MEDALPOWER

INVERTER

6KW
Hybrid Solar Inverter
MPHI-6KW#48VPVSE



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Preface

About This Manual

This manual describes the installation, connection, app setting and maintenance etc. of Energy Storage System(ESS). Please first read the manual and related documents carefully before using the product and store it in a place where installation, operation and maintenance personnel can reach it at any time. The illustrations in this user manual are for reference only. This user manual is subject to change without prior notice. (Specific please in kind prevail.)

Target Group

Inverters must be installed by professional electrical engineers who have obtained relevant qualifications.

Scope

This manual is applicable to following inverter models:
MPHi-6KW#48VPVSE

Conventions

The following safety instructions and general information are used within this user manual.

DANGER	Indicates an imminently hazardous situation which, if not correctly followed, will result in serious injury or death.
WARNING	Indicates a potentially hazardous situation which, if not correctly followed, will result in serious injury or death.
CAUTION	Indicates a potentially hazardous situation which, if not correctly followed, could result in moderate or minor injury.
NOTICE	Indicates a potentially hazardous situation which, if not correctly followed, could result in equipment failure to run, or property damage.
NOTE	Call attention to important information, best practices and tips: supplement additional safety instructions for your better use of the ESS inverter to reduce the waste of you resource.

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1. Safety

Before using the inverter, please read all instructions and cautionary markings on the unit and in this manual. Put this manual to a place where you can take it easily.

The inverter strictly conforms to related safety rules in design and test. Please follow the local laws and regulations during installation, operation and maintenance. Incorrect operation may cause injury or death to the operator or a third party, and damage to the inverter and other properties belonging to the operator or a third party.

1.1 Symbols Used

The following safety symbols and general information are used on the inverter.

Safety Symbol	Description
	Don’t dispose of the inverter with the household waste.
	Refer to the operating instructions
	Danger of hot surface
	Residual voltage exists after the inverter is powered off. It takes 5 minutes for system to discharge to a safe voltage.
	Danger of high voltage! Only qualified personnel may perform work on the inverter.
	Environmental Protection Use Period (years)
	Grounding terminal

1.2 Safety Precaution

- Installation, maintenance and connection of inverters must be performed by qualified personnel, in compliance with local electrical standards, wiring rules and requirements of local power authorities and/or companies.
- Ensure children are kept away from inverters. Don't open the front cover of the inverter. Apart from performing work at the wiring terminal (as instructed in this manual), touching or changing components without authorization may cause injury to people, damage to inverters and annulment of the warranty.
- Static electricity may damage electronic components. Appropriate methods must be adopted to prevent such damage to the inverter, otherwise the inverter may be damaged and the warranty annulled.
- Ensure the output voltage of the proposed PV array is lower than the maximum rated input voltage of the inverter; otherwise the inverter may be damaged and the warranty annulled.
- When exposed to sunlight, the PV array generates dangerous high DC voltage. Please operate according to our instructions, or it will result in danger to life.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- Completely isolate the inverter before maintaining. Completely isolate the inverter should turn off the PV breaker and disconnect the PV terminal, battery terminal, and AC terminal.
- After the inverter is powered off, the remaining electricity and heat may still cause electric shock and body burns. Do not touch parts of inverter for 5 minutes after disconnection from the power sources.
- Prohibit inserting or pulling the AC and DC terminals when the inverter is running.
- In Australia, the inverter internal switching does not maintain the neutral continuity. And neutral integrity must be addressed by external connection arrangements.
- A single PV panel string should not be connected to two or more inverters.

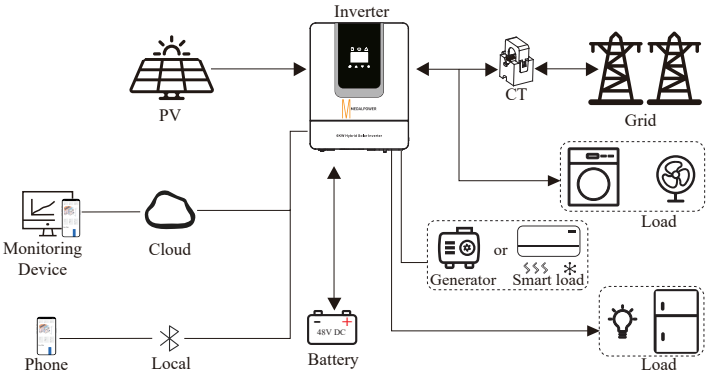
2. Product Introduction

2.1 Typical Energy Storage System (ESS)

This is an advanced Energy Storage System Inverter that integrates a high-efficiency MPPT Charge Controller, Battery Controller, Pure Sine Wave Inverter and Smart Energy Management. It is designed for multiple scenarios, including backup power during outages, maximizing solar energy self-consumption, and reducing electricity costs. The ESS inverter system is available with or without batteries. Provides a flexible power solution to meet user's needs.

The ESS inverters are high-quality inverter which can convert solar energy to AC energy and store energy into battery. Typically, an ESS inverter system consists of PV array, ESS inverter, battery, and loads.

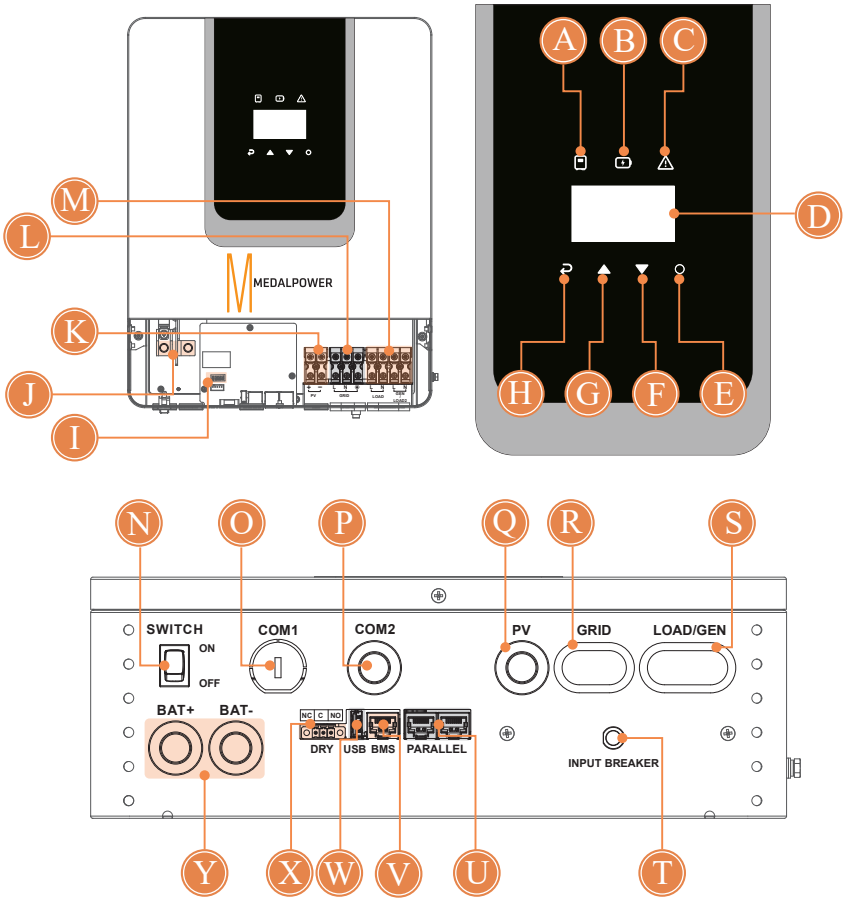
The energy generated by inverter can be preferentially supplied to its self-consumption, stored in the battery for future use.



2.2 Features

- Pure sine wave AC output
- Simultaneous power supply to loads by solar and utility grid
- Charge/discharge current Max. 140A
- Dual output with smart load
- Compatible to utility mains or generator power
- USB on-the-go function
- Operate without PV or battery
- Built-in Wi-Fi/Bluetooth module for monitoring
- Local & remote firmware upgrades
- Support max 12 units parallel connection
- IP54 protection
- 3 years warranty

2.3 Product Appearance



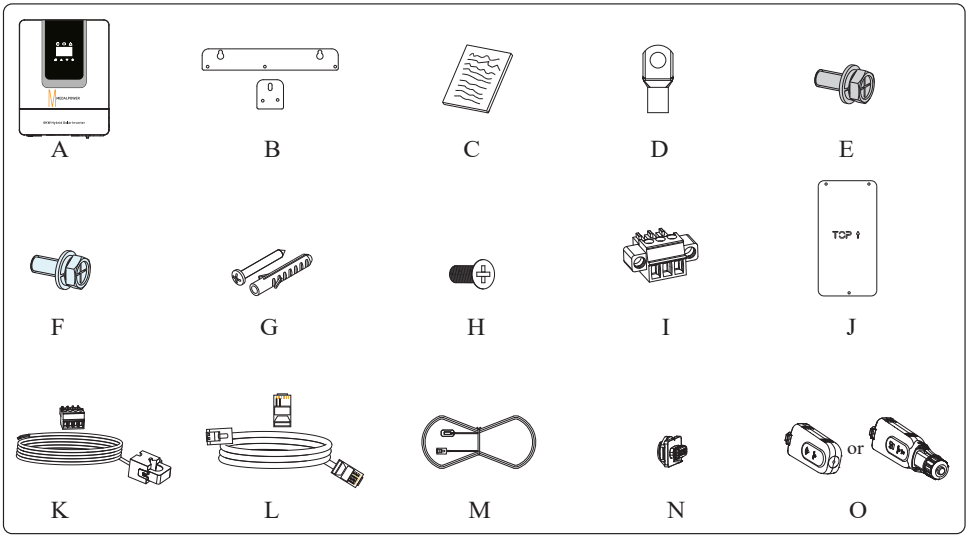
Number	Description
A	Grid/Inverter LED indicator
B	Charging LED indicator
C	Alarm LED indicator
D	LCD screen
E	Enter touch button
F	Down touch button
G	Up touch button
H	Esc touch button
I	CT communication port
J	Battery connection terminal
K	PV connection terminal
L	GRID connection terminal
M	LOAD/GEN connection terminal

Number	Description
N	Load switch
O	COM1 (reserved)
P	COM2 (CT communication)
Q	PV connection port
R	GRID connection port
S	LOAD/GEN connection port
T	Input breaker
U	Parallel RJ45 port
V	BMS or NTC port
W	USB port
X	Dry contact port
Y	Battery connection port

3. Installation

3.1 Packing List

After unpacking, please check the following packing list carefully for any damage or missing parts. If any damage or missing parts occurs, contact the supplier for help.

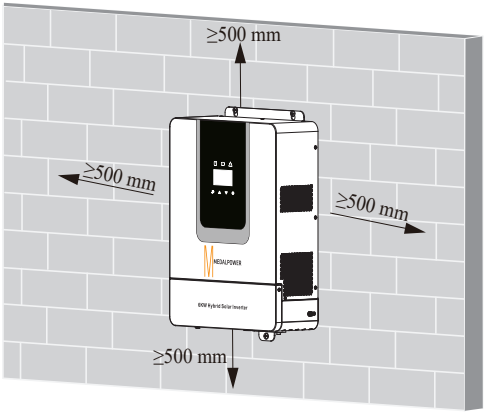


Number	Quantity	Description
A	1	Inverter
B	1	Mounting bracket
C	1	File package
D	2	Battery terminal
E	1	Dacromet coating M5 screw (for PE terminal)
F	2	Color zinc plating M5 screw (for battery terminal)
G	3	M6 Expansion bolt
H	5	M4 flat head screw
I	1	DRY terminal
J	1	Positioned corrugated cardboard
K	1	CT and connector (Optional)
L	1	Parallel communication cable and connector (Optional)
M	1	Lead-acid Battery Temperature sensor (Optional)
N	1	WIFI/LAN module terminal (Optional)
O	1	WIFI/LAN module (Optional)

3.2 Installation Clearance Requirements

To ensure the inverter normally and easy to operate, there are requirements on available spaces of the inverter, e.g. to keep enough clearance. Refer to the following figures.

DANGER:
Do not install the inverter in areas containing highly flammable materials or gases.

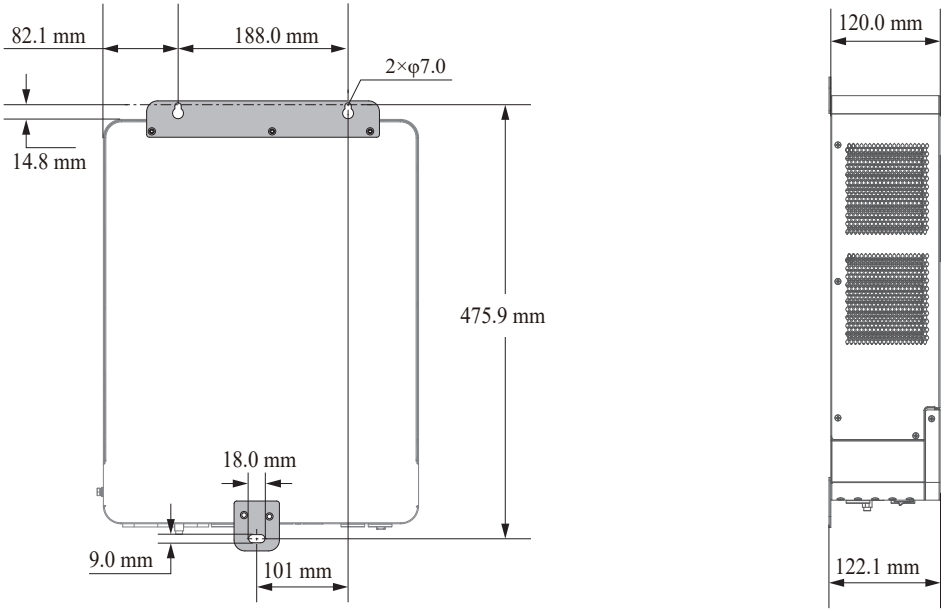


3.3 Mounting

Before mounting the inverter, you have to prepare expansion screws and a security screw.

