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Make life full of hope

USER MANUAL

Off-Grid Solar Inverter

IVPM8048P2G2-PRO
IVPM10048P2G2-PRO
IVPM12048P2G2-PRO

Contents

Revision History

Revision No.	Revision Date	Revision Reason
1.0	2026.6	First Published

About This Manual

This manual mainly describes the product information, installation, operation and maintenance guidelines for the IVPM P2G2-PRO series inverters, and does not cover all aspects of photovoltaic (PV) systems.

How to Use This Manual

Read this manual and all related documents carefully before operating the inverter. Keep all documents in a safe place for future reference at any time.Due to continuous product development, the contents of this manual are subject to periodic updates or revisions. The information contained herein is subject to change without notice. The latest version of the manual is available at the following URL: **https://www.felicitysolar.com/**

1. Safety Introductions

Symbols	Name	Instruction
	Danger	Serious injury or death may occur if the relevant safety requirements are not followed.
	Warning	Physical injury or equipment damage may occur if the relevant requirements are not followed.
	Electrostatic sensitive	Damage may occur if the relevant anti-static requirements are not followed.
	Hot surface	Sides of the device may become hot. Do not touch.
	Earth terminal	The inverter must be reliably grounded.
	Caution	Ensure that both DC and AC circuit breakers are disconnected, and wait at least 5 minutes before wiring or inspection.
NOTE	Note	The procedures taken for ensuring proper operation.
	CE mark	The inverter complies with the CE directive.
	EU WEEE mark	Product should not be disposed as household waste.

1.1 Core Safety Operation Requirements

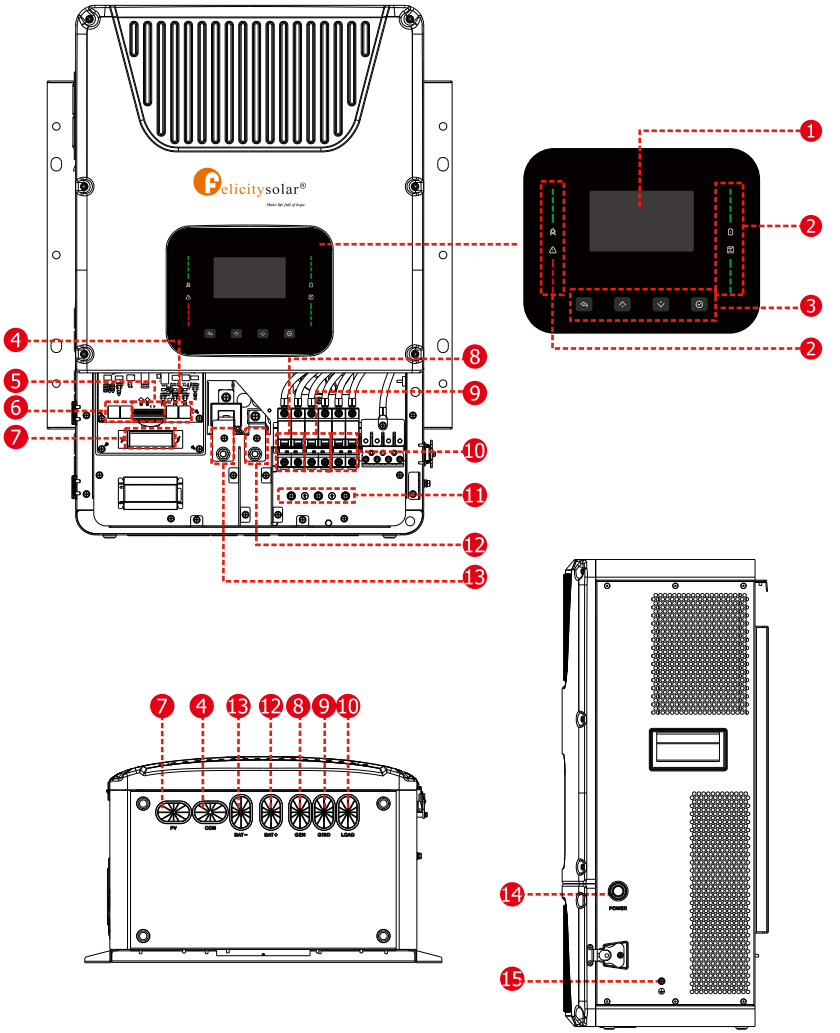
- This chapter contains important safety and operating instructions. Read and keep this manual for future reference.
- Before using the inverter, read the battery manual, warning labels and the relevant sections of this manual.
- Do not disassemble the inverter. For maintenance or repair, contact a qualified service center. Improper reassembly may result in electric shock or fire hazard.
- To reduce the risk of electric shock, disconnect all wiring before performing any maintenance or cleaning. Turning off the equipment alone will not eliminate this risk. NOTE: Only qualified professional personnel are permitted to install the equipment with the battery connected.
- Do not charge frozen batteries.
- To ensure optimal performance of the equipment, select the appropriate cable size in accordance with the specified ratings. Correct installation is critical to the reliable operation of the equipment.
- Exercise caution when using metal tools near the battery. Dropped tools can generate sparks, cause short circuits or even explosion.
- When disconnecting AC or DC terminals, strictly follow the installation steps. For detailed information, refer to the "Installation" chapter of this manual.
- Grounding Instruction: This inverter must be connected to a permanent grounded wiring system. Ensure compliance with local requirements and regulations during installation.
- Do not short-circuit the AC output or DC input. If the DC input is short-circuited, do not connect the inverter to the mains power.

2. Product Introductions

This multi-functional inverter integrates an inverter, solar charger and battery charger in a compact design to provide uninterrupted power supply (UPS). The LCD screen allows users to configure and operate key functions conveniently, including battery charging, AC/solar charging, and input voltage settings for different applications.

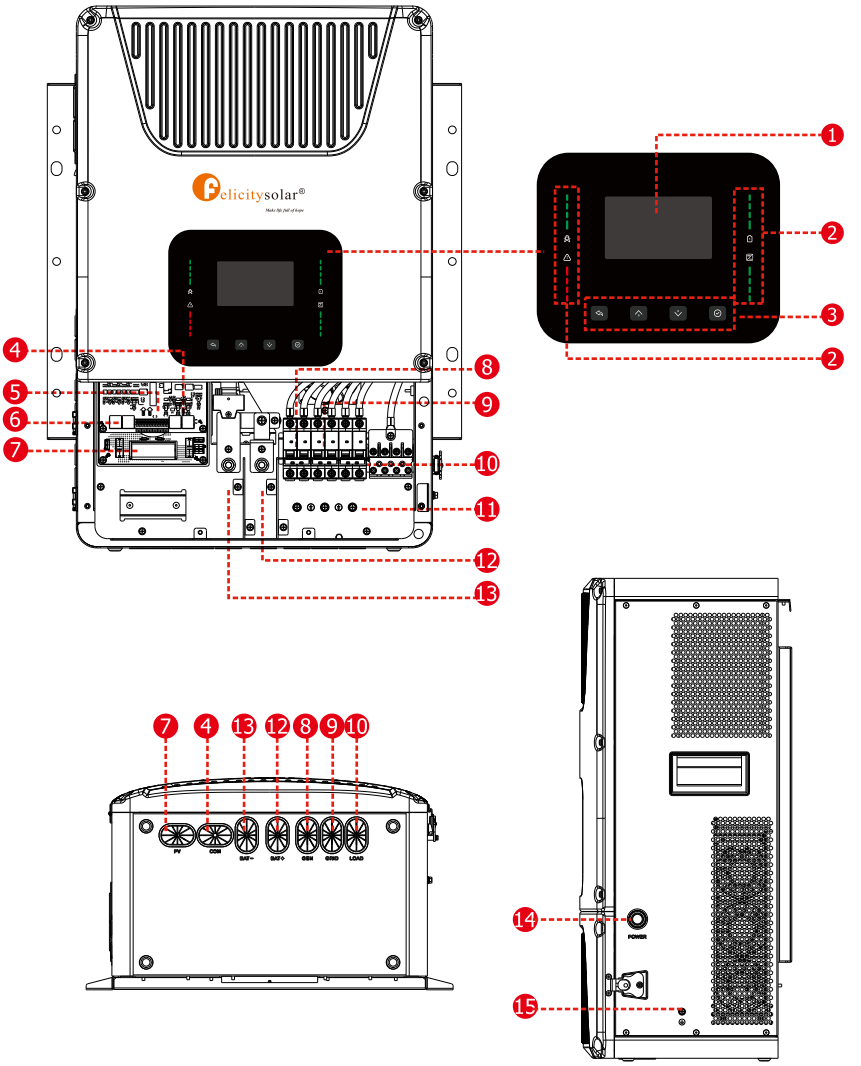
2.1 Product Overview

IVPM8048P2G2-PRO:



1.LCD display	6.Parallel port	11.Ground of LOAD, GRID and GEN
2.Inverter indicators	7.PV input connection port	12.BAT+
3.Function buttons	8.Gen port	13.BAT-
4.Communication port	9.Grid port	14.Power ON/OFF button
5. Funtion port	10.Load port	15. PE

IVPM10048P2G2-PRO/IVPM12048P2G2-PRO：



1.LCD display	6.Parallel port	11.Ground of LOAD, GRID and GEN
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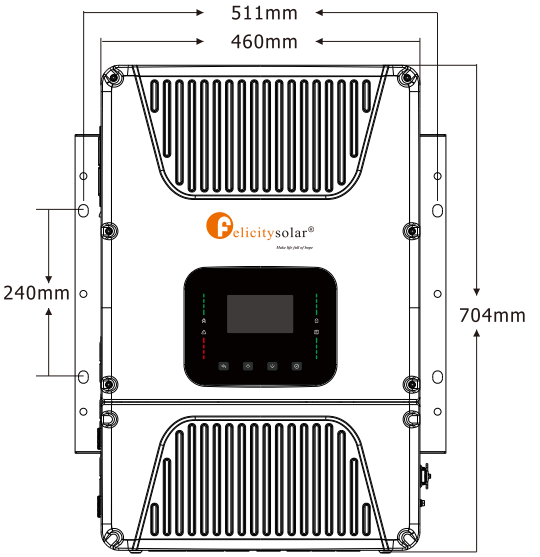
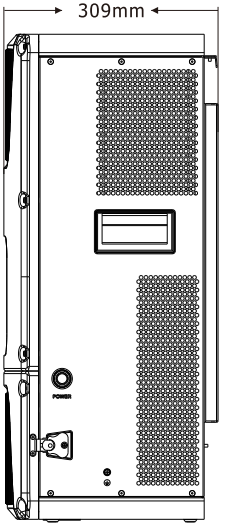
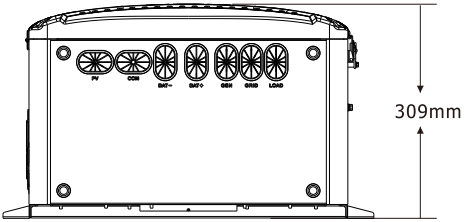
3.Function buttons	8.Gen port	13.BAT-
4.Communication port	9.Grid port	14.Power ON/OFF button
5. Funtion port	10.Load port	15. PE

2.2 Product Dimensions





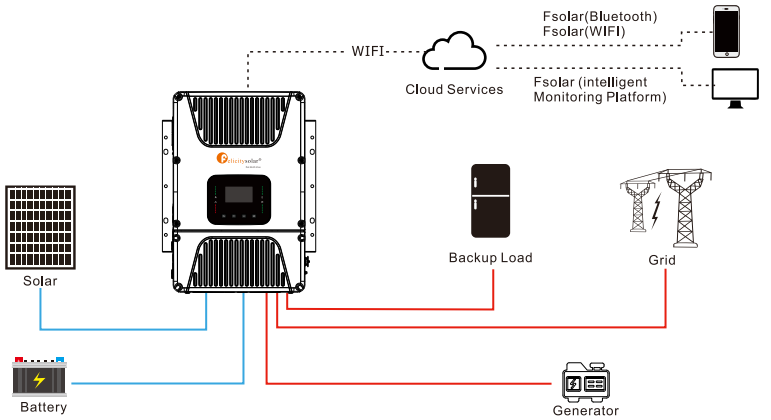


2.3 Product Features

- Pure sine wave output with industrial frequency isolation, compatible with all types of loads;
- Compatible with multiple battery types (lead-acid, gel, lithium-ion), with adjustable charging voltage and current;
- New 4.3-inch touchscreen design with multi-language display, comprehensive fault protection and fault alarm query functions, easy operation, real-time viewing of set parameters and operating status;
- Optional Backup Mode, Smart Mode and Economy Mode, supports grid, battery and solar hybrid power supply, as well as grid-solar hybrid charging;
- Built-in isolated MPPT solar controller, with a maximum charging current of 240A for safer and more reliable charging;
- Supports simultaneous connection of grid and generator, with intelligent control of generator start/stop and switching;
- Standard built-in WIFI/Bluetooth, supporting mobile APP and web-based monitoring;
- 5-year warranty, independent air duct design, high-protection control compartment, longer component lifespan and higher environmental adaptability;
- Optional AFCI support, equipped with RSD interface;

2.4 Basic System Architecture

- The figure below shows the basic application wiring diagram of this inverter.
- A complete operating system also requires the following equipment:
- Generator or utility grid (mains power)
- PV modules
- For other compatible system architectures, please consult a system integrator according to actual requirements.
- This inverter can power various electrical devices in residential and office environments, including motor-type loads such as refrigerators and air conditioners.

