannot work anymore, dispose of it according to the local disposal requirements,
The inverter cannot be disposed of together with household waste.

WARNING

- Make sure that the inverter is powered off.
- Wear proper PPE before any operations.

9.5 Routine Maintenance

Maintaining Item	Maintaining Method	Maintaining Period
System Clean	Check the heat sink, air intake, and air outlet for foreign matter or dust.	Once 6-12 months
PV Switch	Turn the DC switch on and off ten consecutive times to make sure that it is working properly.	Once a year
Electrical Connection	Check whether the cables are securely connected. Check whether the cables are broken or whether there is any exposed copper core.	Once 6-12 months
Sealing	Check whether all the terminals and ports are properly sealed. Reseal the cable hole if it is not sealed or too big.	Once a year