DANGER	Before frilling the hole on the wall, ensure no damage on the electric wire and/ or water pipe inside the wall.
CAUTION	To prevent potential damages and injuries from inverter falling down, please hang the inverter on the bracket and do not loosen it unless confirm the inverter is well mounted.

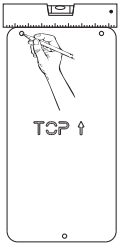
Mounting bracket location:



Step 1. Install the mounting bracket

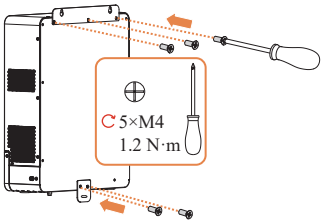
1. Use a level ruler and the positioned corrugated cardboard to mark the position of the 3 holes on the wall. Refer to Figure 1.
2. Install and fix the mounting bracket on the inverter. Refer to Figure 2.
3. Drill 3 holes, 10 mm in diameter and 60 mm in depth. Refer to Figure 3.
4. Using a hammer to tap the expansion bolt sleeve kit into the hole. Refer to Figure 4.
5. Fix the two expansion screws above and reserve approximately 5mm of length protruding outside the wall. Refer to Figure 5.

Step 2. Install the inverter on the wall. Refer to Figure 6 and 7.

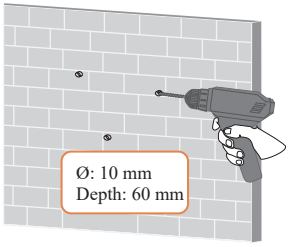


Set positioned corrugated cardboard horizontally.

1 Mark the holes position on the wall.

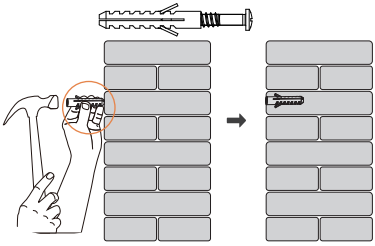


2

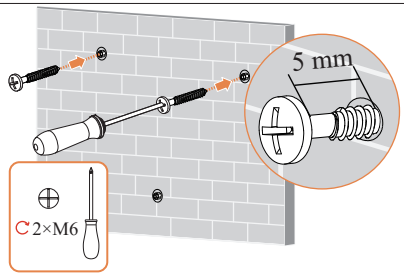


3 Drill the holes.

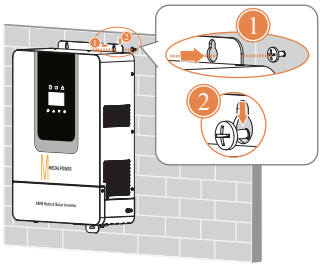
M6 expansion bolt ; 3 sets



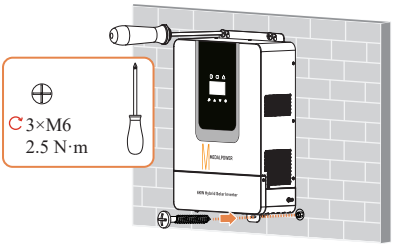
4



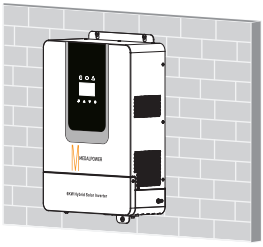
5



6



7

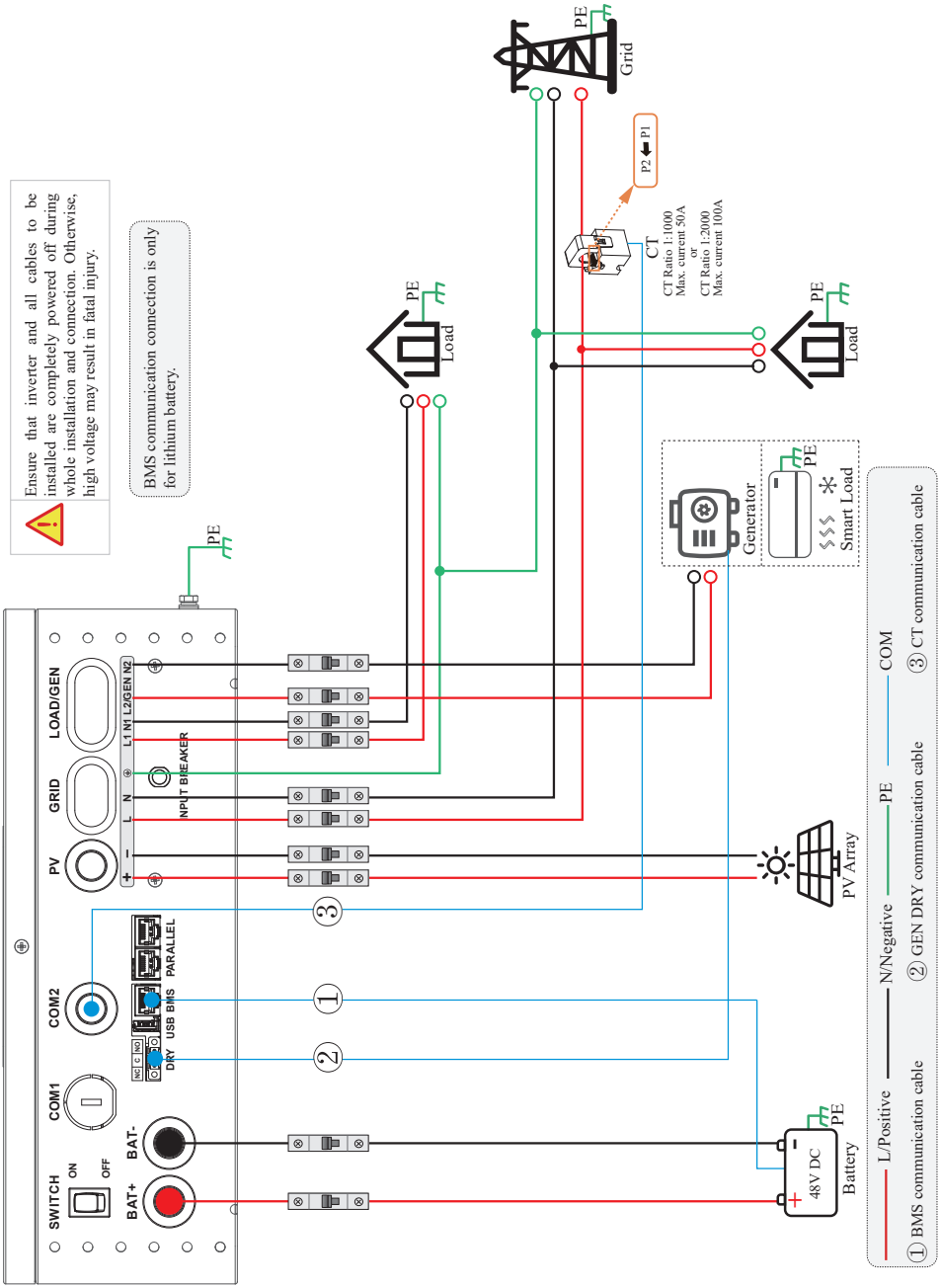


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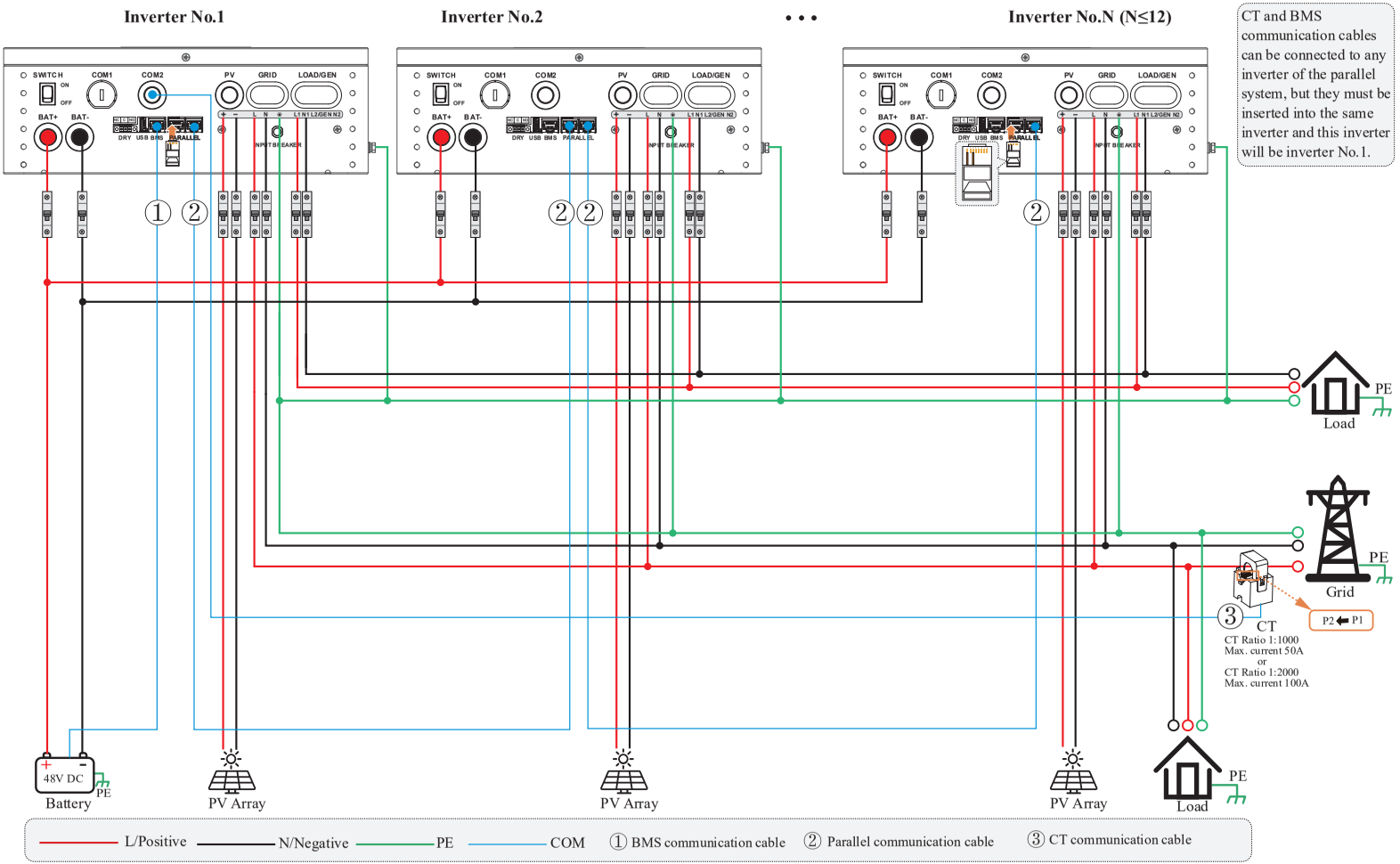
4. Electrical Connection

This chapter shows the details connection of ESS inverter.