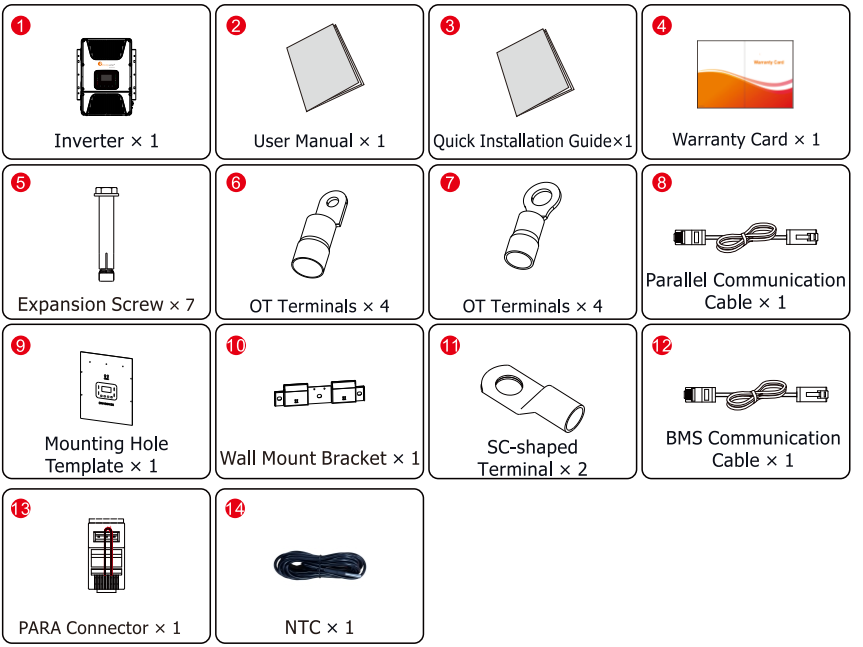


NOTE: When the generator port is used as the "Generator Input", the relays of the inverter's grid port and generator port will not close simultaneously, and utility power will be prioritized. When the inverter operates in off-grid mode, the generator port relay will close, and the generator will be used.

3. Installation

3.1 Parts List

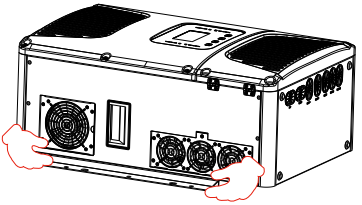
Check the equipment before installation. Please make sure nothing is damaged in the package.
You should have received the items in the following package:



NO.	Name	Description	Quantity
1	Inverter	Inverter	1
2	User Manual	User manual	1
3	Quick Installation Guide	Quick Installation Guide	1
4	Warranty Card	Warranty card	1
5	Expansion Screw	Used for securing the product's wall mount	7
6	OT Terminals	Used for external grounding	4
7	OT Terminals	Used for PV connection	4
8	Parallel Communication Cable	Used for multiple parallel machine communication	1
9	Mounting Hole Template	Use to assist the position of wall hangers	1
10	Wall Mount Bracket	Used to fix the inverter to the wall	1
11	SC-shaped terminal	For battery connection	2
12	BMS Communication Cable	For BMS communication with the battery pack	1
13	PARA Connector	Used for multiple parallel machine communication	1
14	NTC	Battery temperature sensor	1

3.2 Product handling requirements

Lift the inverter out of the packing box and transport it to the designated installation location.



CAUTION:

- Remove the inverter from its packaging and transport it to the designated installation location.
- CAUTION: Improper handling may cause personal injury! Arrange sufficient personnel to carry the inverter based on its weight. Installers must wear protective equipment such as impact-resistant shoes and gloves.
- Do not place the inverter directly on hard surfaces to avoid damaging the metal casing. Place protective materials such as foam pads or sponge mats underneath.
- Carry the inverter with 2–4 people or use suitable transport equipment. Use the built-in handles to lift the inverter; never hold the terminals when moving.

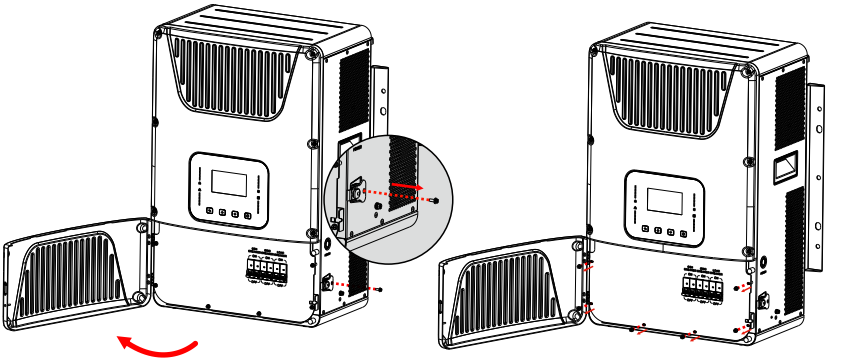
3.3 Mounting instructions

Installation Precaution

This inverter is designed for indoor use. Please ensure the installation site meets the following conditions:

- Avoid direct sunlight.
- Keep away from areas where highly flammable materials are stored.
- Stay clear of potential explosive areas.
- Avoid direct exposure to cold air.
- Do not install near TV antennas or antenna cables.
- Installation altitude must not exceed approximately 2,000 meters.
- Avoid environments with precipitation or humidity exceeding 95%.

During installation and operation, avoid direct sunlight, rain or snow.Before wiring, loosen the screws as shown in the diagram, rotate the buckle handle to open the wiring cover, remove the 6 screws and take out the cover. After all wiring is confirmed correct, reinstall the cover plate and secure it with screws with a torque of 0.8 N·m.



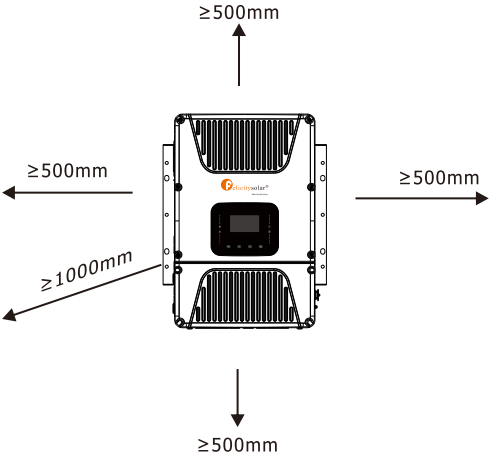
Installations Tools

Refer to the following recommended installation tools. Other auxiliary tools may also be used as needed.

Safety Gloves	Earplugs	Safety Goggles	Anti-dust respirator	Safety shoes
Marking pen	socket wrenches set	Screwdriver	Hammer	anti-static wrist strap
Cleaner	Utlity Knife	linesman pliers	Wire cutter	Wire stripper
Crimping tool 4-6mm²	Hydraulic pliers	Level	Measuring tape	Percussion drill

Considering the following points before selecting where to install:

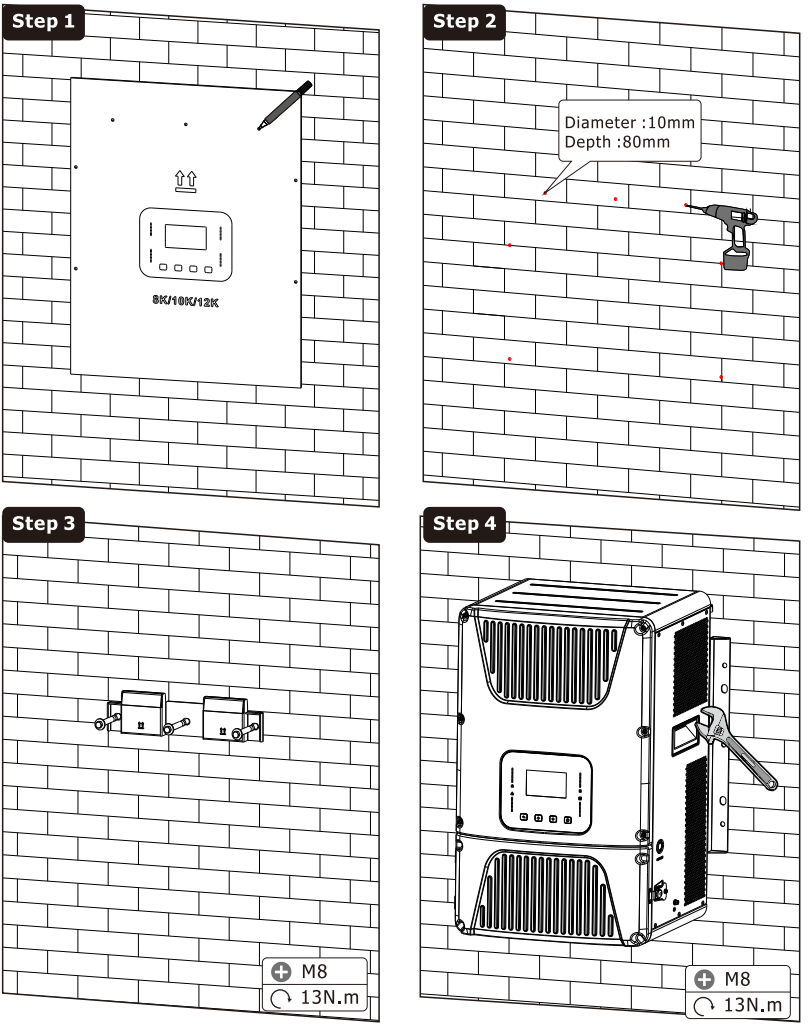
- Select a vertical wall with sufficient load-bearing capacity, preferably concrete or other non-combustible material walls;
- Install the inverter at eye level for easy viewing of the LCD display at any time;
- The recommended ambient temperature range is -10°C to 55°C to ensure optimal operating performance of the equipment;
- Maintain sufficient clearance from other objects and surfaces (≥500mm on the sides, ≥500mm above and below, ≥1000mm at the front) to ensure good heat dissipation and reserve enough space for on-site wiring and disassembly.



Mounting the inverter

Please note that this inverter is heavy. Exercise caution when removing it from the packaging.

- Place the positioning cardboard at the pre-planned wall-mounted installation location, and mark the required drilling positions with a marker pen.
- Use a 10mm drill bit to drill 7 holes at the marked positions, with each hole having a depth of 80mm.
- Tap the expansion bolts into the holes with a suitable hammer, then remove the bolt rods.Install the wall-mounted bracket to the marked hole positions and secure it firmly.
- Lift and move the inverter onto the wall-mounted bracket, align its holes with the expansion bolts, and tighten the bolt rods to complete the installation.



3.4 Battery connection

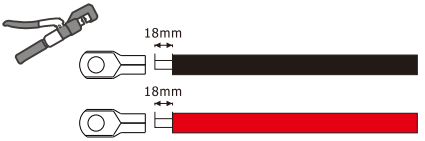
To ensure safe operation and compliance, an independent DC overcurrent protection device or disconnect switch must be installed between the battery and the inverter. For some applications, the switch device may be omitted, but the overcurrent protection device is still required. Refer to the typical current values in the table below for the required fuse or circuit breaker specifications.

Model	Wire Size	Cable(mm²)	Torque value(max)
IVPM8048P2G2-PRO IVPM10048P2G2-PRO IVPM12048P2G2-PRO	2/0AWG	70	8N.m

All wiring must be performed by a professional person.
Connecting the battery with a suitable cable is important for safe and efficient operation of the system.

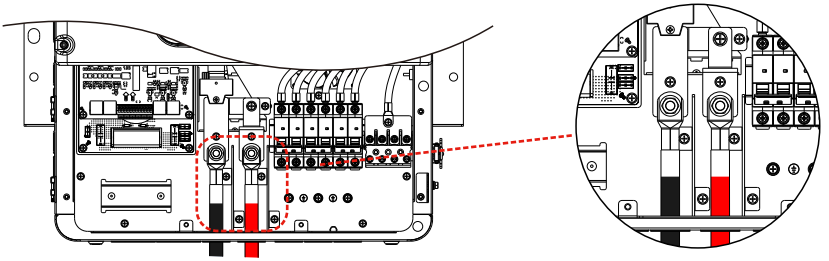
Please follow below steps to implement battery connection:

1.Select the recommended wire size and strip approximately 18 mm of insulation from the wire using a wire stripper. Connect the prepared wire to the SC terminal (see the accessory list for details) and crimp the components securely with a crimping tool. Ensure the wire strands are not worn or broken, as worn strands may expose fine copper wires. Take care to prevent the strands from fraying; otherwise, exposed fine copper wires may cause a short circuit.



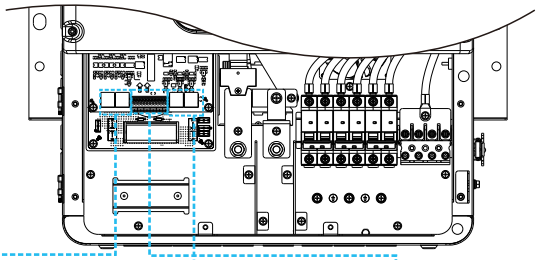
2.Insert the wires according to the markings on the terminals and tighten the nuts to the recommended torque.

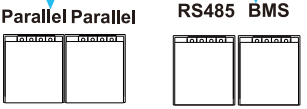
3.Ensure correct polarity connection between the battery and the inverter (positive to positive, negative to negative). Reversing the battery polarity will damage the inverter.



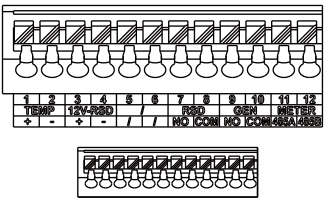
- Installation must be performed with care.
- Before making the final DC connection or closing the DC breaker/disconnector, ensure the positive (+) terminal is connected to positive (+) and the negative (-) terminal is connected to negative (-). Reversed battery polarity will damage the inverter.

3.4.1 Function port definition





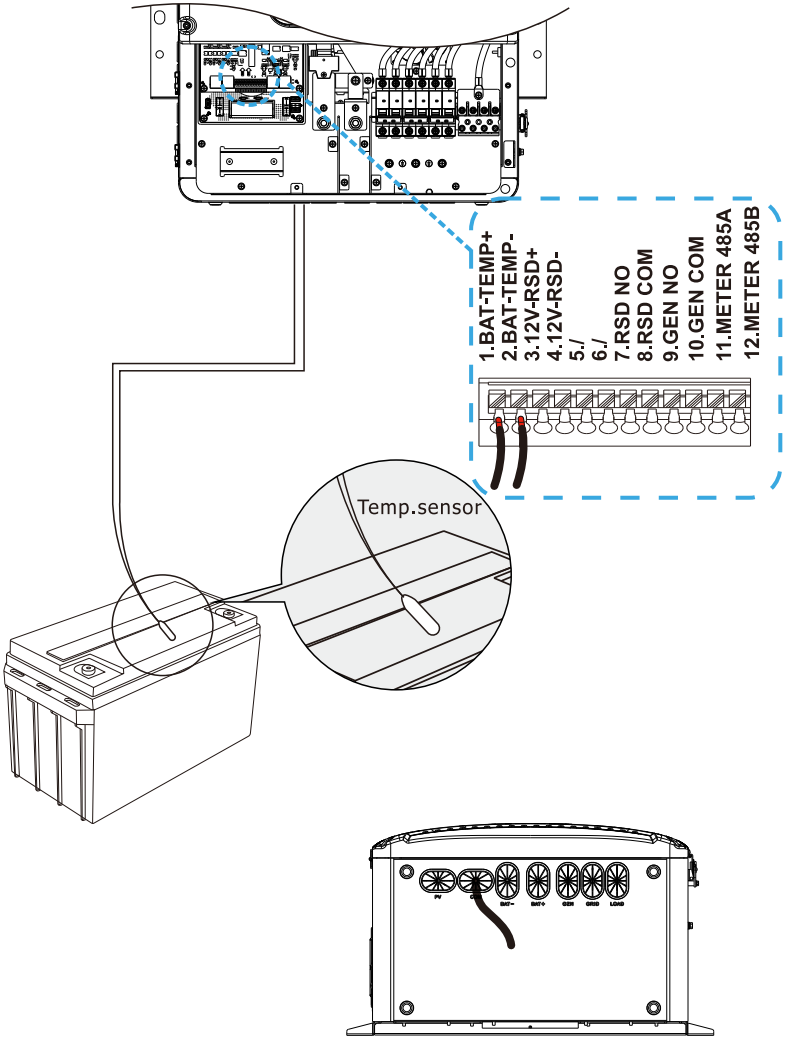
- Parallel Port 1: Parallel Communication Interface 1.
- Parallel Port 2: Parallel Communication Interface 2.
- BMS: Used for battery communication.
- RS485: Host Computer Interface.



- **TEMP (Pins 1 & 2):** External NTC(Negative
- Temperature Coefficient thermistor), a battery temperature sensor for lead-acid batteries.
- **12V-RSD (Pins 3 & 4):** Provide a 12V power supply for the Rapid shutdown device.
- **RSD (Pins 7 & 8):** Rapid shutdown device forconnecting the DC side string of thephotovoltaic system
- **GEN (Pins 9 & 10):** Under the condition of the device being powered on and AC input being present, Pins 9 and 10 are normally open by default. When the AC input is disconnected,Pins 9 and 10 are closed. This can be used for the automatic generator start function.
- **METER (Pins 11 & 12):** For energy meter communication

3.4.2 Temperature sensor connection for lead-acid battery

Connect the temperature sensor to the BAT-TEMP port of the device and complete the wiring according to the marked pins.



3.5 Grid ,Gen and Backup Load connection

- Before connecting to the grid, separate AC circuit breakers must be installed between the inverter and the grid, and between the backup load and the inverter, respectively. This ensures the inverter can be safely disconnected during maintenance and provides comprehensive overcurrent protection. For the 12kVA, 10kVA, and 8kVA models, the recommended AC circuit breaker for backup loads is 63A.
- The unit is equipped with three terminal blocks, labeled "GRID", "LOAD", and "GEN" respectively. Do not reverse the input and output terminals.

Note:

- In final installation,breaker certified according to IEC 60947-1 and IEC 60947-2 shall be installed with the equipment.
- All wiring must be performed by a qualified personnel.It is very important for system safety and efficient operation to use appropriate cable for AC input connection. To reduce risk of injury, please use the proper recommended cable as below.

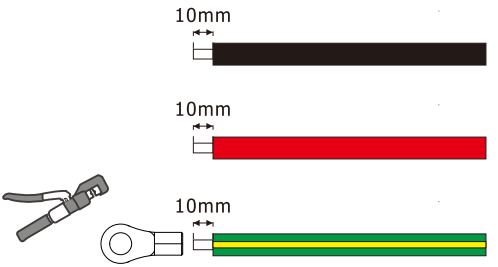
Grid, Gen, Ground and Backup Load Connections (Copper wires)

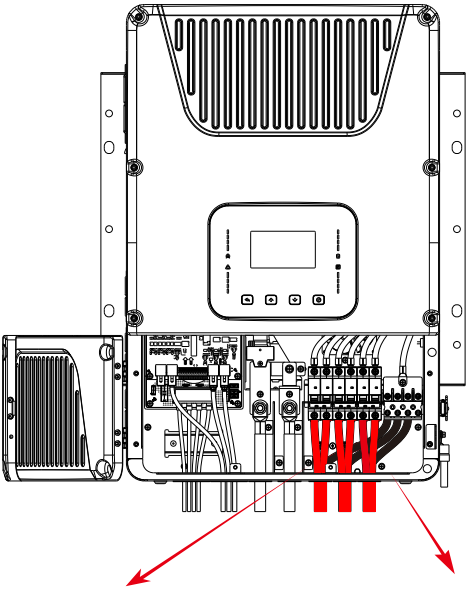
Model	Wire Size	Cable(mm²)	Torque value(max)
IVPM8048P2G2-PRO IVPM10048P2G2-PRO IVPM12048P2G2-PRO	5AWG	16	2N.m(L1,L2,PE) 1.5N.m(N)

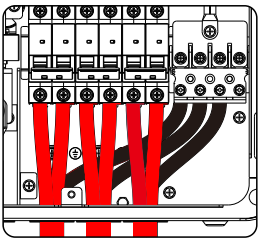
Please follow below steps to implement AC input/output connection:

1.Before connecting to the GRID, LOAD, and GEN ports, always ensure that the AC circuit breaker or disconnect switch is in the OFF position.

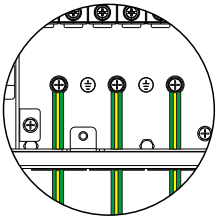
2.Use wires of the recommended specifications. Strip approximately 10 mm of insulation from the wire ends with a wire stripper. Connect the prepared wires to the air switch terminals of the unit, and take care to prevent the wire strands from fraying, as exposed fine strands may cause a short circuit.







Ground of LOAD, GRID and GEN



Prioritize connecting the ground wire. Ensure the AC power source is disconnected before wiring the unit.

3.Insert the wires in accordance with the markings on the terminal blocks, and tighten the screws to the recommended torque. Ensure that the live wires (L1/L2), neutral wire (N), and protective earth wire (PE) are connected to their corresponding terminals respectively.

4.For restarting equipment such as air conditioners, wait at least 2–3 minutes to allow the refrigerant in their internal circuits to fully equalize. If power is restored immediately after a brief power outage, the connected equipment may be damaged. To prevent such damage, confirm before installation whether the air conditioner manufacturer has equipped the unit with a time-delay function. Otherwise, this inverter will trigger an overload fault and cut off the output to protect the equipment, but internal damage to the air conditioner may still occur in some cases.

3.5.1 Operation of Smart Load

The generator port is a multi-functional terminal, which supports only one of the following two functions at a time: Generator Input or Smart Load Output.

If the generator port is to be used as a smart load output, connect this port to the load. Configure the generator port parameters in accordance with 6. Generator Port Setting described in Section 5.5 Menu Settings of this manual. After setup, this port can supply loads normally just like the backup load terminal.

3.6 PV Connection

Before connecting the PV modules, a separate DC circuit breaker must be installed between the inverter and the PV modules. Proper cable sizing for PV module connections is critical to the safe and efficient operation of the system. To reduce the risk of injury, use cables of the specifications recommended in the table below.

PV Connection Cable Parameters (Copper Cable)

Model	Wire Size	Cable(mm²)	Torque Value(max)
IVPM8048P2G2-PRO IVPM10048P2G2-PRO IVPM12048P2G2-PRO	10AWG	6	1.5N.m

- To prevent malfunction, do not connect PV modules with potential current leakage to the inverter. For example, grounded PV modules will cause current leakage to the inverter.
- When using PV modules, please ensure the PV+ & PV-of solar panel is not connected to the system ground bar.
- A PV junction box with surge protection must be used; otherwise, lightning strikes on PV modules may damage the inverter.

3.6.1 PV Module Selection:

When selecting proper PV modules, please be sure to consider below parameters:

1) Open circuit Voltage (Voc) of PV modules not exceeds max. PV array open circuit voltage of inverter.

2) Open circuit Voltage (Voc) of PV modules should be higher than min. start voltage.

3) The PV modules used to connected to this inverter shall be Class A rating certified according to IEC 61730.

Inverter Model	IVPM8048P2G2-PRO	IVPM10048P2G2-PRO IVPM12048P2G2-PRO
PV Input Voltage	450V(100V~525V)	450V(100V~525V)
MPPT Voltage Range	100V~450V	100V~450V
No. of MPP Trackers	1	2
No. of Strings MPP Tracker	2	1+1

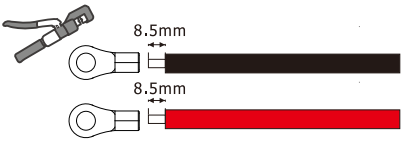
3.6.2 PV Module Wire Connection:

1. Switch the Grid Supply Main Switch(AC)OFF.
2. Switch the DC Isolator OFF.
3. Assemble PV input connector to the inverter.

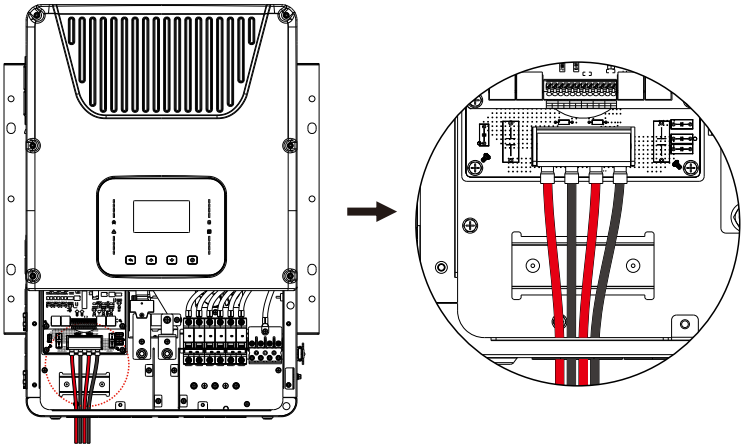
Safety Hint:

- When using PV modules, ensure that the PV+ (photovoltaic positive) and PV- (photovoltaic negative) terminals of the solar panels are not connected to the system ground bar.
- Before connection, confirm that the polarity of the PV array output voltage matches the "DC+" (DC positive) and "DC-" (DC negative) markings on the unit.
- Before connecting the inverter, ensure that the open-circuit voltage of the PV array is within the allowable range of the unit.
- Use certified DC cables to connect the PV system, and ensure that the voltage does not exceed the inverter's rated withstand voltage of 525V.

1.Use wires of the recommended specifications. Strip approximately 8.5 mm of insulation from the wire ends with a wire stripper. Connect the prepared wires to the OT terminals (see Attachment Part List ⑦ for details) and crimp the assembly securely with a crimping tool. Ensure that the wire strands are free from abrasion or breakage (abraded strands may result in exposed fine copper wires), and take care to prevent the wire strands from fraying, as exposed fine strands may cause a short circuit.



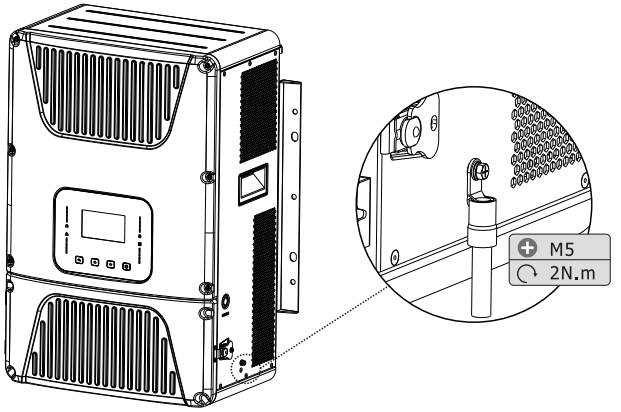
2. Insert the wires according to the markings on the terminal block and tighten the screws to the recommended torque. Make sure the polarity connection between the PV and the inverter is correct.



Warning:
Sunlight shines on the panel will generate voltage, high voltage in series may cause danger to life. Therefore, before connecting the DC input line, the solar panel needs to be blocked by the opaque material and the DC switch should be 'OFF', otherwise, the high voltage of the inverter may lead to life threatening conditions.

3.7 Earth Connection(mandatory)

Ground cable shall be connected to ground plate on grid side, this prevents electric shock if the original protective conductor fails.



Earth connection (Copper wires)

Model	Wire Size	Cable(mm²)	Torque value(max)
IVPM8048P2G2-PRO IVPM10048P2G2-PRO IVPM12048P2G2-PRO	5AWG	16	2N.m

Earth connection (Copper wires)

- **Warning:**
- Inverter has built-in leakage current detection circuit, The type A RCD can be connected to the inverter for protection according to the local laws and regulations.
- If an external leakage current protection device is connected, its operating current must be equal to 300 mA or higher, otherwise inverter may not work properly.