Stand-alone application



Parallel application (2≤N≤12)



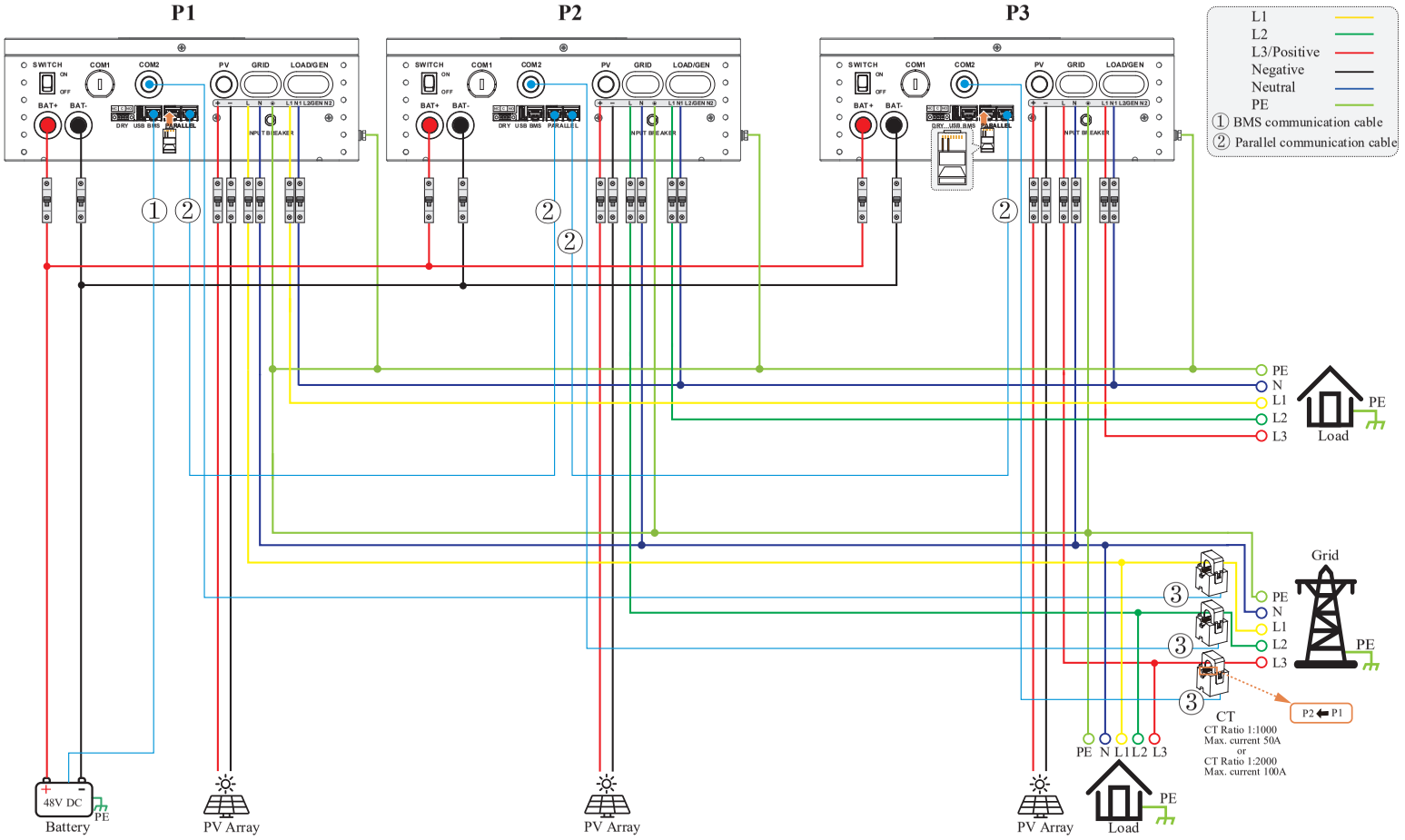
DANGER	Ensure that inverter and all cables to be installed are completely powered off during whole installation and connection. Otherwise, high voltage may result in fatal injury.

Note:

- If the maximum current of the CT is relatively small, a CT with a larger specification can be selected.
- BMS communication connection is only for lithium battery.
- It is necessary to connect parallel communication connector to the first one and the last one in parallel connection mode. Parallel communication cable and connector are optional.
- Go to **Settings** > **Inverter** > **Parallel** page to enable Parallel mode and select the **Battery Connection Type** on the app of any of the inverters. Setting/modifying these parameters requires selecting the Installer role.
- Ensure the conductor's materials, cross-sectional areas, and lengths of LOAD port cables between Inverter No. 1 and other inverters of the system are the same. Recommended length less than or equal to 2m.
- In one parallel system, the batteries can be connected independently or in parallel, the manual only shows the batteries connected in parallel. In one system connected with non-parallel batteries, the BMS communication cable needs to be connected to each inverter and the batteries connected in the system should be the same in terms of their brands and models.

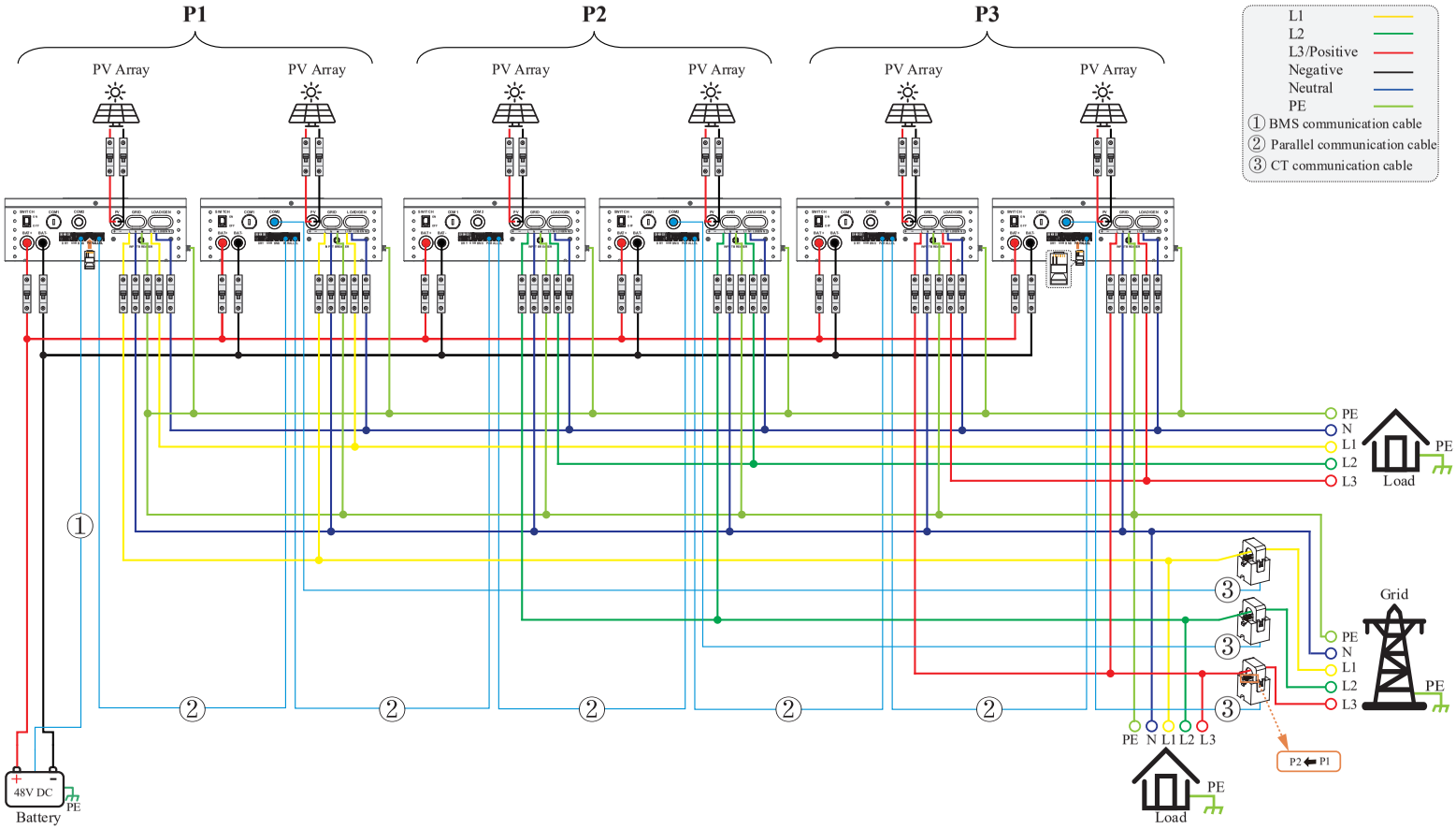
Three-phase Equipment Connection Wiring Diagram (N=3)

One inverter in each phase



Three-phase Equipment Connection Wiring Diagram (N=6)

Two inverters in each phase



Note:

- Make sure all inverters in parallel have the same firmware version by verifying the 'DSP' and 'CSB' version numbers on App. Before three-phase connection, it is recommended to reset the inverter to factory default to ensure the same parameter for each inverter.
- Maximum six units work together to support three-phase equipment.
- Before setting parallel parameters, make sure the inverters are on standby.
- BMS connection is only applicable to lithium battery.
  - For shared lithium battery connection, please refer to Three-phase Equipment Connection Wiring Diagram to connect the BMS communication cable.
  - For standalone lithium battery connection, the BMS communication cable needs to be connected to each inverter.

App setting guide for three-phase connection

The following is an example for three inverters.

Step 1: Power on the inverter.

Step 2: Open the bluetooth and the APP on your phone. Then connect the inverter.

Step 3: Login as an Installer role.

Step 4: Verify version number: Swipe left on the Home screen

Step 5: Go to **Settings** > **Inverter** > **Parallel** to enable parallel mode.

Step 6: Reset the inverter: Click the **Equipment maintenance** > Click the **Reset**

Step 7: Turn off the inverter: Click the **Equipment maintenance** > Click the button

Step 8: Set the phase position accordingly: Go to **Settings** > **Inverter** > **Parallel** > **Single to Three Phase**. Notice that all three inverters should be set in this step. (Figure a-b)

Step 9: Set the battery connect type: **Settings** > **Inverter** > **Parallel** > **Battery Connection Type** > Select parallel/ independent battery.

Step 10: Set the other basic parameters of the inverter on the **Quick Setting** page.

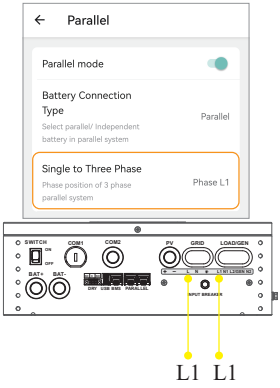


Figure a P1-Phase L1

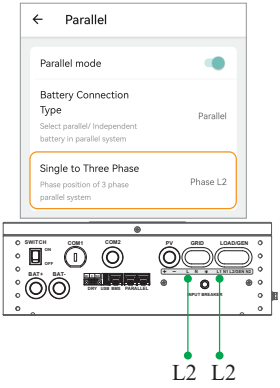


Figure b P2-Phase L2

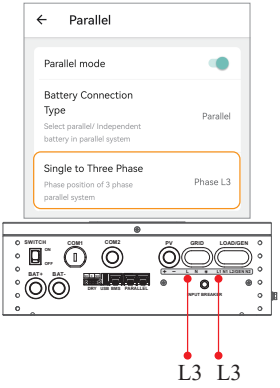


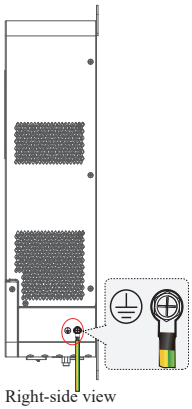
Figure c P3-Phase L3

4.1 Grounding

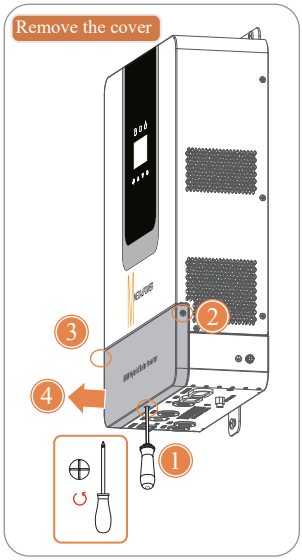
A protective earth (PE) terminal is equipped at the side of the inverter. Please be sure to connect this PE terminal to the PE bar for reliable grounding. The cross section area of green-yellow wire is greater than or equal to 10 mm².

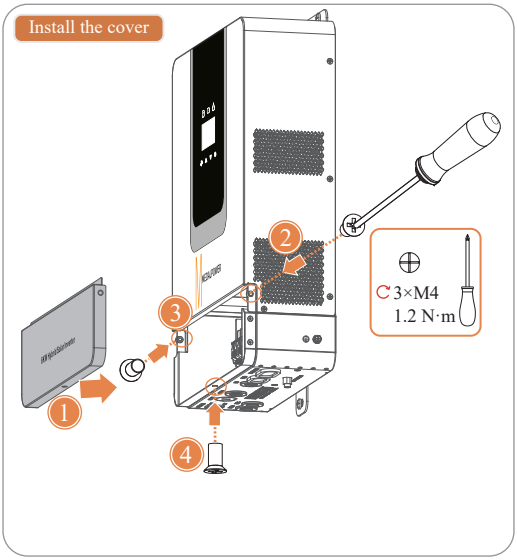
WARNING	The inverter must be grounded; otherwise, there may be electric shock risk.
CAUTION	If the positive pole or negative pole of the PV array is required to be grounded, then the inverter output (to AC grid) must be isolated by transformer in accordance with IEC62109-1, -2 standards.

Items	Remark
Screw	M5 X 12 mm; 2 N·m
Cross-sectional area (Green-yellow wire)	S(Green-yellow wire) ≥ S(PE wire of AC cable) S is the cross-sectional area.
	≥ 10mm² OT terminal must be sized to cross-sectional area of green-yellow wire. E.g., if the cross-sectional area of green-yellow wire is 10mm², OT8-4 terminal should be chosen.


Right-side view

4.2 Removing/Installing the Cover





4.3 GRID Connection

Note:

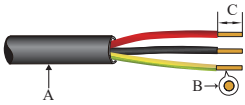
Appliances like air conditioners need at least 2-3 minutes before they can be restarted, as the refrigerant inside their circuits requires sufficient time to reach a balanced state. If a short power outage occurs and the power is quickly restored afterward, it may cause damage to the connected appliances.

To prevent such damage, please confirm with the air conditioner manufacturer whether the unit is equipped with a time-delay startup function prior to installation. If it is not equipped with this function, the inverter will activate overload protection and cut off the output to safeguard the appliance. However, in some cases, internal damage to the air conditioner may still occur.

Before connecting the GRID terminal, ensure that the AC terminal, the battery terminal and the PV terminal are powered OFF. Otherwise there is a risk of high voltage shock.

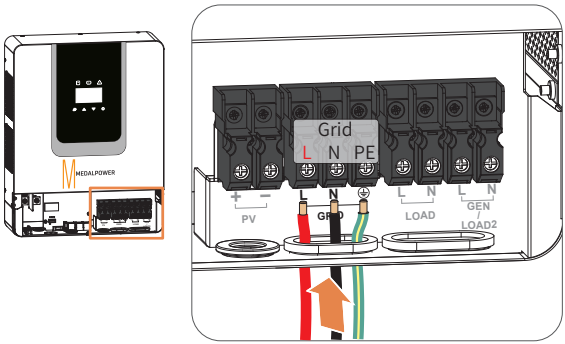
GRID connection procedure:

Step 1: Select the cable and strip the insulation.

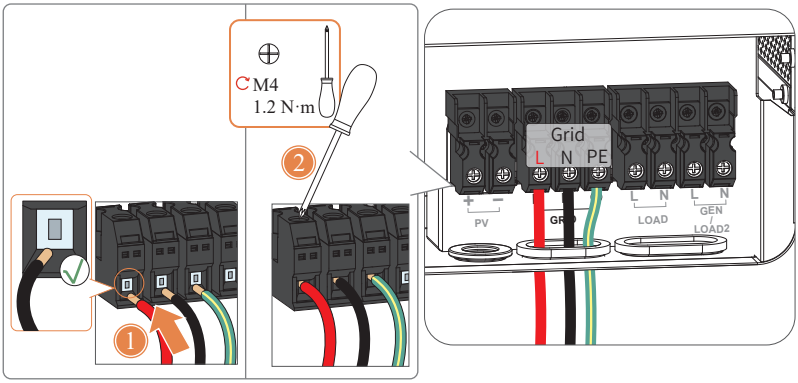


A. Diameter	12-17 mm
B. Cross Section	8-10 mm²
C. Strip Length	10±0.5 mm

Step 2: Run the cables into wiring box through correct ports.



Step 3: The cable clamper has been opened by default. Attach the cables to the terminal blocks accordingly and then tighten all screws with a torque of 1.2N·m.

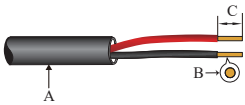


4.4 LOAD (L1-N1) Connection

Before connecting the LOAD terminal, ensure that the AC terminal, the battery terminal and the PV terminal are powered OFF. Otherwise there is a risk of high voltage shock.

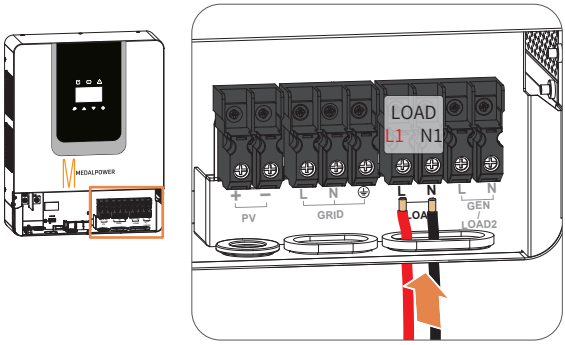
LOAD connection procedure:

Step 1: Select the cable and strip the insulation.

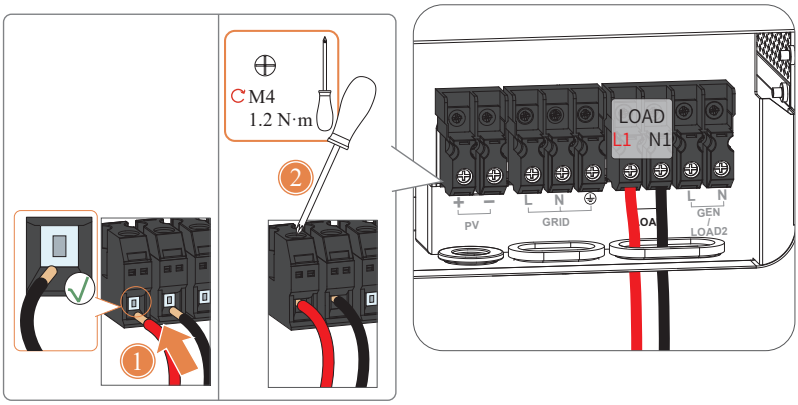


A. Diameter	12-14 mm
B. Cross Section	5.3-8 mm²
C. Strip Length	10±0.5 mm

Step 2: Run the cables into wiring box through correct ports.



Step 3: The cable clamper has been opened by default. Attach the cables to the terminal blocks accordingly and then tighten all screws with a torque of 1.2N·m.



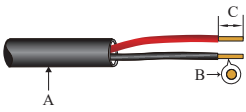
4.5 Generator/Smart Load Connection

The GEN/LOAD2-N port can work as the input port for the generator or as the output port for the Smart Load.

Before connecting the Generator/Smart Load terminal, ensure that the AC terminal, the battery terminal and the PV terminal are powered OFF. Otherwise there is a risk of high voltage shock.

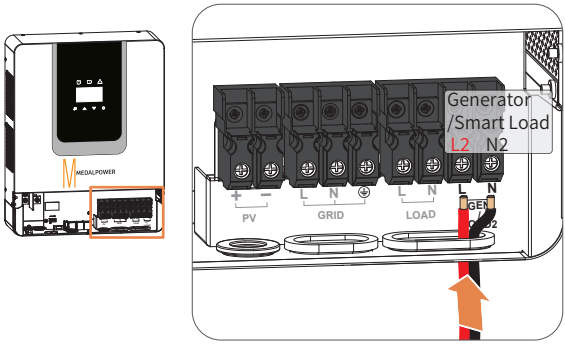
GEN connection procedure:

Step 1: Select the cable and strip the insulation.

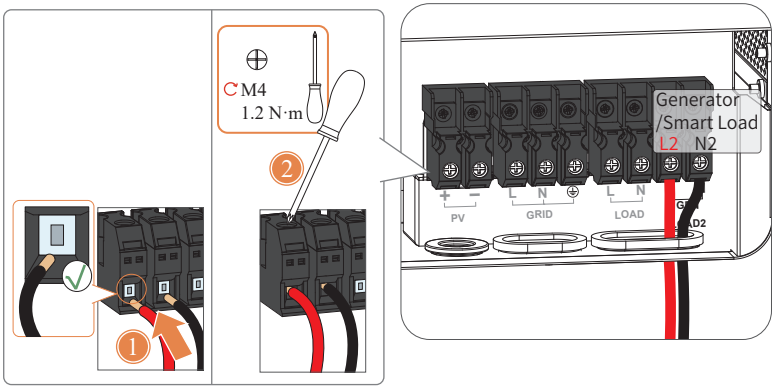


A. Diameter	12-14 mm
B. Cross Section	5.3-8 mm²
C. Strip Length	10±0.5 mm

Step 2: Run the cables into wiring box through correct ports.



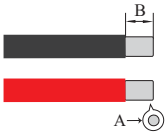
Step 3: The cable clamper has been opened by default. Attach the cables to the terminal blocks accordingly and then tighten all screws with a torque of 1.2N·m.



4.6 PV Connection

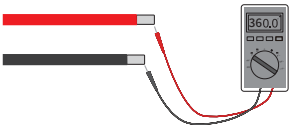
WARNING	Please check polarity of PVconnectors! If polarity reversed, do not try to disconnect any PV connector until the irradiance declines and the DC currents fall below 0.5 A! Only then disconnect the PV plugs and correct the polarity before reconnecting.
NOTICE	• Before connection the PV panels, make sure the connector have the correct polarity. Incorrect polarity could permanently damage the inverter. • PV array shouldn't be connected to the grounding conductor. • The minimum insulation resistance to ground of the PV panels must exceed 18.33kΩ, there is a risk of shock hazard if the requirement of minimum resistance is not met.
NOTE	PV cable should be dedicated PV cable.

Step 1: Prepare the proper cable we recommended, and strip an appropriate length of the cable insulation.

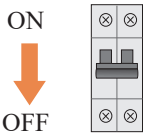


A. Cross Section	5.3-8 mm²
B. Strip Length	6±0.5 mm

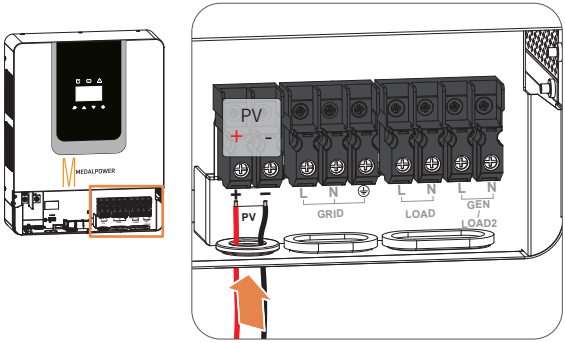
Step 2: Test string voltage and confirm string polarity.



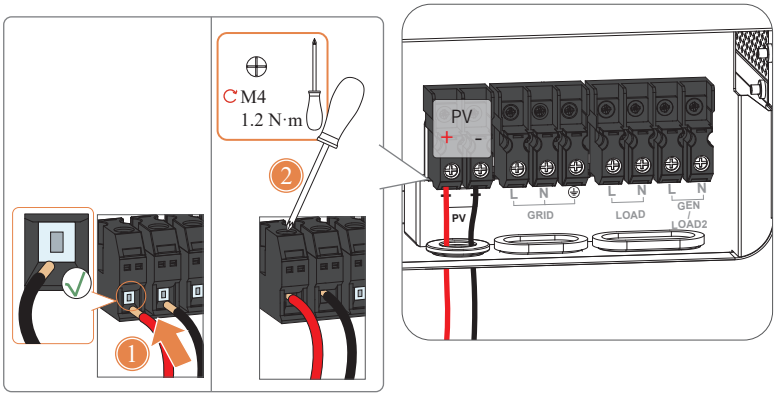
Step 3: Turn off the PV breakers.



Step 4: Run the cables into wiring box through correct ports.



Step 5: The cable clamper has been opened by default. Attach the cables to the terminal blocks accordingly and then tighten all screws with a torque of 1.2N·m.

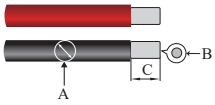


4.7 Battery Connection

This section explains the requirements and procedures of battery connection. Read carefully before connecting.

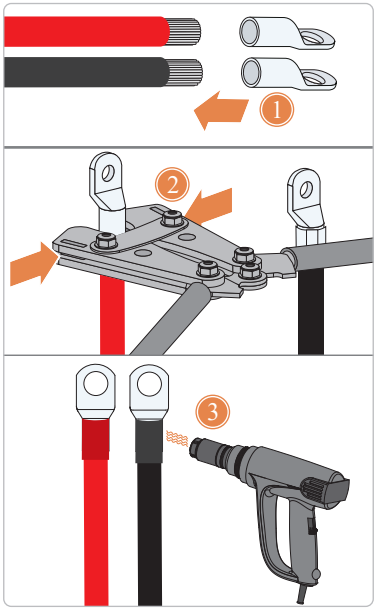
DANGER	Before connecting the battery terminal, ensure that the AC terminal, the battery terminal and the PV terminal are powered OFF. Otherwise there is a risk of high voltage shock.

Step 1: Prepare the proper cable we recommended, and length of the cable insulation.

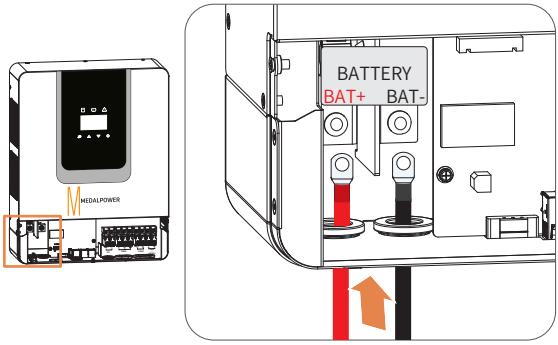


A. Diameter	9-10.5 mm
B. Cross Section	30-35 mm²
C. Strip Length	12±0.5 mm

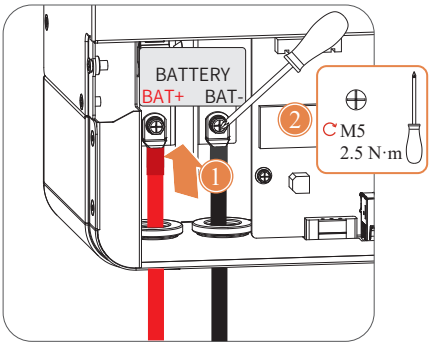
Step 2: Fit a terminal lug to each cable and use an appropriate tool to crimp it. Then use the heat shrinkable tubing to protect the cable.



Step 3: Loosen the rubber nut, then remove the seal and sealing plugs.

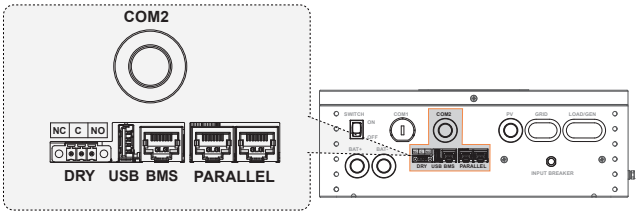


Step 4: Lead the cable through the rubber nut and seal in turn. Then run the cables into wiring box through correct ports.