3.8 WIFI Connection

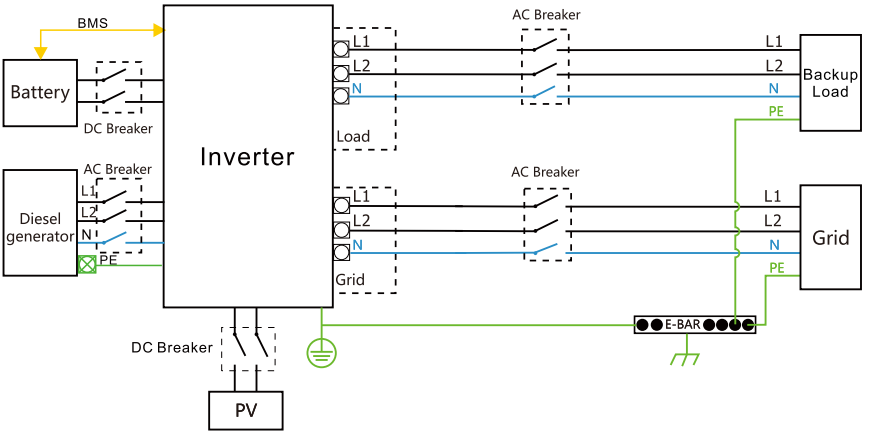
For application methods, please refer to the APP manual.

3.9 Wiring System for Inverter

This diagram is an example for grid systems without special requirements on electrical wiring connection.

Note: The load PE line and earthing bar must be grounded properly and effectively.

Otherwise the back-up function may be abnormal when the grid fails.



3.10 Typical application diagram of diesel generator

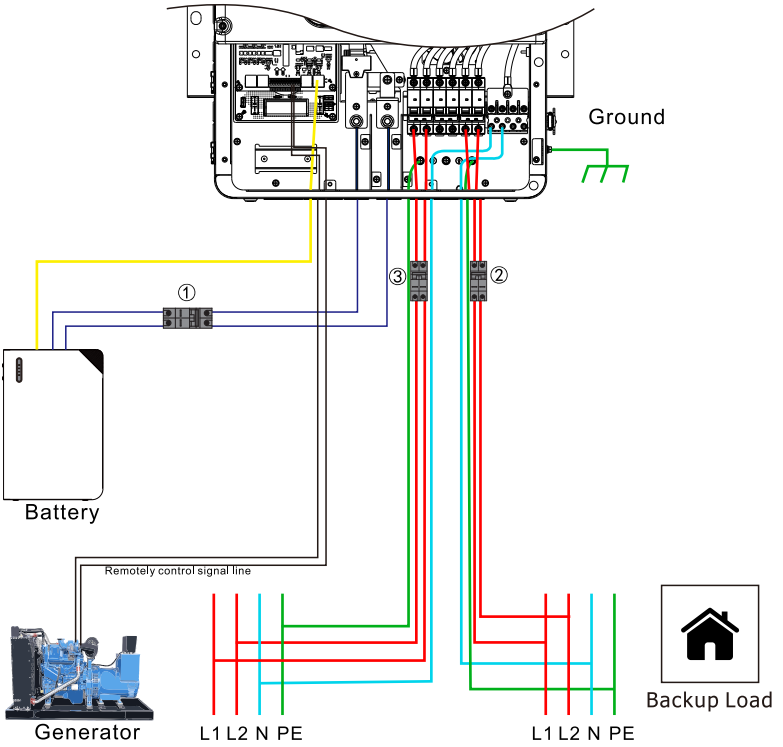
BMS Battery L wire N wire PE wire

GEN_OUT(3,4): dry contact signal for startup the diesel generator.

When the diesel generator is connected to the GEN port and "GEN Signal" is ticked, the open contact GEN_OUT will close (no voltage output) and serve as the dry contact signal for starting the diesel generator.

When the diesel generator is connected to the GRID port, and both the "Grid Signal" option and the "Generator Connect to Grid" option are ticked, the normally open contact GEN_OUT will close (with no voltage output) and serve as the dry contact signal for starting the diesel generator.

IVPM8048P2G2-PRO/IVPM10048P2G2-PRO/IVPM12048P2G2-PRO:



①DC Breaker for battery
IVPM8048P2G2-PRO: 200A DC breaker
IVPM10048P2G2-PRO: 300A DC breaker
IVPM12048P2G2-PRO: 300A DC breaker

②AC Breaker for backup load port
Built-in, No Configuration Required

③AC Breaker for generator port
Built-in, No Configuration Required

3.11 Single-Phase Parallel Wiring

The single-phase parallel function is temporarily unavailable.

3.12 Three-Phase Parallel Wiring

The three-phase parallel function is temporarily unavailable.

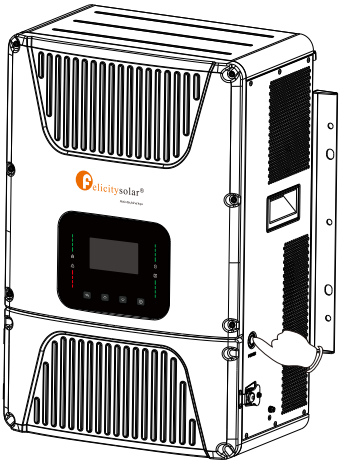
3.13 AFCI & RSD Wiring (Optional)

This function is temporarily unavailable.

4. OPERATION

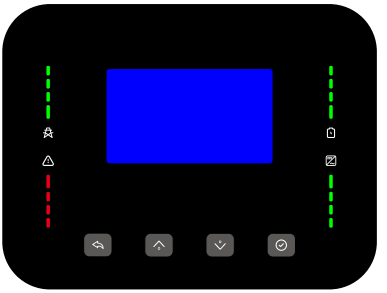
4.1 Power ON/OFF

1. After the unit is properly installed and the battery connection is completed, simply press the ON/OFF button on the side of the unit to power it on.
2. If the system is not connected to a battery but is connected to PV (photovoltaic) or the grid, and the ON/OFF button is in the ON position, the LCD will still illuminate. In this case, the system can still operate if the "No Battery" mode is selected.



4.2 Operation and Display Panel

The operation and display panel, shown in below chart, is on the front panel of the inverter. It includes three indicators, four function keys and a LCD display, indicating the operating status and input/output power information.



Function Key	Icon	Description
ESC		To exit setting mode
Up		To go to previous selection
Down		To go to next selection
Enter		To confirm the selection

LED Indicator	Icon	Color	State	Description
Battery		Green	solid	The battery is full.
			flashing	The battery is charging.
			dim	The battery is not charged.
Utillity		Green	solid	Inverter is running in utility mode.
			dim	Inverter is not running in utility mode.
Inverter		Green	solid	Inverter is running in off-grid mode.
			dim	Inverter is not running in off-grid mode.
Fault		Red	solid	Inverter works in fault event.
			flashing	Inverter alarm occurred.
			dim	Inverter works normally.
Buzzer Information				
Buzzer beep	When the buzzer is enabled, it will keep beeping if the inverter experiences a fault.To stop the buzzer from continuous beeping, press the ESC button.			

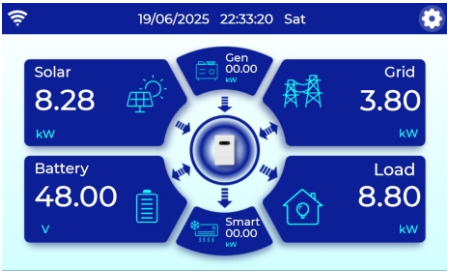
5. LCD Display Icons

5.1 Boot Screen

After power-on, the system enters the boot screen and remains there for about 20 seconds while it completes the system initialization.

5.2 Main Screen

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



Operating status	Icon	Color	Description
Normal operation		Blue	The icon in the center of the home screen indicates that the system is in normal operation.
Fault		Red	If it turns into red, it means the inverter has fault
Warning		Yellow	If it turns into yellow, it means the inverter has warning

2. At the top of the screen is the time (year-month-day,time), and communication connection status.

Ⓜ Parallel system master flag.

Ⓢ Parallel system slave flag.

WIFI communication success.

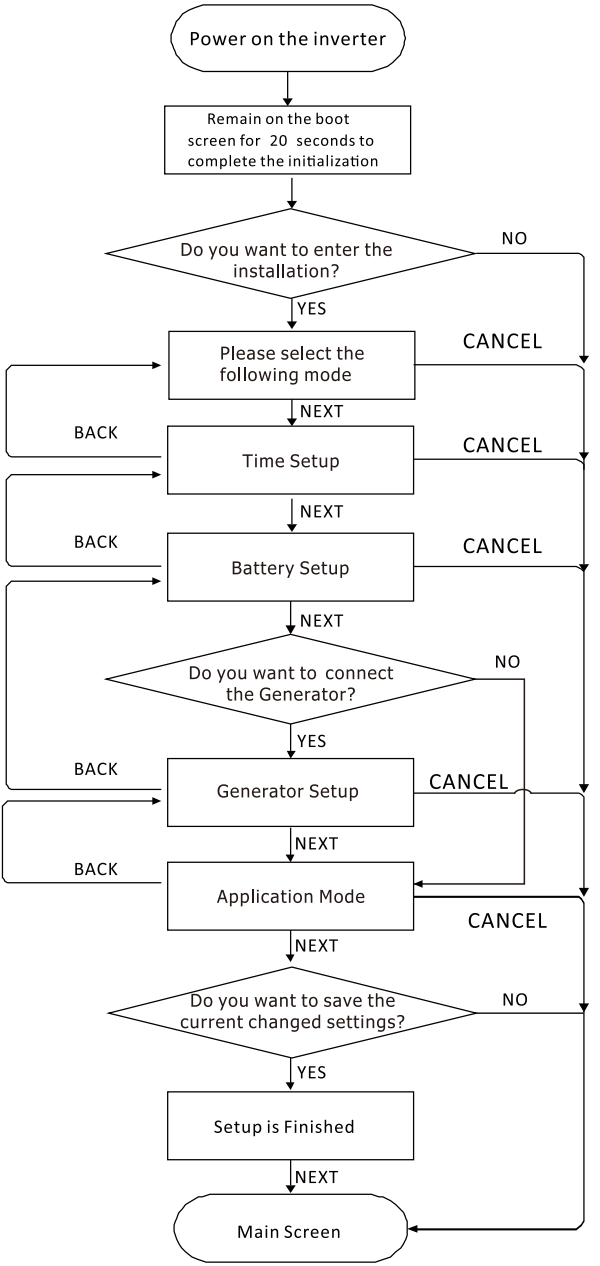
3. System setup icon, press this set button, you can enter into the system setup screen which including Basic Setup, Battery Setup, Grid Setup, Gen PORT Setup, Work Mode, Advanced Function, Parallel Setup, and History Fault.

The main screen includes the icons for PV (left up), grid (right up), battery (left bottom), load (right bottom) ,Smart Load (bottom), and GEN (up). It also displays the energy flow direction using arrows.

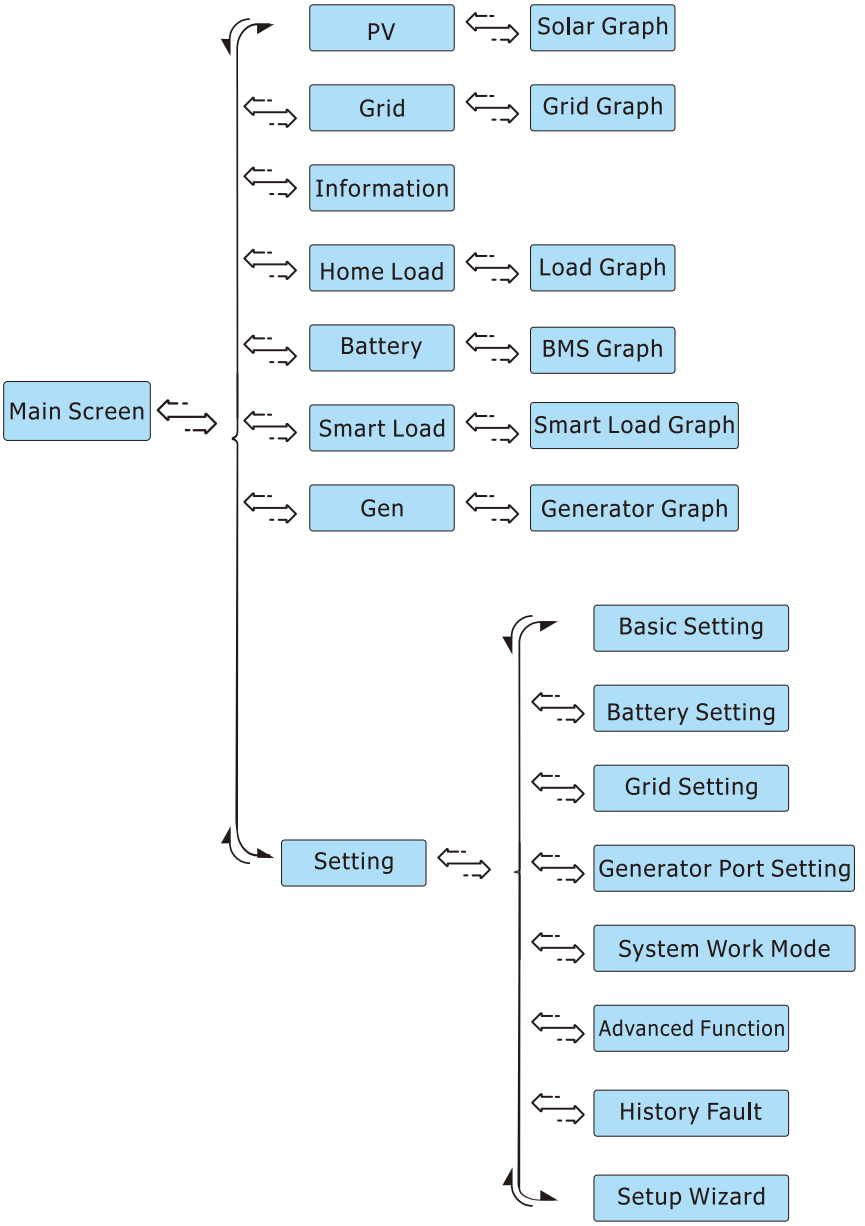
Some clarifications about the system status are as follows:

- PV power will always be positive.
- Grid power will always be positive.
- Load power will always be positive.
- Smart Load power will always be positive.
- GEN power will always be positive.