4.8 Communication Interface Connection

Communication interfaces layout and definition:

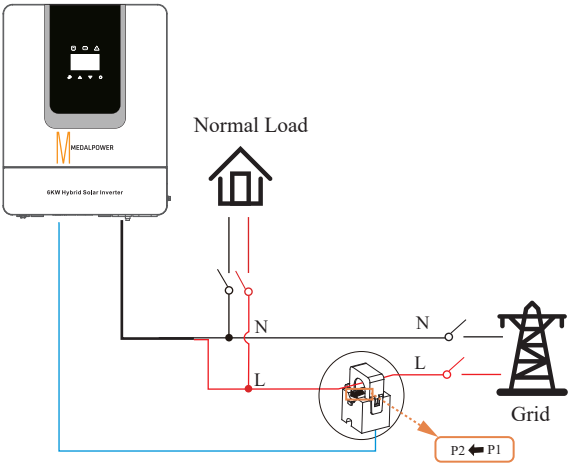


Interface	Description
COM2	For CT communication.
DRY	Normally open/close relay for generator two-wire start.
USB	USB communication/function.
BMS	Lithium battery communication interface.
PARALLEL	RJ45 interface for parallel communication.

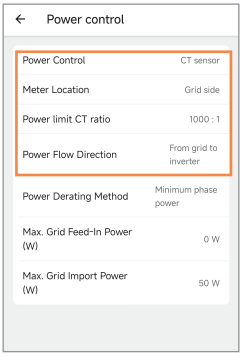
4.8.1 CT Connection

Please pay attention to the direction of current transformer (CT). The arrow on the CT indicates the current flow from grid to inverter.

Take the CT at grid side as an example.

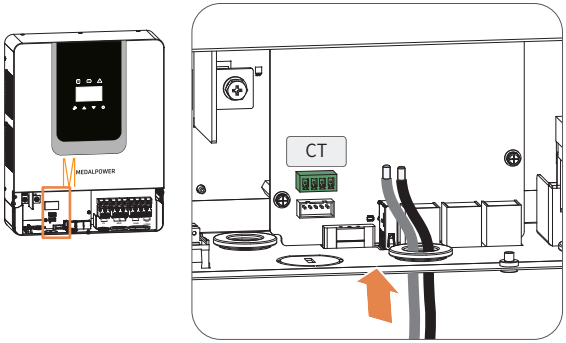


App Display Select the ratio according to the specifications of the CT.



Cables connection procedure connection

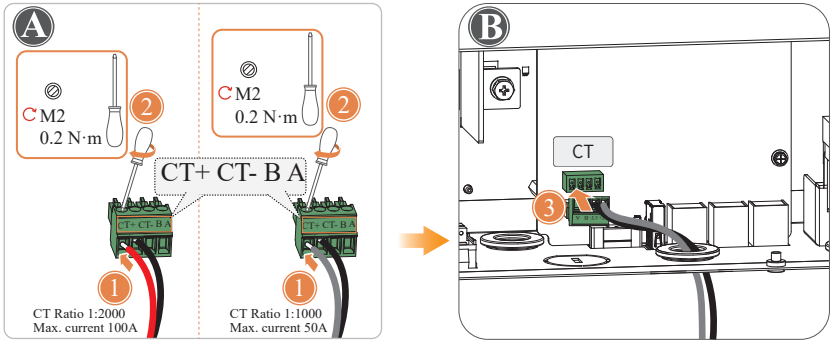
Step 1: Run the cables into wiring box through correct ports.



Step 2: Thread the cables and and make the terminal.

A: Make the terminal according to the above pin definition.

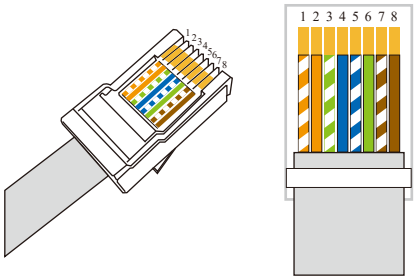
B: Insert the assembled 4-pin terminal into the connection port.



4.8.2 BMS Connection for Lithium Battery

NOTICE	This manual ONLY illustrates the pinout sequence of BMS at INVERTER SIDE. For details about the pinout sequence at battery side, see the user manual of the battery you use, and the following pinout diagram of battery side is only for illustration.

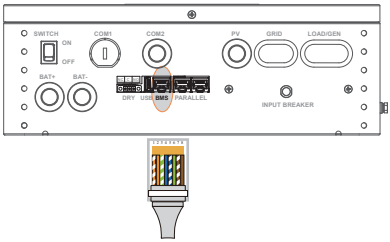
Standard RJ45 Pinout

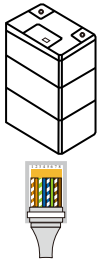


RJ45 Pin Configuration	
Pin	**Color**
1	White-Orange
2	Orange
3	White-Green
4	Blue
5	White-Blue
6	Green
7	White-Brown
8	Brown

Always face the flat side of the terminal, and count the pin slots from left to right, which correspond to 1 to 8. Read the pin definitions of both the battery and inverter carefully.

Pin definition of terminal

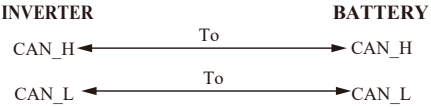




Pin (Inverter)	Function Description
1	RS485_ A3
2	RS485_B3
3	GND_S
4	CAN_H
5	CAN_L
6	NTC
7	CAN_L
8	CAN_H

Pin (Battery (eg. tech))	Function Description
1	NC
2	NC
3	GND_S
4	CAN_H
5	CAN_L
6	GND_S
7	NC
8	NC

CAN BUS connection principle

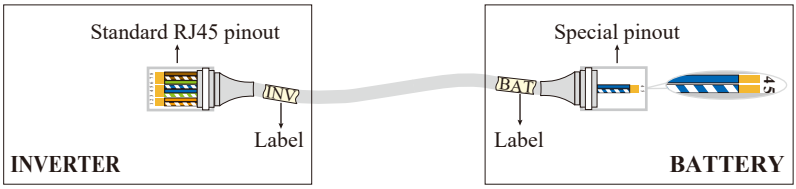


Procedures:

Step 1: BMS communication cable prepartion.

1. Prepare RJ45 terminals and strip appropriate length of COM cables.
2. According to pin definitions and cable order, assemble the RJ45 terminals and crimp communication wires.There are two methods to assemble the RJ45 terminals.

   Method 1: Use the INVERTER RJ45 pinout as the standard pinout to crimp wires, then the battery side will be a non-standard one (special pinout). Cut off the other no-used wires (1/2/3/6/7/8) for the battery RJ45 terminal.

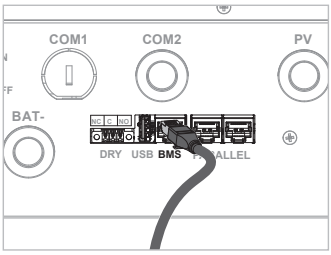


   Method 2: Use the BATTERY RJ45 pinout as the standard pinout to crimp wires, then the inverter side will be a non-standard one (special pinout). Cut off the other no-used wires (1/2/3/6/7/8) for the inverter RJ45 terminal.



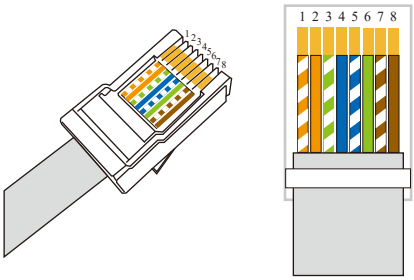
3. Then label the RJ45 terminals (BAT or INV) to avoid confusion.
4. After finishing wire-making, use a multimeter or other specific tool to check if your cable is good, bad, or wired incorrectly.

Step 2: Insert the terminal into corresponding port.



4.8.3 NTC Connection for lead-acid battery (Optional)

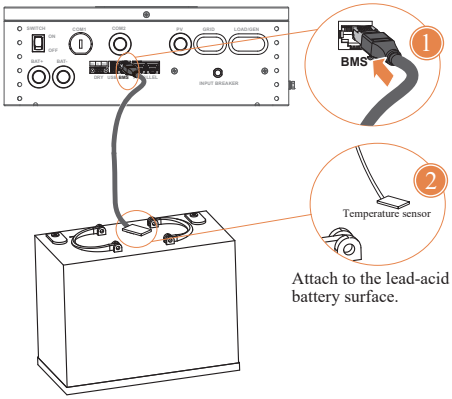
Pin definition of terminal



Pin (Terminal)	Function Description
1	NC
2	NC
3	GND_S
4	NC
5	NC
6	NTC
7	NC
8	NC

Cables connection procedure connection

Insert the terminal into BMS port. Then connect the other end of the lead-acid battery NTC cable.

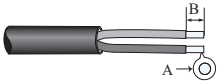


4.8.4 DRY Connection

Unit Status	Condition	Dry contact port (NC C NO) DRY	
		NC & C	NO & C
Power Off	Unit is off, no output power.	close	open
Power On	Battery voltage < Discharge Stop voltage(On-Grid)(V) or Battery SOC < Discharge Stop soc(On-Grid)(%).	open	close
	Battery voltage> Grid Charge Stop Battery voltage(V) or Battery SOC > Grid Charge Stop Battery SOC(%).	close	open

Cables connection procedure connection

Step 1: Select the cable and strip the insulation.



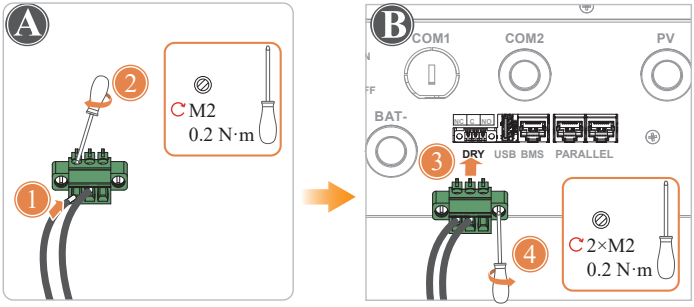
A. Cross Section 0.12-0.2 mm²

B. Strip Length 7.5±0.5 mm

Step 2: Thread the cables and and make the terminal.

A: Make the terminal according to the above pin definition.

B: Insert the assembled 3-pin terminal into the connection port.

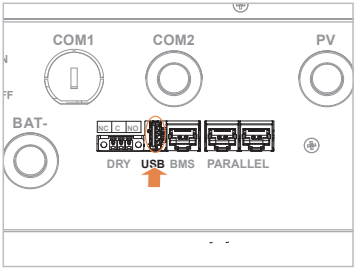


4.8.5 USB Connection

Connect the USB flash drive to the correct port.

Function:

- Upgrade firmware
- Re-write internal parameters
- Export data log



Note:

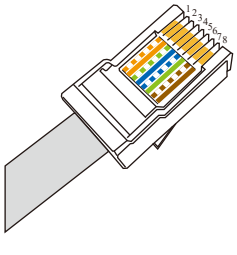
It is recommended to use a USB flash drive with a capacity of 32G or less and in FAT32 format.

4.8.6 Parallel Communication Connection (Optional)

Note:

Parallel communication cable and connector are optional

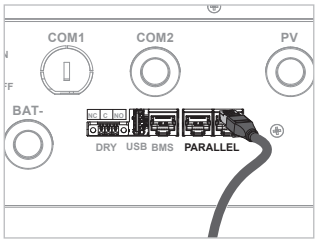
Pin definition of terminal



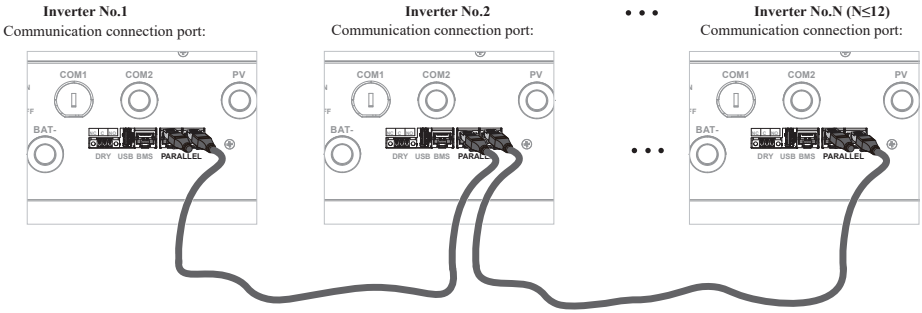
Pin (Terminal)	Function Description
1	CAN_H
2	CAN_L
3	NC
4	NC
5	NC
6	NC
7	PARA_SYNC
8	GND_S

Parallel cable connection procedure connection

Insert the terminal into corresponding port.



Parallel communication cables connection between different inverters.



It is necessary to connect parallel communication connector to the first one and the last one in parallel connection mode.

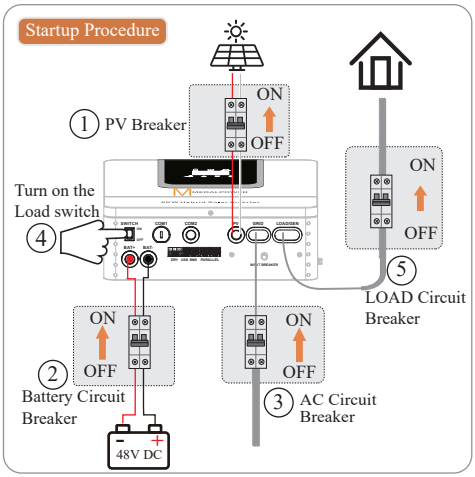
5. Startup/Shutdown Procedure

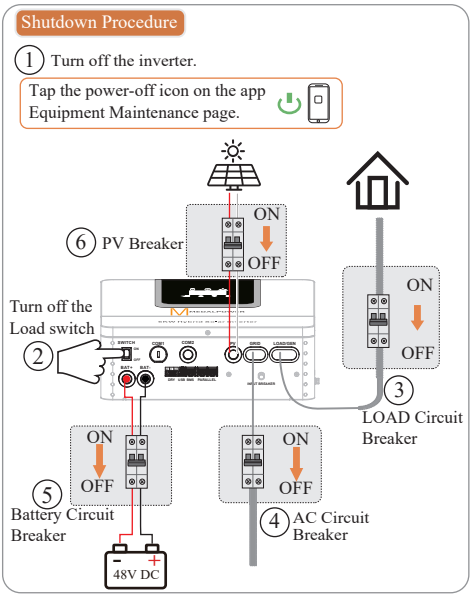
Inspection

No.	Items
1	The inverter is firmly installed.
2	There is enough heat dissipation space, no external objects or parts left on the inverter.
3	It is convenient for operation and maintenance.
4	The wiring of the system is correct and firm.
5	Check whether the DC and AC connections are correct with a multimeter, and ensure there is no short circuit, break, or wrong connection.
6	All safety labels and warning labels on the inverter are complete and without occlusion or alteration.
7	Confirm the parameters and configurations conform to relevant requirements. ● AC Frequency: 50/60 Hz ● PV Voltage: 60 V DC to 500 V DC ● Battery Voltage: 40 V DC to 60 V DC ● Grid AC Voltage: 90 V AC to 280 V AC

5.1 Startup/Shutdown Procedure

DANGER	After the inverter is powered off, the remaining electricity and heat may still cause electric shock and body burns. If need to disconnect the inverter cables, please wait at least 10 minutes before touching these parts of inverter.





6. App Setting Guide

SolarVolt App contains “Cloud Login” and “Local Login”.

- Cloud login: APP read data from cloud server through API and display inverter parameter.
- Local login: APP read data from inverter through Bluetooth connection with Modbus protocol to display and configure inverter parameter.

6.1 Download App

- Scan the QR code to download the APP.
- Download APP from the App Store or Google Play.

Note:

The APP should access some permissions such as the device’s location. You need to grant all access rights in all pop-up windows when installing the APP or setting your phone.

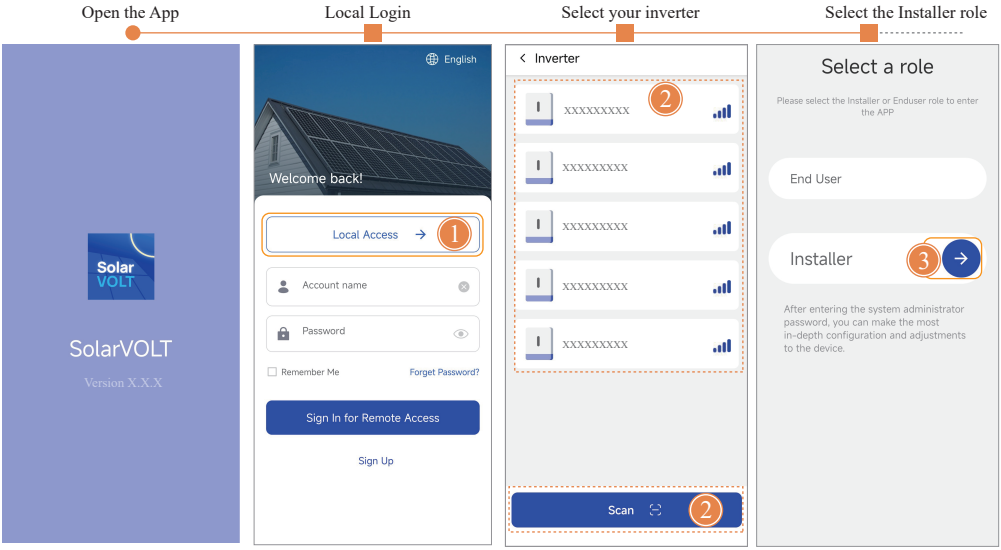
For more details, refer to the ***SolarVolt App User Manual.***

6.2 Quick Setting

Step 1: Power on the inverter and enable the Bluetooth on your phone, then open the app and tap **Local Access**.

Step 2: Select your inverter from the list or scan the SN bar code on the inverter.

Step 3: Select the **Installer** role and tap .



Step 4: Enter the password to enter the **Homepage**.

Step 5: Navigate to **Settings** menu from the **Homepage**.

Step 6: Tap the **Quick Setting**.

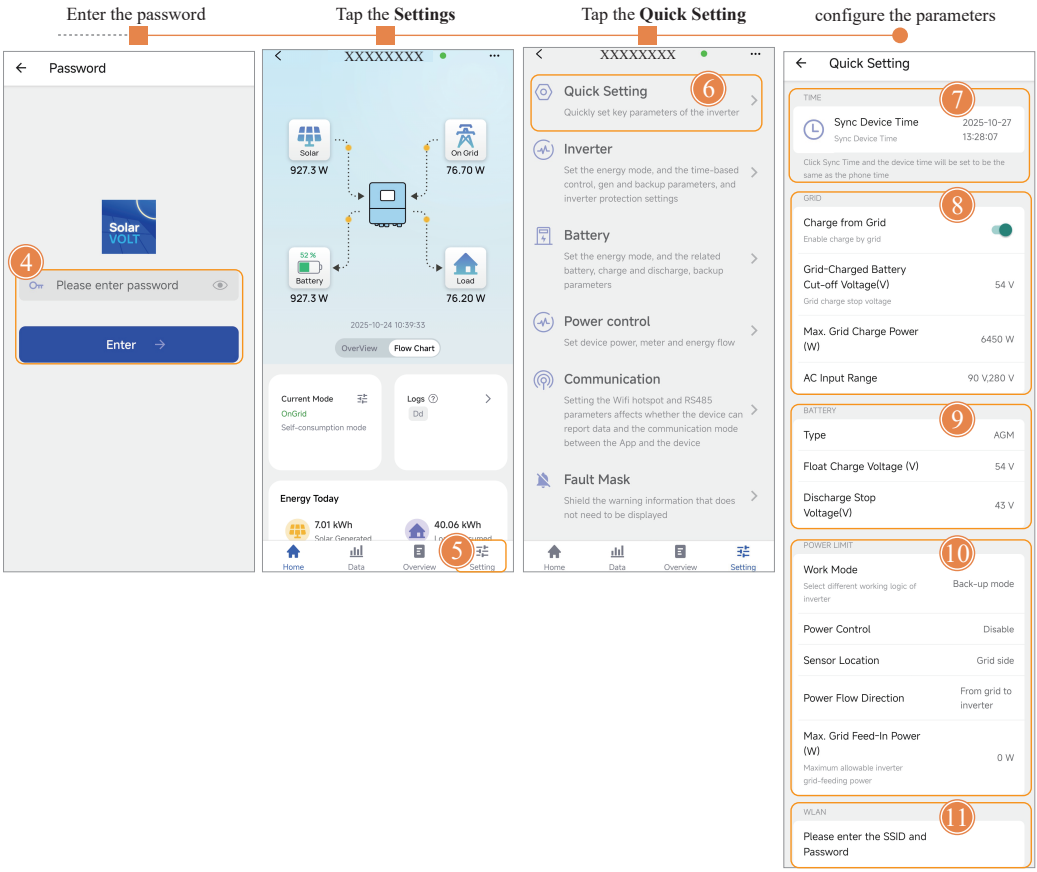
Step 7: Tap **Sync Device Time** to synchronize the device time with your phone's time if necessary.

Step 8: Adjust grid-side parameters according to the on-site requirements.

Step 9: Adjust battery parameters according to the on-site requirements.

Step 10: Adjust power limit function parameters according to the on-site requirements.

Step 11: Connect the inverter to the router. (Tips: Please use the 2.4G network frequency band for configuration.)

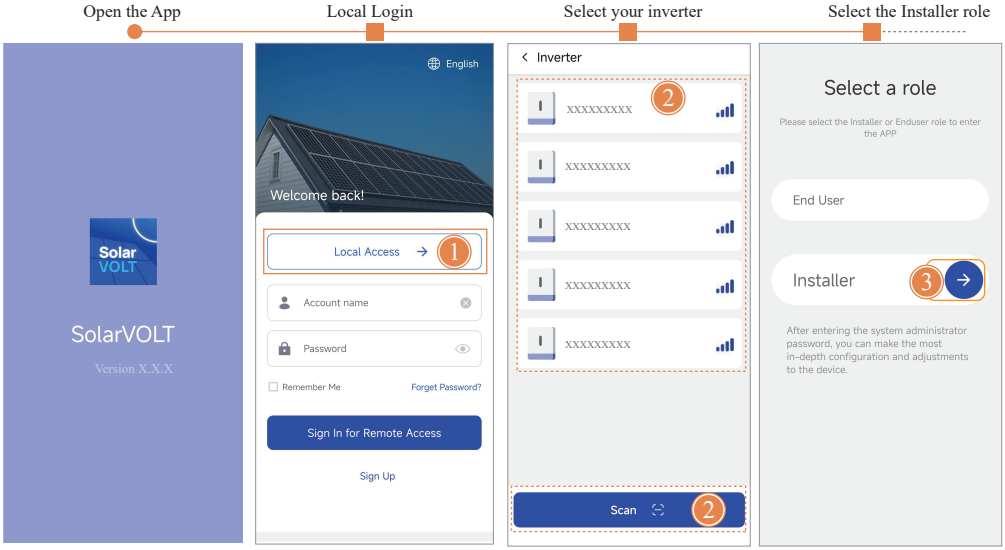


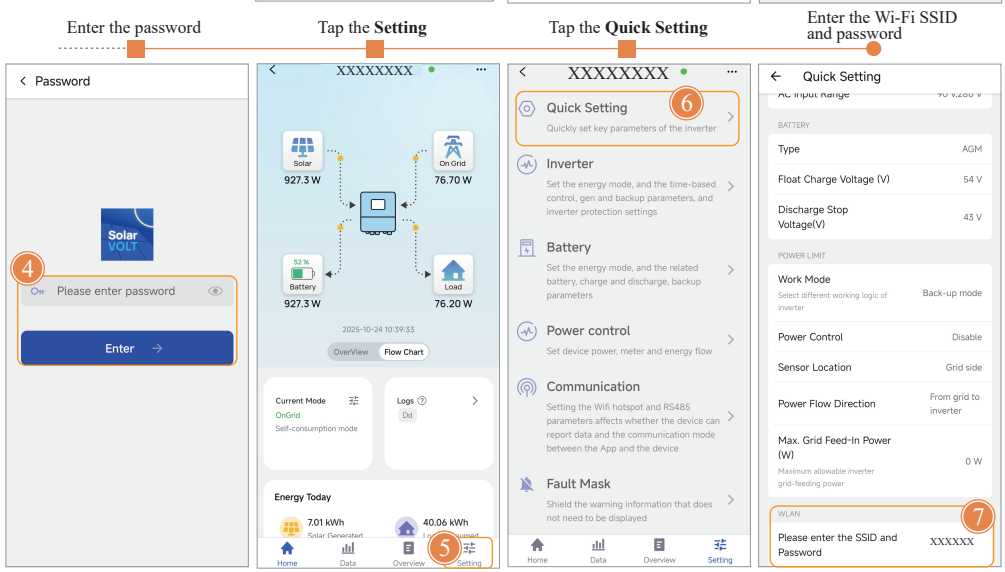
6.3 Wi-Fi

Setting steps

Step 1: Connecting the Inverter to the Router.

1. Power on the inverter and enable the Bluetooth on your phone, then open the app and tap **Local Access**.
2. Select your inverter from the list or scan the SN bar code on the inverter.
3. Select the **Installer** role and tap → and enter the password to enter the **Homepage**.
4. Connect the inverter to the router by entering the Wi-Fi SSID and password.