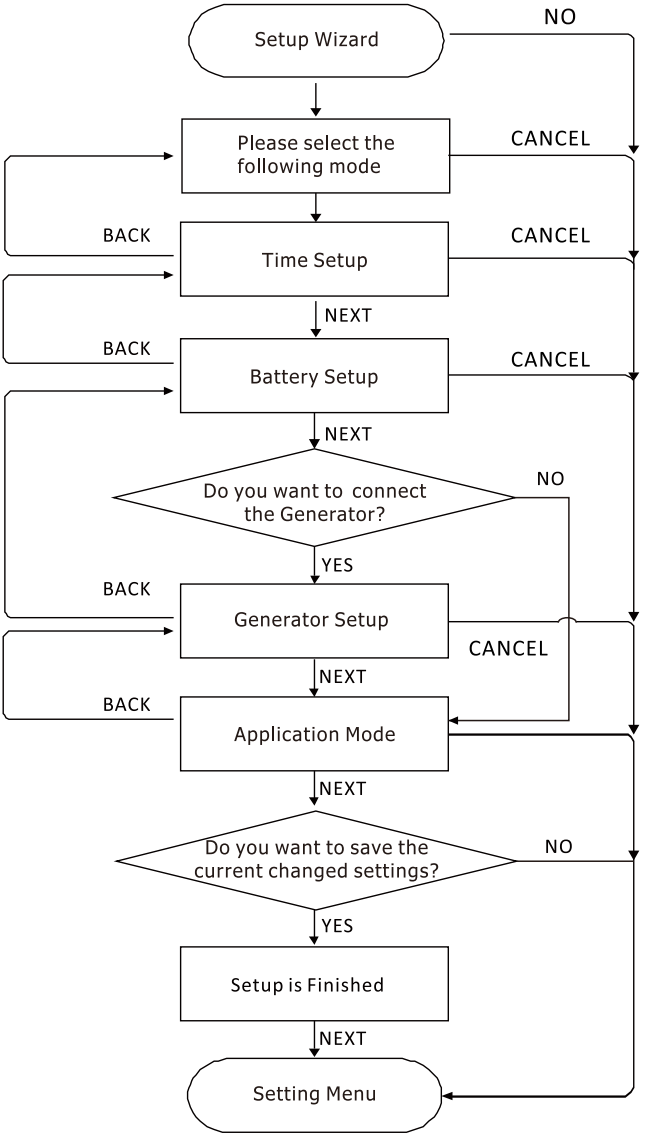
5.2.1 Power-on Instructions



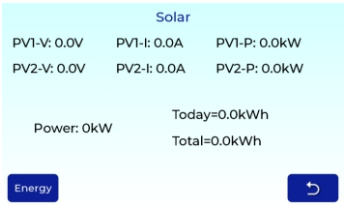
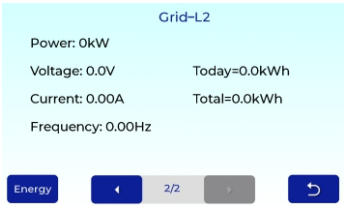
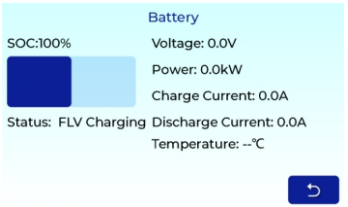
5.2.2 LCD operation flow chart



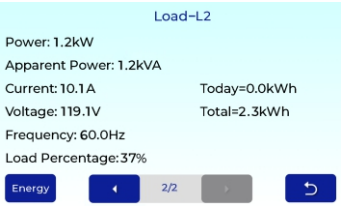
5.2.3 Setup Wizard Steps



5.3 Details Pages

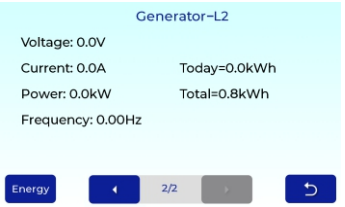
	**This is Solar Panel detail page.** **Power:** Current solar panel generation power. **Today/Total:** Today's and total generation energy. Voltage, Current,Power of each MPPT at current time. **Energy:**Press the "Energy" button to enter the power curve page.
	**L1 Grid Details Page** **Power:** Current power at the grid port. **Voltage:** AC voltage of L1 phase at the grid port. **Current:** AC current of L1 phase at the grid port. **Frequency:** AC frequency at the grid port. **Today/Total:** Daily and cumulative energy imported from the grid to the inverter. **Energy:** Press the "Energy" button to enter the power curve page.
	**L2 Grid Details Page** **Power:** Current power at the grid port. **Voltage:** AC voltage of L2 phase at the grid port. **Current:** AC current of L2 phase at the grid port. **Frequency:** AC frequency at the grid port. **Today/Total:** Daily and cumulative energy imported from the grid to the inverter. **Energy:** Press the "Energy" button to enter the power curve page.
	**Battery Details Page** **Voltage:** Current battery voltage. **Power:** Current battery charge/discharge power. **Charge Current:** Current battery charging current. **Temperature:** Battery pack temperature reported by BMS. **SOC:** State of Charge of the battery reported by BMS. **Status:** "Discharge" indicates battery is discharging; "Charge" indicates battery is charging.

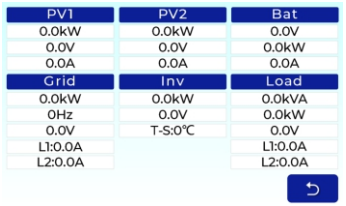
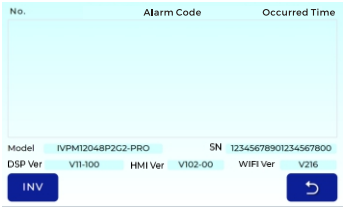
L1 Load Details Page
Power: Active power consumption of the current load.
Apparent Power: Apparent power of the current load.
Current: Load current of L1 phase at the inverter output.
Voltage: AC voltage of L1 phase at the inverter load port.
Frequency: AC frequency at the inverter load port.
Percentage: Load percentage.
Today/Total: Daily and total load energy consumption.
Energy: Press the "Energy" button to enter the power curve page.



L2 Load Details Page
Power: Active power consumption of the current load.
Apparent Power: Apparent power of the current load.
Current: Load current of L2 phase at the inverter output.
Voltage: AC voltage of L2 phase at the inverter load port.
Frequency: AC frequency at the inverter load port.
Percentage: Load percentage.
Today/Total: Daily and total load energy consumption.
Energy: Press the "Energy" button to enter the power curve page.

L1 Generator Details Page
Power: Current power of L1 phase at the generator port.
Voltage: AC voltage of L1 phase at the generator port.
Current: AC current of L1 phase at the generator port.
Frequency: AC frequency at the generator port.
Today/Total: Daily and cumulative energy imported from the generator to the inverter.
Energy: Press the "Energy" button to enter the power curve page.

	**L2 Generator Details Page** **Power:** Current power of L2 phase at the generator port. **Voltage:** AC voltage of L2 phase at the generator port. **Current:** AC current of L2 phase at the generator port. **Frequency:** AC frequency at the generator port. **Today/Total:** Daily and cumulative energy imported from the generator to the inverter. **Energy:** Press the "Energy" button to enter the power curve page.
	**L1 Smart Load Details Page** **Power:** Active power of L1 phase at the current smart load port. **Apparent Power:** Apparent power of L1 phase at the current smart load port. **Voltage:** Output voltage of L1 phase at the current smart load port. **Current:** Output current of L1 phase at the current smart load port. **Frequency:** Frequency at the current smart load port. **Today/Total:** Daily and cumulative energy imported from the generator to the inverter. **Energy:** Press the "Energy" button to enter the power curve page.
	**L2 Smart Load Details Page** **Power:** Active power of L2 phase at the current smart load port. **Apparent Power:** Apparent power of L2 phase at the current smart load port. **Voltage:** Output voltage of L2 phase at the current smart load port. **Current:** Output current of L2 phase at the current smart load port. **Frequency:** Frequency at the current smart load port. **Today/Total:** Daily and cumulative energy imported from the generator to the inverter. **Energy:** Press the "Energy" button to enter the power curve page.

	**This is INV detail page.** View the power and current of photovoltaic, battery, mains power and output, as well as the heat sink temperature of the inverter.
	**This is the Alarm Code and Device Information Page.** **NO.:** Displays the current alarm code. **Alarm Code:** Current fault name. **Occurred Time:** Fault occurrence time. **Model:** Equipment model. **HMI Ver.:** HMI (Human-Machine Interface) board software version. **WIFI Ver.:** WIFI software version. **DSP Ver.:** DSP (Digital Signal Processor) software version. **SN:** Inverter serial number.

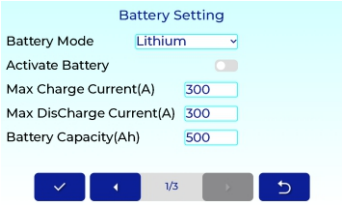
5.4 Curve Page-Solar & Load & Grid & Generator & Smart Load

Solar power curve for daily, monthly, yearly and total can be roughly checked on the LCD, for more accuracy power generation, please check the web page or APP.

5.5 Setting Menu

This is Setting page,including seven items: Battery Setting,Advanced Function, Grid Setting, System Work Mode,Gen Setting, Basic Setting, History Fault Log, Setup Wizard.

5.6 Battery Setting



Battery Type:including three options:
Lithium: Control the charging and discharging process of battery under the condition of the BMS of battery is communicating with the inverter.
User Defined: Control the charging and discharging process directly through battery voltage.
No Battery: Tick this item if no battery is connected to the system.
Activate battery: This feature will help recover a battery that is over discharged by slowly charging from the solar array or grid.
Max Charge Current: Max battery charging current.

Default:

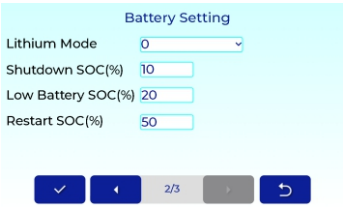
8KVA	10KVA	12KVA
100A	205A	205A

Max Discharge Current: Max battery discharging current.

Default:

8KVA	10KVA	12KVA
150A	205A	240A

For AGM and Flooded,we recommend Ah battery size×20%=Charge/Discharge amps.For Lithium,we recommend Ah battery size x50%=Charge/Discharge amps.For Gel,follow manufacturer's instructions.
Battery Capacity: The total capacity of battery connected to this system, it can be used to calculated the SOC of battery bank under the "Batt SOC" mode(Default:300Ah).



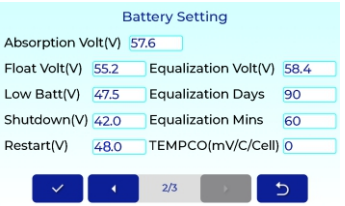
When the "Lithium" mode is selected, the content on the"Battery Setting" page is shown as the figure on the left.

Lithium Mode: This is the BMS communication protocol code and does not need to be modified.

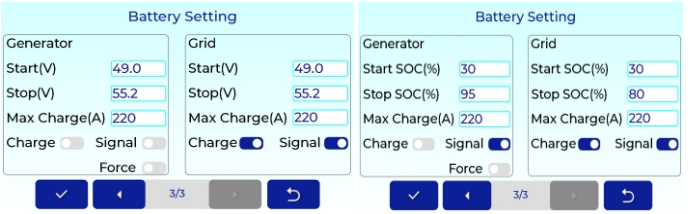
Shutdown SOC: Be valid in off-grid mode, battery can discharge to this SOC, then the DC/AC inverter module of this inverter will be shut down and the solar power can only be used to charge the battery(Default:10%).

Low Battery SOC: Be valid in on-grid mode, when the "Grid charge" has been checked , the battery SOC will remain above the set value of "Low Batt"(Default:20%).

Restart SOC: Be valid in off-grid mode, after the DC/AC inverter module of this inverter is shut down, the PV power can only be used to charge the battery. After the battery SOC has resumed to this "Restart" value, the DC/AC inverter module will restart to output AC power(Default:50%).



When the"User Defined" mode is selected, the content on the"Battery Setting" page is shown as the figure on the left.
Three stage charging strategy for lead-acid and imcompatible lithium battery.
If you are not familiar with these parameters, please keep the default values.
Absorption Volt: The charging voltage during absorption charging stage(Default:57.6V).
Float Volt: The charging voltage during floating charging stage(Default:55.2V).
Low Batt: Be valid in on-grid mode, when the "Grid charge" has been checked, the battery SOC/voltage will remain above the set value of "Low Batt"(Default:47.5V).
Shutdown: Be valid in off-grid mode, when battery SOC/voltage drop to this value, then the DC/AC inverter module of this inverter will be shut down and the solar power can only be used to charge the battery(Default:42.0V).
Restart: Be valid in off-grid mode, after the DC/AC inverter module of this inverter is shut down, the PV power can only be used to charge the battery. When the battery SOC has returned to this "Restart" value, the DC/AC inverter module will restart to output AC power(Default:48.0V).
Equalization Volt: When charging multiple battery modules or cells in series, the set charging voltage to ensure that the voltage of each battery module or cell is equal after fully charged(Default:58.4V).
Equalization Days: Time interval for conducting equalization charging(Default:90).
Equalization Mins: The duration of each equalization charging(Default:60).
TEMPCO: The coefficient by which the voltage of a battery varies with temperature(Default:0).

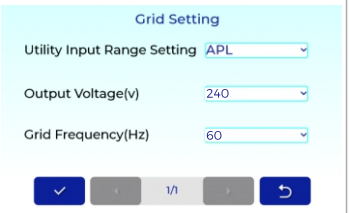


The parameters on left row are valid when it's going to use AC power from the GEN port to charge the battery.
The parameters on right row are valid when it's going to use AC power from the Grid port to charge the battery.

Generator
Start: When battery SOC or voltage drops to this set value,the inverter will auto start charge the battery from the GEN port(Default:30%SOC or 49.0V).
Stop: When the battery SOC or voltage reaches this set value, the inverter will end charge the battery from the GEN port(Default:95%SOC or 55.2V).
Max Charge: The maximum charging current allowed when only use AC power from the GEN port to charge the battery(Default:60A).
Charge: Use the AC input power of GEN port to charge the battery.
Signal: When conditions are sufficient, the inverter will close or open the normally open relay used to control the start and stop of the generator.
Force: When the generator is connected, it is forced to start the generator without meeting other conditions.

Grid
Start: When battery SOC or voltage drops to this set value, the inverter will auto start charge the battery from the grid port(Default:30%SOC or 49.0V).
Stop: When the battery SOC or voltage reaches this set value,the inverter will end charge the battery from the grid port(Default:80%SOC or 55.2V).
Max Charge: The maximum charging current allowed when only use AC power from the grid port to charge the battery(Default:60A).
Charge: It's allowed to absorb AC power from the grid port to charge the battery.
Signal: When a generator is connected to the grid port of inverter, this "Grid signal" can be used to control the dry contact to start or stop the generator.

5.7 Grid Setting

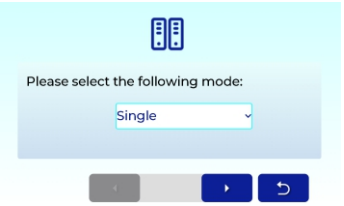
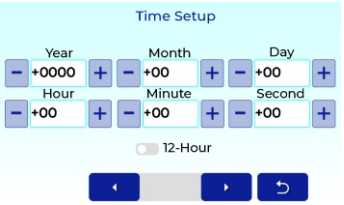
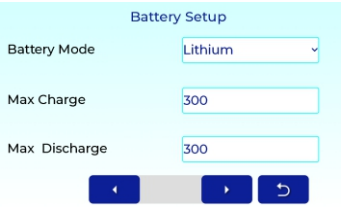


Utility Input Range Setting: Set grid input voltage range,optional:APL,UPS(Default:APL).It can only be set in standby mode.

Output Voltage: Set the rated output voltage of the inverter, optional:220V,230V,240V.(Default:240V).
Grid Frequency: Set according to the grid frequency in on-grid mode or frequency required by load in off-grid mode,optional:50Hz,60Hz (Default:60Hz).

5.8 Setup Wizard

Click " ◂ " to return to the previous setting, " ▸ " to proceed to the next setting, or " ↩ " to exit setup and go to the Setting Menu.

<table>
<tr>
<td> 
</td>
<td>Step 1:Select Single or Parallel Mode.
Select Single and click " ▸ " to proceed to the Time Setup.</td>
</tr>
<tr>
<td> 
</td>
<td>Step2:Time Setup
Clicking the plus or minus signs on the screen can change the numbers to set the current time and date.
12-Hour:The default is 24-hour format. After enabling, it becomes 12-hour format.</td>
</tr>
<tr>
<td> 
</td>
<td>Step3:Battery Setup
Battery Mode:including three options(Default:Lithium).
Lithium:Control the charging and discharging process of battery under the condition of the BMS of battery is communicating with the inverter.
User Defined:Control the charging and discharging process directly through battery voltage.
No Battery:Tick this item if no battery is connected to the system.
Max Charge:Max battery charging current.
Default:
<table>
<tr><td>8KVA</td><td>10KVA</td><td>12KVA</td></tr>
<tr><td>100A</td><td>205A</td><td>205A</td></tr>
</table>
Max Discharge:Max battery discharging current. For AGM and Flooded,we recommend Ah battery size x 20%=Charge/Discharge amps. For Lithium,we recommend Ah battery size x50%=Charge/Discharge amps.
Default:
<table>
<tr><td>8KVA</td><td>10KVA</td><td>12KVA</td></tr>
<tr><td>100A</td><td>205A</td><td>240A</td></tr>
</table>
For Gel,follow manufacturer's instructions. set the current time and date.</td>
</tr>
</table>

Step 4:Do you want to connect the Generator?

- Click "Yes" to proceed to the Generator Setup.
- Click "No" to proceed to the Application Mode setup.

Generator Setup

Start: When battery SOC or voltage drops to this set value,the inverter will auto start charge the battery from the GEN port.(Default:30%)

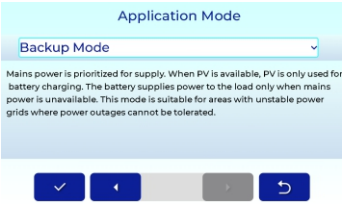
Stop: When the battery SOC or voltage reaches this set value, the inverter will end charge the battery from the GEN port.(Default:95%)

Max Charge: The maximum charging current allowed when only use AC power from the GEN port to charge the battery.(Default:220A)

Charge: It's allowed to absorb AC power from the GEN port to charge the battery.

Signal: When conditions are sufficient, the inverter will close or open the normally open relay used to control the start and stop of the generator.

Force: When the generator is connected, it is forced to start the generator without meeting other conditions.



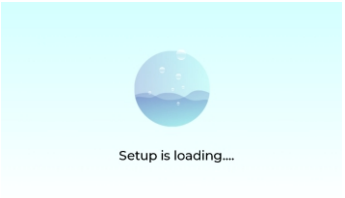
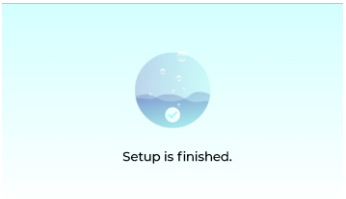
Step 5:Application Mode

It includes three working modes: Backup Mode, Intelligent Mode, and Economic Mode. For specific working methods, please refer to Chapter 6.

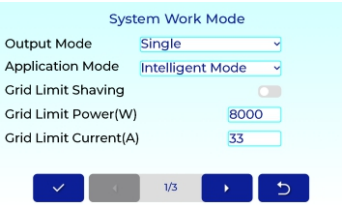
Click "✓" to save all settings.

Step 6:Do you want to save the Current changed settings?

- Click "YES" to proceed to the Setup is loading.
- Click "No" to proceed to the Setting Menu.

 	After waiting ten seconds, the setup will be completed.

5.9 System Work Mode



Output Mode:(Note: This setting can only be set in standby mode)
Single: Enable this function when a single inverter is used independently.
Single Parallel: Enable this function when several same model hybrid inverters are connecting in parallel.
Three Phase A/B/C: When forming a 3-phase system in parallel, it is necessary to set which phase of the three-phase system this inverter belongs to.
Application Mode: It includes three working modes: Backup Mode, Intelligent Mode, and Economic Mode. For specific working methods, please refer to Chapter 6.
(Note: This setting can only be set in standby mode)
Grid Limit Shaving: When it is active,the inverter will attempt to limit the AC power obtained from the grid.Default:OFF.
Grid Limit Power: Set this value to limit the AC power from the grid. If the grid peak shaving power plus PV power plus battery power cannot meet the power consumption of the load,the grid peak shaving will be invalid, and the power taken from the grid can exceed this set value.

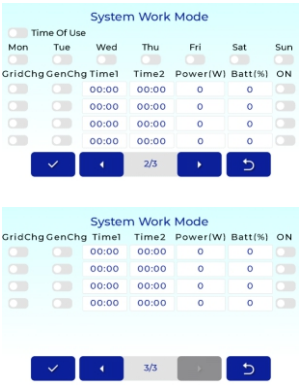
Default:

8KVA	10KVA	12KVA
8000W	10000W	12000W

Grid Limit current: Set this value to restrict the alternating current in the grid. If the sum of the peak shaving power of the power grid, the photovoltaic power and the battery power cannot meet the power consumption of the load, the current limiting of the power grid will be ineffective, and the current obtained from the power grid may exceed the set value.

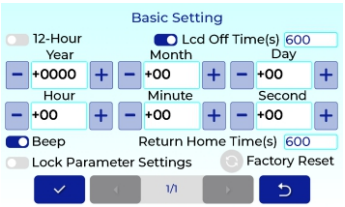
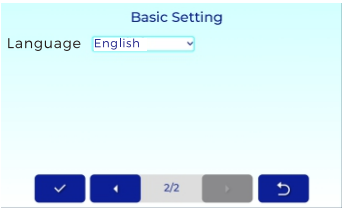
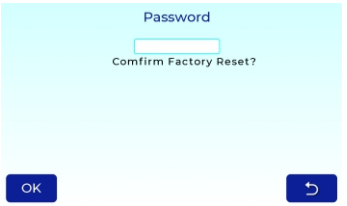
Default:

8KVA	10KVA	12KVA
33A	42A	50A

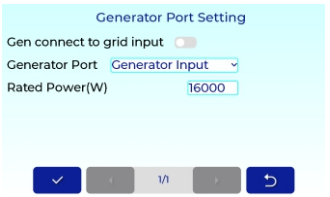


TOU (Time Of Use) Function: Time-of-use charge/discharge function. Users can set different charge/discharge periods according to local peak and valley electricity prices to achieve rational use of grid and PV energy. When grid electricity price is high, the inverter uses battery power to supply loads. When grid electricity price is low, the grid can supply loads and charge the battery, helping users save electricity costs to the greatest extent.
Time Of Use: Enable the TOU function when selected.
Mon/Tue/Wed/Thu/Fri/Sat/Sun: Dates on which the TOU rule is valid.
GridChg/GenChg: When selected and time/voltage conditions are met, grid charging / generator charging of the battery will be enabled, with the grid / generator powering the loads. If neither is selected, the battery will discharge to power the loads.
Time1: Start time of the TOU rule.
Time2: End time of the TOU rule (end time cannot be earlier than start time).
Power: Allowable charge/discharge power.
Batt: Voltage/SOC for charging start / discharging cutoff.
ON: Enable this rule.Users can set up to 8 rules, and cross-day time settings are not allowed.

5.10 Basic Setting

	**This is the Basic Setup Page.** **Time:** Set the inverter's local date and time. **12-Hour:** 12-Hour / 24-Hour Format. **LCD Off Time:** Control the LCD screen's backlight duration(Default:ON). **Beep:** Enable or disable the buzzer when a fault occurs(Default:ON). **Return Home Time:** Control the time to return to the home screen(Default:600s). **Lock Parameter Settings:** Enable this function after completing parameter configuration to lock the set parameters (Password: 666888). This function must be disabled first if parameters need to be modified. **Factory Reset:** Restore all settings of the inverter to factory defaults (Password: 123456).
	**LCD language selection page:** available in English, Spanish, Portuguese, and French.
	Click the "Factory Reset" option on"Basic Setup" page, the LCD screen will turn to this page, You can enter a six-digit password and then click the "OK" button to confirm the restoration of all inverter Settings.Click " ⮌ " to quit to restore all the settings. The"Factory Reset"is only effective in standby mode.

5.11 Generator Port Setting



GEN port is a multifunctional port, but you can only choose one of the following two functions at a time(Generator Input, Smart Load Output). It can only be set in standby mode.

Gen connect to grid input: Connect the generator to the grid input port of the the inverter.

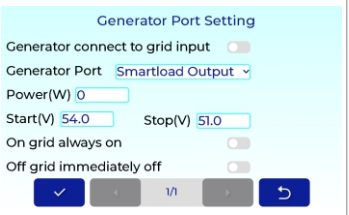
Generator Port: Choose type of GEN port, optional:Generator Input, Smart Load Output. (Note: This setting can only be set in standby mode)

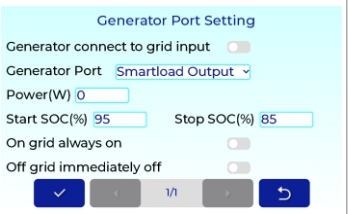
Rated Power: The maximum input power allowed from generator.

Default:

8KVA	10KVA	12KVA
8000W	10000W	12000W

(Note: When the generator is connected,this mode operates by default)





Smart Load Output:

Power: Set the PV power for Smart Load Port switch-on.Default:0W.(The PV power setting is only effective in on-grid mode.Set to 0w means the smart load output is not limited by PV power.This setting is not effective in off-grid mode.)

Start: Set the battery SOC or voltage for Smart Load Port switch-on(Default:95% SOC or 54.0V).

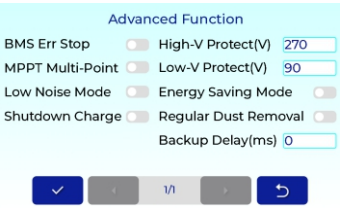
Stop: Set the battery SOC or voltage for Smart Load Port switch-off(Default:85%SOC or 51.0V).

On grid always on: When click "On grid always On" the smart load will switch on when the grid is present.

Off grid immediately off: The smart load will stop working immediately when the grid is disconnected if this item is active.

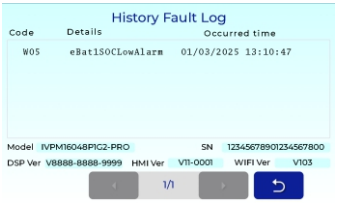
NOTE: When the conditions for the Smart load output are met, wait for 1 minute, and then the Smartent load will output.