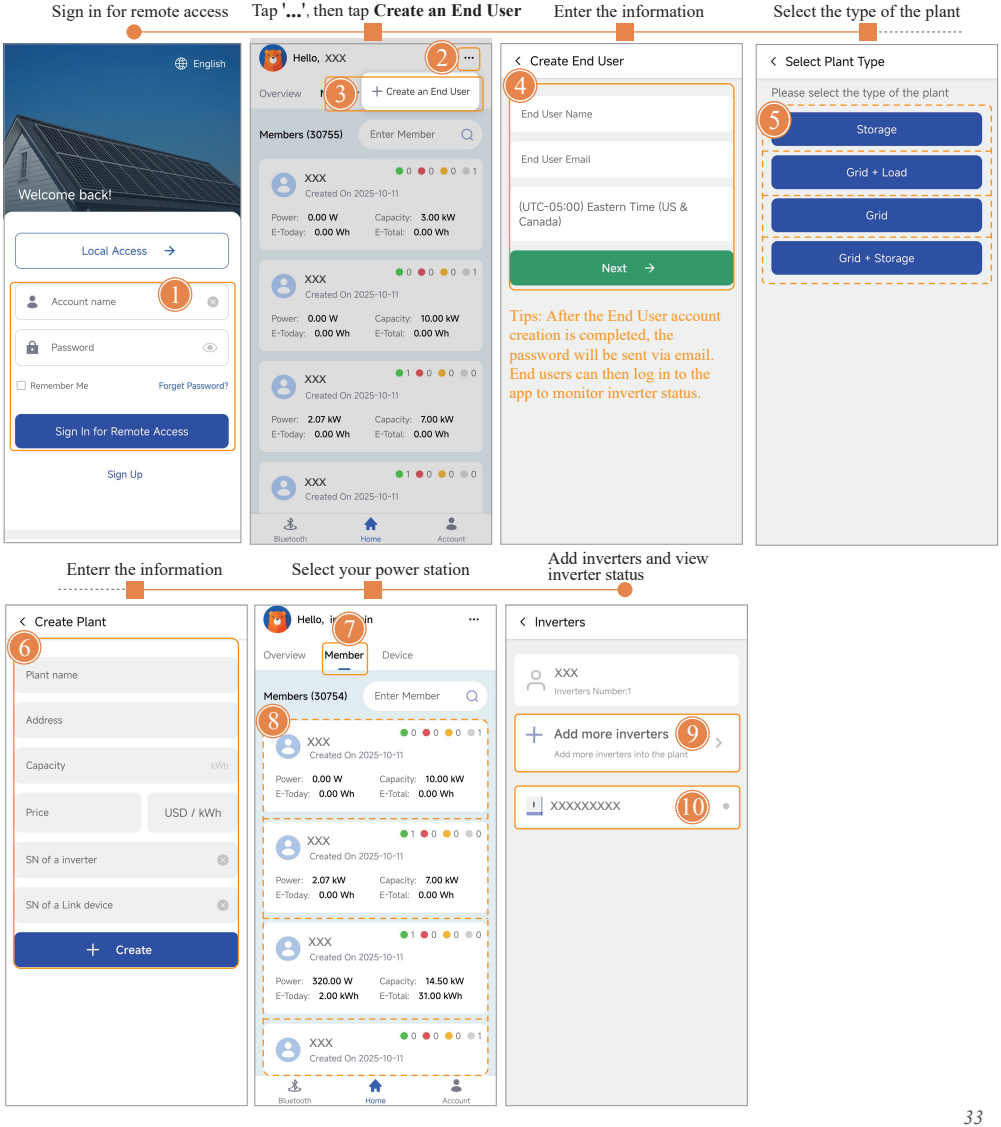


Note:

Sign up for a new installer remote account on the OSS platform or consult the sales for the account and password.

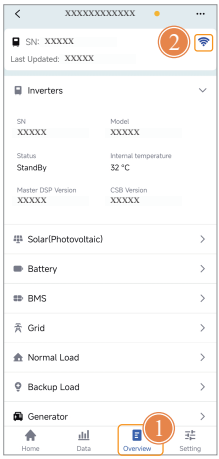
Step 2: Adding Power Station and Binding Inverter.

1. Enter the account name and password, then tap **Sign in for remote access**.
2. Tap **"..." > Create an End User**, enter the **End User Name**, **End User Email**, and time zone required for account creation. After the End User account creation is completed, the password will be sent via email. End users can then log in to the app to monitor inverter status.
3. Select the type of the plant and enter required information to add the power station.
4. Select your power station to add inverters and view inverter status.



Suggestions for Wi-Fi

- It is recommended to use the Wi-Fi router within 15 m, and there is no obstacle between the inverter and the router.
- Tap **Overview** to check the signal strength. Make sure that the Wi-Fi signal strength is more than three bars.
- When the signal strength is less than three bars, choose one of the following three ways to improve the signal:
  - Move the router closer to the inverter.
  - Adjust the height of the router to reduce obstacles.
  - Add a repeater to improve the signal strength.



7. 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 control buttons and a LCD display, indicating the operating status and input/output power information.



7.1 LED

This section describes the LED panel. LED indicators include a Grid/Inverter LED indicator, Charging LED indicator and Alarm LED indicator.

LED Indicator	Icon	Status	Description
Inverter		On	On-grid status (include bypass mode)
		Blink	Off-grid status
		Off	Standby or startup state (not connected to the grid)
Battery		On	SOC 100%.
		Blink	Charging
		Off	No charged/battery
Alarm		On	Fault has occurred
		Blink	Warning has occurred
		Off	Normal

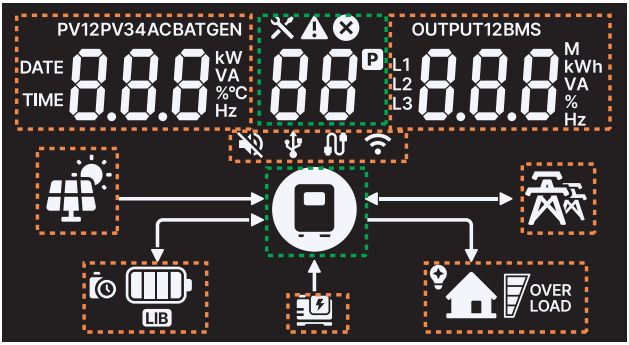
Buzzer Information	Time	Description
Buzzer beep	0.1s	Press any button.
	0.5s	Hold on the "Enter" button.
	Keep going	Fault has occurred
	Discontinuous	Warning has occurred

7.2 Control/Touch Button

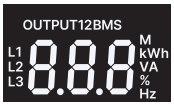
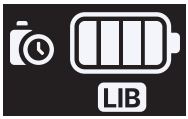
The control buttons (Esc/Up/Down/Enter) at the bottom of the LCD screen are touch buttons. You can set parameters and monitor data of the inverter through the LCD.

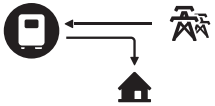
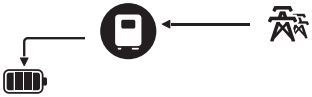
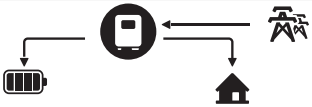
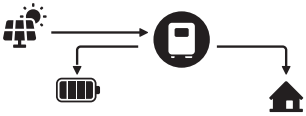
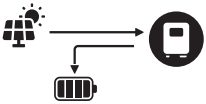
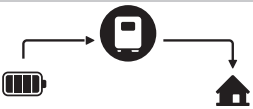
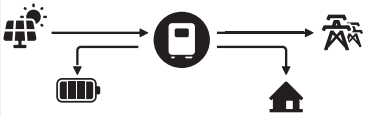
Button	Icon	Description
Esc		Exit the current page
Up		Upward selection
Down		Downward selection
Enter		Go to the selected page.

7.3 LCD Screen



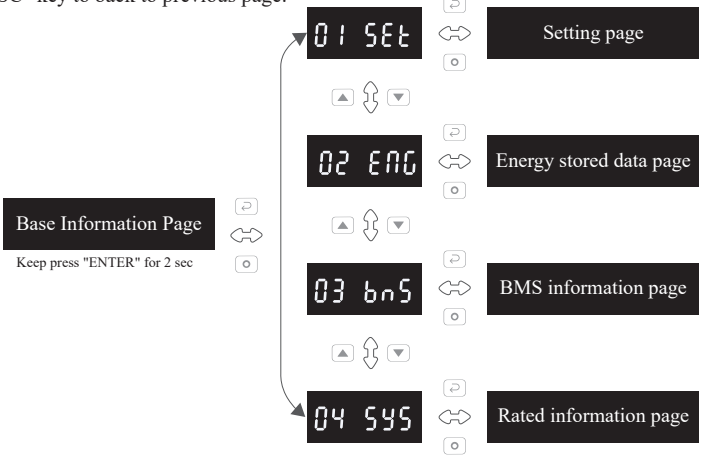
Icon	Description
Input Source Informatione	
	Indicate input voltage, input frequency, PV voltage, PV power, battery voltage and charger current.
Configuration Program and Fault Information	
	 Setting programs
 Warning code	 Fault code
 Number of parallel When the "**P**" icon flashes at the top-right corner , it means that the inverter is the master.	

Icon	Description			
Output Information				
	Indicate output voltage, output frequency, load percent, load in VA, load in Watt and discharging current.			
Connection state				
	Turn off the buzzer	USB connected	 RS485 connected	 Wifi connected
Inverter information				
	Inverter icon			
Grid input				
	Grid icon			
Load information				
	 Load icon	 Over load percentage	 It means that the GEN/LOAD2 Port works as an output port for the Smart Load connected to the GEN terminal.	
Gen input				
	Generator icon			
Battery information				
	 Enable the time-based control function	 Battery icon and SOC	 lithium battery.If the icon flashes, it indicates that the BMS Communication is abnormal.	
PV input				
	PV icon			

Icon	Description
Mode Operation Information	
	Indicates load is supplied by utility directly.
	Indicates the utility charger circuit is working.
	Indicates the inverter/charger is working.
	Indicates PV MPPT is working to power load and charge battery.
	Indicates PV MPPT is working to charge battery.
	Indicates battery is discharging to load.
	Indicates the excess PV energy is fed into the grid.

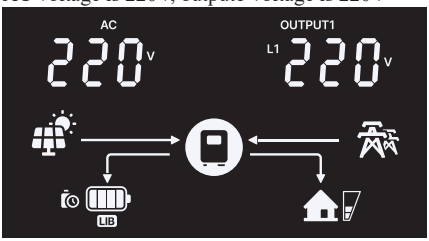
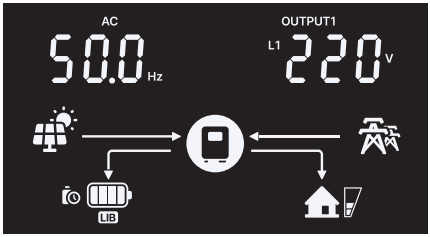
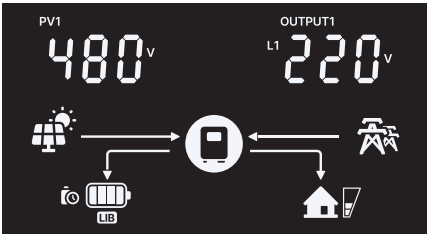
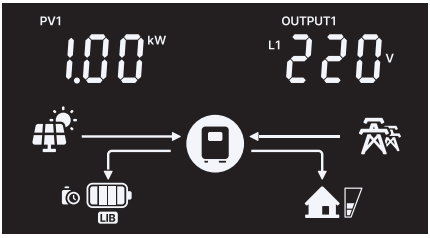
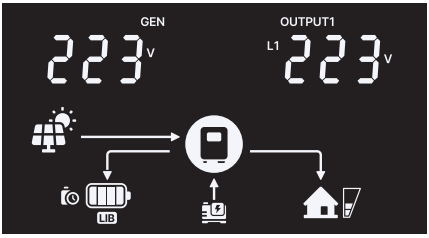
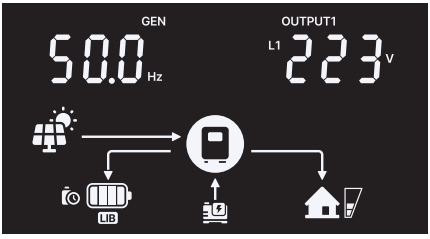
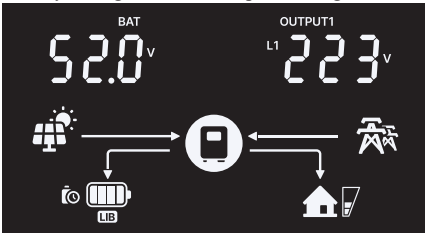
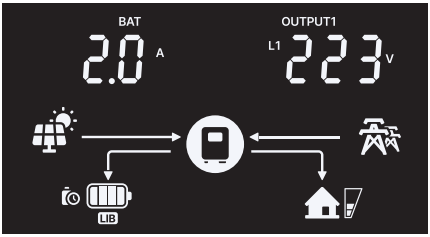
7.4 LCD operation flow chart

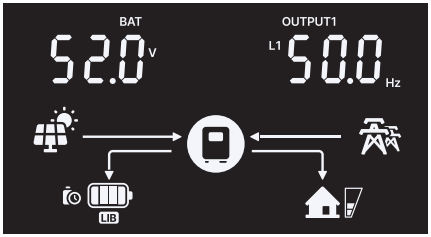
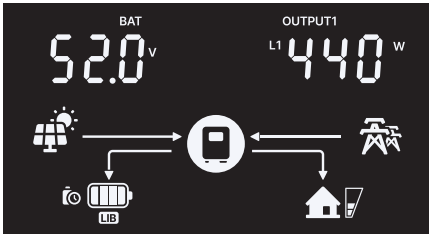
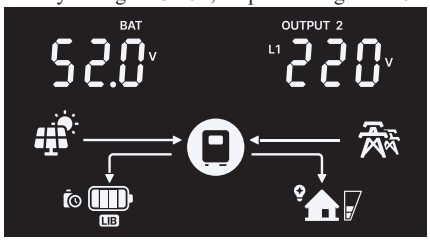
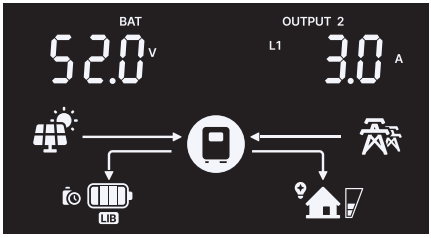
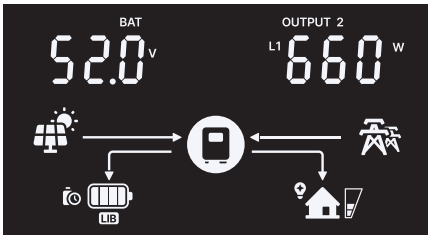
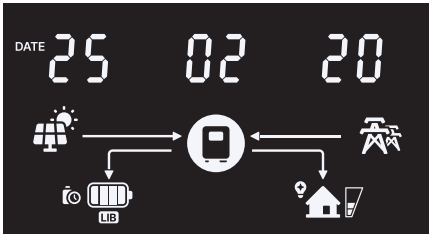
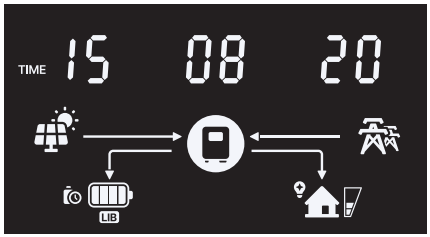
On base information page, pressing and holding "ENTER" key for 2 sec, the unit will enter parameters page. Press "UP" or "DOWN" key to switch the selection and press "ENTER" key to enter selected page. Press "ESC" key to back to previous page.