5.12 Advanced Function



BMS Err Stop: When it is active, if the battery BMS failed to communicate with inverter, the inverter will stop working and report fault.
MPPT Multi-Point: The inverter will check whether the PV is working on its Max. power point. If not, then it will adjust the voltage of MPPT to ensure the PV operates at the Max.power point.
Low Noise Mode: In this mode, the sound emitted by the inverter during operation will be smaller.
Shutdown Charge: When the ON/OFF switch is not pressed, enabling this function allows utility power to charge the battery; disabling it will prevent charging.
High-V Protect: High-voltage protection point setting. After selecting APL/UPS mode, the default high and low voltage values will be displayed accordingly.(Default:270V)
Low-V Protect: Low-voltage protection point setting. After selecting APL/UPS mode, the corresponding default overvoltage and undervoltage values will be displayed.(Default:90V)
Energy Saving Mode: Enabling this function reduces the inverter's power consumption but also degrades its performance.
Regular Dust Removal: Enabling this function allows the inverter to perform automatic dust removal periodically.
Backup Delay: When the grid cuts off, the inverter will output power after this set time(Default:0ms).

5.13 History Fault Log



Historical Fault Records:
Code: Fault Codes & Alarm Codes.
Details: Fault Details.
Occurred Time: Fault Occurrence Time.
Model: Equipment Model.
HMI Ver.: HMI (Human-Machine Interface) Board Software Version.
WIFI Ver.: WIFI Software Version.
SN: Inverter Serial Number.
DSP Ver.: DSP (Digital Signal Processor) software version.

6. Application Mode

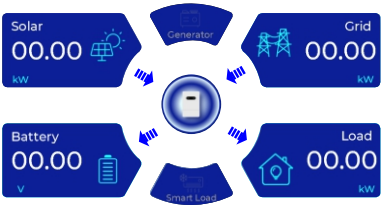
The following are recommended application scenarios for each operating mode:

Operating Mode	Recommended Application Scenarios.
Backup Mode	Suitable for areas with unstable grids where power outages cannot be tolerated.
Smart Mode	Suitable for areas with relatively stable grids where users wish to save on electricity costs and can tolerate occasional power outages.
Economy Mode	Suitable for areas with stable grids where users wish to save on electricity costs and can tolerate occasional power outages.

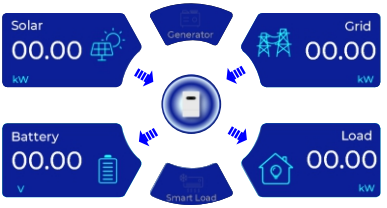
Mode I: Backup Mode

Mains power is prioritized for supply. When PV is available, PV is only used for battery charging. The battery supplies power to the load only when mains power is unavailable. This mode is suitable for areas with unstable power grids where power outages cannot be tolerated.

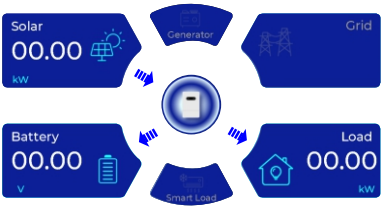
1.When utility power is available and PV (Photovoltaic) power is sufficient, the load is supplied by utility power, and only PV power is used for charging.



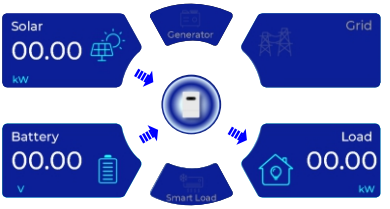
2.When utility power is available but PV (Photovoltaic) power is insufficient, the load is supplied by utility power, and both utility power and PV power are used for charging.



3. When utility power is unavailable and PV (Photovoltaic) power is sufficient, PV power supplies the load and charges the battery.



4.When utility power is unavailable and PV (Photovoltaic) power is insufficient, both PV power and the battery supply the load together.



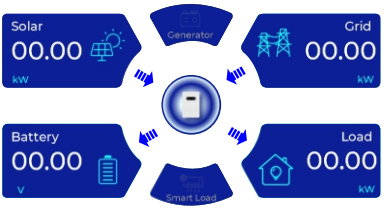
5.When the generator is connected, this mode operates by default.

6.When the battery is fully charged and no load is connected, all photovoltaic energy will be discarded without utilization.

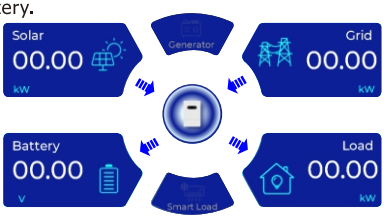
Mode II: Intelligent Mode

When PV is available, mains power and PV jointly power the load, with surplus PV energy used for battery charging. This mode maximizes PV utilization while maintaining battery capacity, making it suitable for areas with relatively stable power grids where users aim to save on electricity costs and can tolerate occasional power outages.

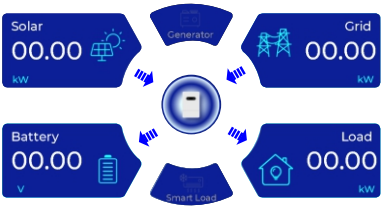
1.When utility power is available, AC current limiting is enabled, and the load is less than the AC limited power, the entire load is supplied by AC power, and the excess AC energy charges the battery together with PV power.



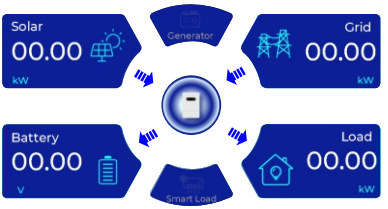
2.When utility power is available, AC current limiting is enabled, and the load exceeds the AC limited power, the load is supplied jointly by AC power and PV power, with the excess PV energy used for charging the battery.



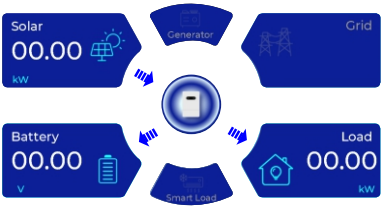
3.When utility power is available, AC current limiting is disabled, and the load is less than the set AC charging power(current battery voltage * Max Charge in page 3 of Battery Setting), the entire load is supplied by AC power, and the excess AC energy charges the battery together with PV power.



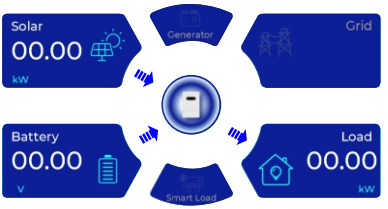
4.When utility power is available, AC current limiting is disabled, and the load exceeds the set AC charging power(current battery voltage * Max Charge in page 3 of Battery Setting), the load is supplied jointly by AC power and PV power, with the excess PV energy used for charging the battery.



5.When utility power is unavailable and PV power is sufficient, PV power supplies the load and charges the battery.



6.When utility power is unavailable and PV power is insufficient, the battery supplements power, and both PV power and the battery supply the load jointly.



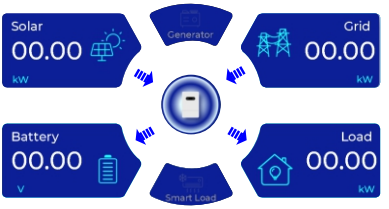
Mode III: Economic Mode

PV is prioritized for supplying power to the load. If PV is insufficient or unavailable, the battery will be used as a supplement to power the load. When the battery voltage reaches the low-voltage threshold, the system will switch to mains power to supply the load. This mode maximizes the use of DC power and is suitable for areas with stable power grids where users aim to save on electricity costs and can tolerate occasional power outages.

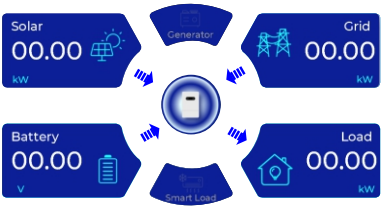
1.When utility power is available and the SOC is greater than the Stop SOC, the discharge mode is activated:

a. When utility power is available and PV power is sufficient, PV power supplies the load first, and the excess energy charges the battery.

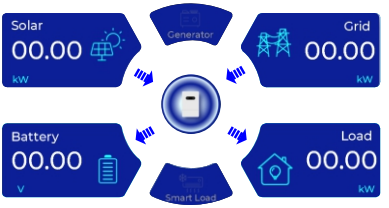
b. When utility power is available, AC current limiting is enabled, and PV power is sufficient, PV power charges the battery independently, while utility power supplies the load separately.



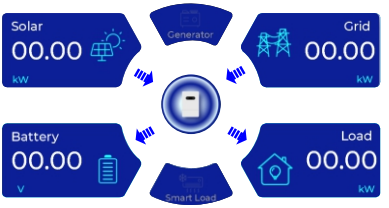
c. When utility power is available but both PV power and the battery are insufficient, utility power supplements power, and utility power, PV power, and the battery supply the load jointly.



2.When the SOC is less than the Start SOC , the charging mode is activated;
a. When utility power is available, AC current limiting is disabled, and PVpower is sufficient, PV power charges the battery independently, while utility power supplies the load separately.

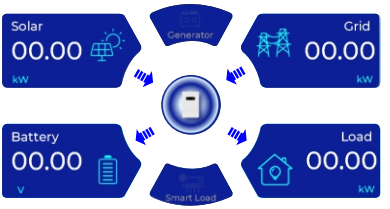


b. When utility power is available, AC current limiting is disabled, but PVpower is insufficient, utility power supplies the load, and both utility power and PV power charge the battery together.



4. When utility power is unavailable but PV power is insufficient, the battery supplements power, and both PV power and the battery supply the load jointly.

2.When utility power is available, AC current limiting is enabled, but PV power is insufficient, both PV power and AC power charge the battery together.

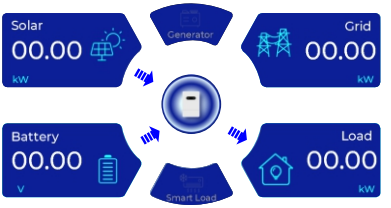


Upon initial power-on, the system defaults to charging the battery until the stop SOC is reached, at which point it switches to discharge mode.

If the charging switch is manually turned off during battery charging, the device automatically enters discharge mode. If the charging switch is then turned on again, and the battery SOC is between start and stop, the device will remain in discharge mode until the start SOC is triggered again, at which point it will enter charging mode.

3.When utility power is unavailable and PVpower is sufficient, PV power supplies the load and charges the battery.

b When utility power is available but PV (Photovoltaic) power is insufficient, the battery supplements power, and both PV power and the battery supply the load jointly.



7. Fault information and processing

This inverter complies with safety and electromagnetic compatibility requirements. Before delivery, the inverter has undergone multiple strict tests to ensure reliable operation.

Note | If your inverter shows the Fault Code and the fault persists after restarting, please contact your local dealer or service center. You need to prepare the following information.

1. Inverter serial number.
2. Distributor or service center of the inverter.
3. Please describe the problem in as much detail as possible (including the fault code and indicator light status). To help you understand the inverter's fault information more clearly, we will list all possible fault codes and their descriptions when the inverter is not functioning properly.
4. Your contact information.

7.1 Warning Code

Warning Code	Warning information	Trouble Shooting
W10	Grid_OverLoad_Alarm	The load is overloaded and should be reduced.
W14	Grid_Abnormal_Alarm	Please check whether the voltage,frequency, and phase sequence of the Grid port are normal
W20	Gen_OverLoad_Alarm	Please check whether the load on backup port is within the generator specifications.
W23	Gen_Abnormal_Alarm	Please check whether the voltage, frequency, and hase sequence of the Gen port are normal
W24	HS_OverTempDerate_Alarm	The inverter will reduce power if the heat sink temperature is too high.
W25	OverLoad_Alarm	The load is overloaded and should be reduced.
W26	HS_Fan_Alarm	Fan fault, check if the heat sink fan is operating normally
W27	Tx_Fan_Alarm	Fan fault, check if the transformer fan is operating normally
W28	Int_Fan_Alarm	Fan fault, check if the internal circulation fan is operating normally
W32	Com_DSPToMCU_Alarm	Restart the unit, if the fault still exists,please contact us for help.
W35	BMS_Com_Alarm	Abnormal communication between battery and inverter in lithium mode,check battery and inverter.
W37	BMS_UnderVolt_Alarm	Battery SOC is too low,the battery should be charged.

7.2 Fault Code

Fault Code	Fault information	Trouble Shooting
F001	PV1_OverVolt_Fault	1.Please check the voltage of the string, reduce the number of PV1 modules in series; 2.Restart the unit, if the fault still exists, please contact us for help.
F002	PV2_OverVolt_Fault	1.Please check the voltage of the string,reduce the number of PV2 modules in series; 2.Restart the unit, if the fault still exists,please contact us for help.
F003	PV1_OverCurr_Fault	1.The current of the PV1 modules is too large,please check the string current; 2.Restart the unit, if the fault still exists,please contact us for help.
F004	PV2_OverCurr_Fault	1.The current of the PV1 modules is too large,please check the string current; 2.Restart the unit, if the fault still exists,please contact us for help.
F005	PV1_Reverse_Fault	1.Please check whether the PV1 wring is properly connected; 2.Restart the unit, if the fault still exists,please contact us for help.
F006	PV2_Reverse_Fault	1.Please check whether the PV2 wring is properly connected; 2.Restart the unit, if the fault still exists,please contact us for help.
F010	PV_OverTemp_Fault	1.Please check whether the work environment temperature is too high; 2.Turn off the inverter for 15mins and restart; 3.Seek help from us, if can not go back to normal state.
F012	PV_BoostNTC_Lost	Restart the unit, if the fault still exists,please contact us for help.
F013	PV_LLCNTC_Lost	Restart the unit, if the fault still exists,please contact us for help.
F014	Bat_OverVolt_Fault	1.Please check whether the battery voltage is within the specified range; 2.Check whether Battery cables are firmly and correctly connected;
F015	Bat_UnderVolt_Fault	1. Please check whether BMS communication cable is firmly and correctly connected; 2. Restart the unit, if the fault still exists, please contact us for help.
F022	PV_OverCurr_Fault	Restart the unit, if the fault still exists,please contact us for help.
F023	DCDC_OverTemp_Fault	1.Please check whether the work environment temperature is too high; 2.Turn off the inverter for 15mins and restart; 3.Seek help from us, if can not go back to normal state.

Fault Code	Fault information	Trouble Shooting
F026	LLC_OverCurr_H_Fault	Restart the unit, if the fault still exists,please contact us for help.
F027	LLC_LS_OverTemp_Fault	1.Please check whether the work environment temperature is too high; 2.Turn off the inverter for 15mins and restart; 3.Seek help from us, if can not go back to normal state.
F028	LLC_TX_OverTemp_Fault	1.Please check whether the work environment temperature is too high; 2.Turn off the inverter for 15mins and restart; 3.Seek help from us, if can not go back to normal state.
F029	BUS_OverVolt_Fault	1.Please check the voltage of the string, reduce thenumber of PV modules in series; 2.Restart the unit, if the fault still exists,please contact us for help.
F030	BUS_OverVolt_H_Fault	1.Please check the voltage of the string, reduce thenumber of PV modules in series; 2.Restart the unit, if the fault still exists,please contact us for help.
F031	BUS_UnderVolt_Fault	Restart the unit, if the fault still exists,please contact us for help.
F032	BUS_Soft start_Fault	Restart the unit, if the fault still exists,please contact us for help.
F034	INV_Soft start_Fault	Restart the unit, if the fault still exists,please contact us for help.
F035	INV_Volt_Fault	1.Please check whether the load power is within the specified range; 2.Restart the unit, if the fault still exists,please contact us for help.
F036	INV_OverCurr_Fault	1.Please check whether the load power is within the specified range; 2.Restart the unit, if the fault still exists,please contact us for help.
F37	INV_OverCurr_H_Fault	1.Please check whether the load power is within the specified range; 2.Restart the unit, if the fault still exists,please contact us for help.
F038	INV_Short_Fault	1.Please check whether the connection of buckup is firmly and correctly; 2.Restart the unit, if the fault still exists,please contact us for help.
F041	INV_OverTemp_Fault	1. Please check whether the work environment temperature is too high; 2. Turn off the inverter for 15mins and restart; 3. Seek help from us, if can not go back to normal state.
F042	INV_NegPower_Fault	Restart the unit, if the fault still exists,please contact us for help.

Fault Code	Fault information	Trouble Shooting
F045	INV_TX_NTC_Lost	Restart the unit, if the fault still exists,please contact us for help.
F046	INV_Hs_NTC_Lost	Restart the unit, if the fault still exists,please contact us for help.
F047	INV_TX_OverTemp_Fault	1.Please check whether the work environment temperature is too high; 2.Turn off the inverter for 15mins and restart;
F048	OUT_OverLoad_Fault	1.Please check whether the load power is within the specified range; 2.Restart the unit, if the fault still exists,please contact us for help.
F049	OUT_UnderVolt_Fault	Restart the unit, if the fault still exists,please contact us for help.
F050	OUT_OverVolt_Fault	Restart the unit, if the fault still exists,please contact us for help.
F052	Bat_OverTemp_Fault	1.Please check whether the work environment temperature is too high; 2.Turn off the inverter for 15mins and restart; 3.Seek help from us, if can not go back to normal state.
F056	Eeprom_Fault	Restart the unit, if the fault still exists,please contact us for help.
F057	Safe_PvISO_Fault	Restart the unit, if the fault still exists,please contact us for help.
F059	Grid_Relay_Open_Fault	Restart the unit, if the fault still exists,please contact us for help.
F060	Grid_Relay_Short_Fault	Restart the unit, if the fault still exists,please contact us for help.
F061	Gen_Relay_Open_Fault	Restart the unit, if the fault still exists,please contact us for help.
F062	Gen_Relay_Short_Fault	Restart the unit, if the fault still exists,please contact us for help.
F063	INV_Relay_Open_Fault	Restart the unit, if the fault still exists,please contact us for help.
F070	Para_CANCom_Fault	1.Please check whether the parallel cables are firmly and correctly connected; 2.Restart the system, If the fault still exists,please contact us for help.
F071	Para_MasterLost_Fault	1.Please check whether the parallel cables are firmly and correctly connected; 2.Restart the system, If the fault still exists,please contact us for help.
F072	Para_ZeroSyncLost_Fault	1.Please check whether the parallel cables are firmly and correctly connected; 2.Restart the system, If the fault still exists,please contact us for help.

Fault Code	Fault information	Trouble Shooting
F073	Para_ACSourceDiff_Faultt	Check whether the wiring of the mains power or oil engine is correct.
F075	Para_OpSetDiff_Fault	1.Please check whether the parallel cables are firmly and Correctly Connected; 2.Check whether the software version of the inverter is same.
F078	PVOutCurrCT_Fault	Restart the unit, if the fault still exists,please contact us for help.
F079	INV_CurrCT_Fault	Restart the unit, if the fault still exists,please contact us for help.
F080	Bat_CurrCT_Fault	Restart the unit, if the fault still exists,please contact us for help.
F081	Grid_CurrCT_Fault	Restart the unit, if the fault still exists,please contact us for help.
F082	Gen_CurrCT_Fault	Restart the unit, if the fault still exists,please contact us for help.
F083	PV_CurrCT_Fault	Restart the unit, if the fault still exists,please contact us for help.
F085	Bootload_Fail	Restart the unit, if the fault still exists,please contact us for help.
F086	AuxPowerFault	Restart the unit, if the fault still exists,please contact us for
F087	PVBusOverVolt_Fault	Restart the unit, if the fault still exists,please contact us for help.
F088	Wire Fault	Restart the unit, if the fault still exists,please contact us for help.
F089	Internal_OverTemp_Fault	1.Please check whether the work environment temperature is too high; 2.Turn off the inverter for 15mins and restart; 3.Seek help from us, if can not go back to normal state.

Under the guidance of our company, customers return our products so that our company can provide service of maintenance or replacement of products of the same value. Customers need to pay the necessary freight and other related costs. Any replacement or repair of the product will cover the remaining warranty period of the product. If any part of the product or product is replaced by the company itself during the warranty period, all rights and interests of the replacement product or component belong to the company.

Factory warranty does not include damage due to the following reasons:

- Damage during transportation of equipment ;
- Damage caused by incorrect installation or commissioning ;
- Damage caused by failure to comply with operation instructions, installation instructions or maintenance instructions ;
- Damage caused by attempts to modify, alter or repair products ;
- Damage caused by incorrect use or operation ;
- Damage caused by insufficient ventilation of equipment ;
- Damage caused by failure to comply with applicable safety standards or regulations ;
- Damage caused by natural disasters or force majeure (e.g. floods, lightning, overvoltage, storms, fires, etc.)

In addition, normal wear or any other failure will not affect the basic operation of the product. Any external scratches, stains or natural mechanical wear does not represent a defect in the product.

8.Limitation of Liability

In addition to the product warranty described above, the state and local laws and regulations provide financial compensation for the product's power connection (including violation of implied terms and warranties). The company hereby declares that the terms and conditions of the product and the policy cannot and can only legally exclude all liability within a limited scope.

9. Datasheet

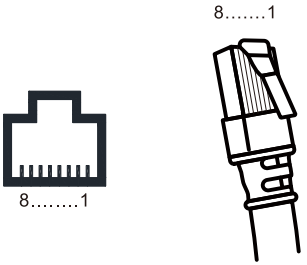
Line Mode Specifications			
Model	IVPM8048P2G2 -PRO	IVPM10048P2G2 -PRO	IVPM12048P2G2 -PRO
Rated Output Power	8000VA	10000VA	12000VA
	6400W	8000W	9600W
Nominal DC Input Voltage	48V		
Input Voltage Waveform	Sinusoidal(Utility or generator)		
Nominal Input Voltage	120(L1-N/L2-N)/240(L1-L2)Vac		
Low Line Disconnect	170±7Vac(UPS)90±7Vac(APL)		
Low Line Re-connect AC Input Range	180±7Vac(UPS)100±7Vac(APL)		
High Line Disconnect	270±7Vac		
High Line Re-connect	260±7Vac		
Max AC Input Voltage	L1-L2: 350Vrms		
Nominal Input Frequency	50Hz/60Hz		
Low Line Frequency Disconnect	45±0.5Hz		
Low Line Frequency Re-connect	47±0.5Hz		
High Line Frequency Disconnect	65±0.5Hz		
High Line Freguency Re-connect	63±0.5Hz		
Output Voltage Wavefom	As same as input waveform		
Output Short Circuit Protection	Mains mode: External air switch protection Battery mode: Electric circuit		
Switching Time (Standalone)	8ms typical(UPS) 15ms typical(APL)		
Switching Time (Parallel Operation)	20ms typical		
Battery-free Operation	Bypass Available		
Max Bypass Overload Current	AC 42A	AC 50A	AC 60A
Maximum Bypass Current/Power	33A/8kVA	42A/10kVA	50A/12kVA
Maximum Rectification Current/Power	33A/8kVA	42A/10kVA	50A/12kVA
Number of Input Circuits	2 (default generator convertible output)		
Number of Output Circuits	2 (second circuit converted via generator port)		
Utility Charge Mode Specifications			
Nominal Input Voltage	120(L1-N/L2-N)/240(L1-L2)Vac		
Input Voltage Range	90~270Vac		
Nominal Output Voltage	L1-N/L2-N : 110V/115V/120Vac ± 5 % L1-L2 : 220V/230V/240Vac ± 5 %		
Max Charge Current	120A	150A	170A
Charge Current Regulation	0-120A	0-150A	0-170A
Over Charge Protection	Yes		

Solar Charging & Utility Charging			
Max PV Open Circuit Voltage	525Vdc		
PV Aray MPPT Voltage Range	150-450Vdc		
MPPT Full-load Voltage Range	150-450Vdc		
Startup Voltage	125V		
Max Input Power [1]	9.8kW	15.7kW	
Max Solar Charging Current	150A	240A	
Maximum Charging Current (PV + Mains)	150A	240A	
Maximum PV Operating Input Current	27A	20A+20A	
Maximum PV Short-circuit Current	35A	25A+25A	
No. of MPP Trackers	1	2	
Strings of per MPP Tracker	2	1/1	
Inverter Mode Specifications			
Rated Output Power	8000VA	10000VA	12000VA
	6400W	8000W	9600W
Nominal DC Input Voltage	48V		
Output Voltage Waveform	Pure sine wave		
Nominal Output Voltage	L1-N/L2-N :110V/115V/120Vac ± 5 % L1-L2 :220V/230V/240Vac ± 5 %		
Nominal Output Frequency	60±0.3Hz/50±0.3Hz (Default:60Hz)		
Peak Efficiency	91 %	92 %	93 %
Total Voltage Harmonic Distortion THDV	<3%(of nominal power)		
Over-load Protection	10mins@102%~110% load		
Surge Rating	2* rated power for 5 seconds		
Output Short Circuit Protection	Yes		
Number of Parallel Units	/		
Dual Output	Yes		
Interface			
Display	LCD+LED		
Communication Interface	RS485,CAN		
Monitor Mode	WIFI/Bluetooth		
General Specifications			
Operating Temperature	-10℃ ~ +55℃		
Storage Temperature	-15℃ ~ +60℃		
Humidity	10% to 90% Relative Humidity		
Ingress Protection	IP21		
Net Weight	57.0kg	68.3kg	75.0kg
Gross Weight	76.0kg	87.3kg	94.0kg
Bare Unit Dimensions	704x460x309mm		
Package Dimensions	810x570x482mm		
[1]Maximum input power per string of per tracker (450V * Maximum average current per channel)			

10. Appendix I

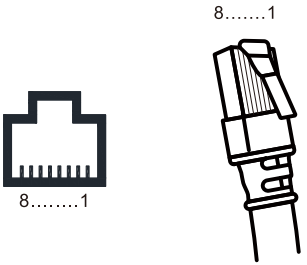
Definition of RJ45 Port Pin for BMS

No.	BMS Pin
1	GND
2	/
3	CAN-L
4	CAN-H
5	BMS-485_B
6	BMS-485_A
7	/
8	/



Definition of RJ45 Port Pin of "RS485 port" for remotely monitoring

No.	RS485 Pin
1	PC-485_B
2	PC-485_A
3	/
4	/
5	/
6	/
7	/
8	GND



11. The Wi-Fi operation Guide in APP

11.1 Introduction

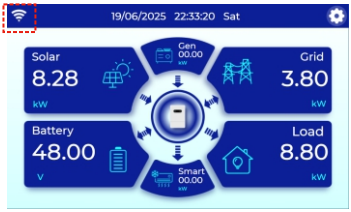
Wireless communication between the off-grid inverter and theAPP can be realized through the Wi-Fi module.The APP supports Android and iOS devices.

Delivers device status during normal operation.

Allows device Settings to be configured on the APP.

Notifies users when a warning or alarm occurs.

Allows users to query inverter history data.



The status of the Wi-Fi sign on the LCD display.

After the APP is successfully connected,Wi-Fi indicator light remains constantly on.

11.2 Download and install APP

Operating system requirement for your smart phone:

iOS system supports iOS 11.0 and above

Android system supports Android 5.0 and above

11.2.1 APP Download

Please scan the following QR code with your smartphone to download the App.

The QR code supports Android system and iOS system

11.2.2 Operation Manual

Please scan the following QR code with your smartphone to view the App Operation Manual

The QR code supports Android system and iOS system

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