7.5 Base information Page

The home page displays the voltage, current or power parameters. The base information will be switched by pressing "Up" or "DOWN" key.

No.	Description	No.	Description
1	**AC voltage/Output1 voltage** AC voltage is 220V, output1 voltage is 220V 	2	**AC frequency / Output1 voltage** AC frequency is 50.0Hz, output1 voltage is 220V 
3	**PV1 Voltage/ Output1 voltage** PV1 voltage is 480V, output1 voltage is 220V 	4	**PV1 Power/ Output1 voltage** PV1 power is 1.00kW, output1 voltage is 220V 
5	**GEN Voltage/ Output1 voltage** Generator voltage is 223V, output1 voltage is 223V 	6	**GEN Frequency/ Output1 voltage** Generator frequency 50.0Hz, output1 voltage 223V 
7	**Battery Voltage/ Output1 voltage** Battery voltage is 52.0V, output1 voltage is 223V 	8	**Battery current/ Output1 voltage** Battery current is 2.0A, output1 voltage is 223V 

No.	Description	No.	Description
9	**Battery Voltage/ Output1 Frequency** Battery voltage is 52.0V, output1 frequency is 50.0Hz 	10	**Battery Voltage/ Output1 Power** Battery voltage is 52.0V, output1 power is 440w 
11	**Battery Voltage/ Output2 Voltage** Battery voltage is 52.0V, output2 voltage is 220V 	12	**Battery Voltage/ Output2 current** Battery voltage is 52.0V, output2 current is 3A 
13	**Battery Voltage/ Output2 Power** Battery voltage is 52.0V, output2 power is 660w 	14	**Date** 2025-02-20 
15	**Time** 15: 08: 20 		

Note:

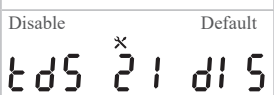
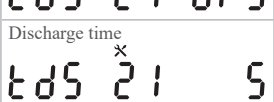
- The generator information pages (No.5, 6) are only displayed when the "GEN/LOAD2-N" port can work as the input port for the generator.
- The output2 information pages (No.11, 12, 13) are only displayed when the "GEN/LOAD2-N" port can work as the output port for the Smart Load.

7.6 Setting Page

Press "UP" or "DOWN" button to select setting programs. And then, press "ENTER" button to confirm the selection or ESC button to exit. Keep pressing UP or DOWN button after 1.5 seconds, it will increase or decrease setting value fastly.

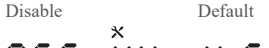
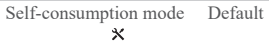
NO.	Function	Selectable option	
1	Battery type	AGM Default 	• If "PYLON" or "PrimeVOLT-LV" or "Lithium-LV"is selected, inverter can charge Lithium battery when the Lithium battery need to be activated. Please make sure Lithium battery is connected before you start up inverter. • If inverter doesn't connect battery or Lithium battery, do not select "PYLON" or "PrimeVOLT-LV" or "Lithium-LV" battery type.
		Flooded 	
		Lithium Battery(without COMM) 	
		PYLON 	
		PrimeVOLT-LV 	
		Lithium-LV 	
2	BMS address	Default 	Value range: 1-250.
3	Bulk charging voltage setting(C.V voltage)	48V model Default 	If "Lithium Battery(without COMM)" is selected in program 01, this program is enabled. Setting range is from 48.0V to 60.0V.
		24V model Default 	If "Lithium Battery(without COMM)" is selected in program 01, this program is enabled. Setting range is from 24.0V to 30.0V.
4	Floating charging voltage	48V model Default 	If "Lithium Battery(without COMM)" is selected in program 01,this program is enabled. Setting range is from 48.0V to 60.0V.
		24V model Default 	If "Lithium Battery(without COMM)" is selected in program 01,this program is enabled. Setting range is from 24.0V to 30.0V.

NO.	Function	Selectable option	
5	Discharge stop voltage (V)	48V model Default 	If "Lithium Battery(without COMM)" is selected in program 01,this program is enabled. Setting range is from 42.0V to 48.0V.
		24V model Default 	If "Lithium Battery(without COMM)" is selected in program 01,this program is enabled. Setting range is from 21.0V to 24.0V.
6	Discharge stop SOC (%)	Default 	If "PYLON" or "PrimeVOLT-LV" or "Lithium-LV" is selected in program 01,this program is enabled. Setting range is from 0% to 90%.
7	Discharge stop SOC(on grid) (%)	Default 	If "PYLON" or "PrimeVOLT-LV" or "Lithium-LV" is selected in program 01,this program is enabled. Setting range is from 5% to 95%.
8	Discharge stop voltage(on grid) (V)	48V model Default 	If "AGM", "Flooded" or "Lithium Battery(without COMM)" is selected in program 01,this program is enabled. Setting range is from 44.0V to 54.0V.
		24V model Default 	If "AGM", "Flooded" or "Lithium Battery(without COMM)" is selected in program 01,this program is enabled. Setting range is from 22.0V to 27.0V.
14	Parallel mode	Disable Default 	Disable parallel mode (default).
		Enable 	Enable parallel mode.
15	Single to 3-Phase	Unavailable Default 	The Single to 3-Phase function is unavailable.
		Phase L1 	Phase L1.
		Phase L2 	Phase L2.

NO.	Function	Selectable option	
15	Single to 3-Phase	Phase L3 	Phase L3.
16	Nominal AC voltage(V)		Output voltage configuration.
		Default 	
			
17	Nominal AC frequency(Hz)	Default 	Output frequency configuration.
			
19	Low DC cut off voltage on second output	48V model Default 	Setting range is from 42.0V to 48.0V. Increment of each click is 0.1V. This low DC cut-off voltage will be fixed to setting value no matter what percentage of load is connected.
		24V model Default 	Setting range is from 21.0V to 24.0V. Increment of each click is 0.1V. This low DC cut-off voltage will be fixed to setting value no matter what percentage of load is connected.
20	Low DC cut off SOC on second output	Default 	If any type of lithium battery is selected in program 1, this parameter value will be displayed in percentage and value setting is based on battery capacity percentage. Setting range is from 0% to 95%. Increment of each click is 1%.
21	Setting discharge time on the 2nd output	Disable Default 	Timing function disabled, The second output is allowed.
		Discharge time 	The second output discharge time is the set duration. Setting range is from 0 min to 990 min. Increment of each click is 1 min.

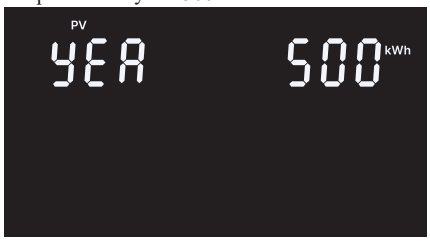
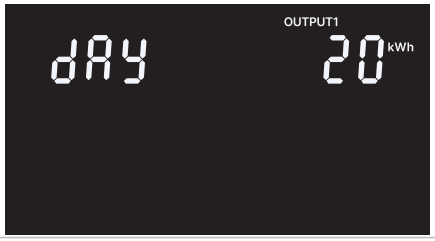
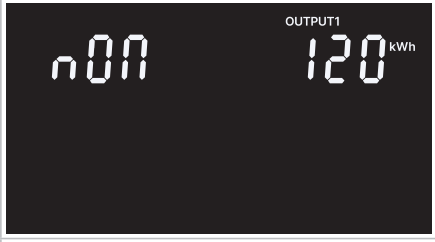
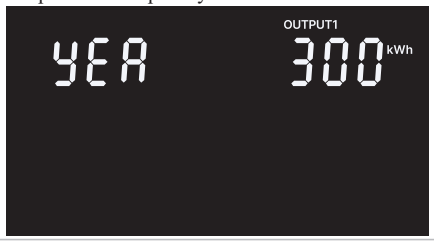
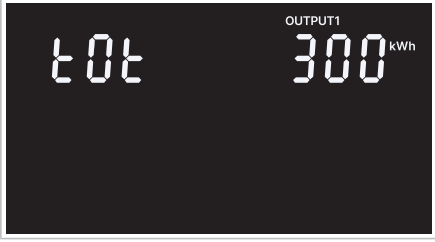
NO.	Function	Selectable option	
21	Setting discharge time on the 2nd output	OFF 	If the battery discharge time achieves the setting time in program 21 or the program 19/20 function is triggered, the second output will be turned off and the 21 programs will display OFF.
22	Scheduled time for 2nd AC output on	Default 	Setting range is from 00:00 to 23:00. Increment of each click is 1 hour. Within scheduled ON time setting in program 22, 2nd AC output will be turn on based on the setting value in program 21.
23	Scheduled time for 2nd AC output off	Default 	Setting range is from 00:00 to 23:00. Increment of each click is 1 hour. Within scheduled OFF time setting in program 23, 2nd AC output will be turn off based on the setting value in program 19/20.
24	smart load / generator port	Disable 	If selected, the "GEN/LOAD2" port is not available.
		Load Default 	The port "GEN/LOAD2" of AC output conector can be defined for 2nd AC output or Generator intput. • If "LOd" is selected, the 2nd AC output is enabled. • If "GEN" is selected, the Generator intput is enabled.
		Generator 	
27	Overload restart function	Three Default 	• If "tHr" is selected, the inverter will autorestart up to three times when overload occurs. • If "ALY" is selected, the inverter will always autorestart when overload occurs.
		Always 	
		Disable 	
29	Backlight of LCD	Disable Default 	If selected, LCD backlight will be off without any operation for 60s.
		Enable 	If selected, LCD backlight will be always-on.

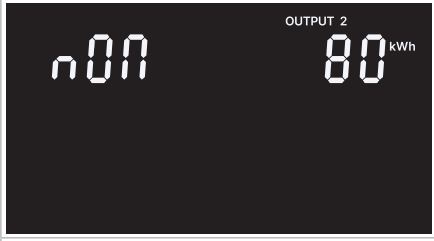
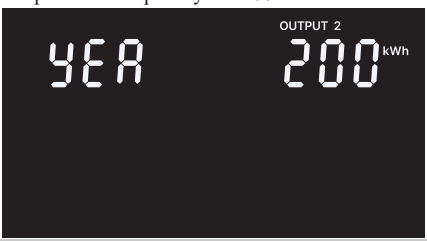
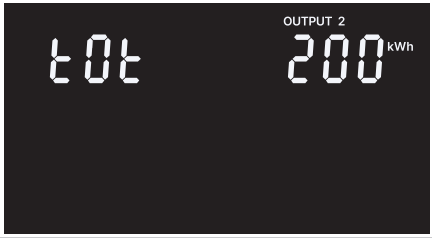
NO.	Function	Selectable option	
30	Auto return to the first page of display screen	Disable Default 	If selected, the display screen will stay at latest screen user finally switches.
		Enable 	If selected, it will automatically return to the first page of display screen (Input voltage/ output voltage) after no button is pressed for 60s.
31	Buzzer Alarm	Disable Default 	If selected, buzzer is not allowed to beep.
		Enable 	If selected, buzzer is allowed to beep.
33	Modbus address	Disable Default 	Value range: 1-255.
35	Time setting- Year	Year 	Setting range is from 23 to 99.
36	Time setting- Month	Month 	Setting range is from 1 to 12.
37	Time setting- Day	Day 	Setting range is from 1 to 31.
38	Time setting- Hour	Hour 	Setting range is from 0 to 23.
39	Time setting- Minute	Minute 	Setting range is from 0 to 59.
40	Time setting- Second	Second 	Setting range is from 0 to 59.
41	Max charging power (Utility charge power + PV charging power)	Default 	Setting range is from 0W to 6KW. Increment of each click is 10W.
42	Max utility charging power setting	Default 	Setting range is from 0W to 6KW. Increment of each click is 10W.

NO.	Function	Selectable option	
43	Max discharging power setting	Default 	Setting range is from 0W to 6KW. Increment of each click is 10W.
44	Charge from Grid	Disable Default 	If it is enabled, the grid will charge the battey.
		Enable 	
45	Grid voltage high limit	Default 	Voltage range: 220 V AC to 360 V AC
46	Grid voltage low limit	Default 	Voltage range: 90 V AC to 220 V AC
47	Work mode	Self-consumption mode Default 	Self-consumption mode: PV provides power to the loads first. If the PV energy is not enough to cover all consumption, the PV energy will be entirely used by loads, and the insufficient part will be supplied by battery. Then still insufficient parts will be supplied by grid.
		Back-up mode 	Back-up mode: If PV energy is wealthy, PV charges the battery first, then meets the load. If PV is not sufficient, utility will supply power the loads at the same time. Battery will provide power to loads only when utility is not available.
48	PV energy priority	Disable Default 	When you select "bAt" in program 47 and select "dIS" in this program， the PV energy will charge the battry first.
		Enable 	When you select "bAt" in program 47 and select "ENA" in this program, the PV energy will power to load first.

7.7 Energy Stored Data Page

The energy stored data will be switched by pressing "UP" or "DOWN" key. The selectable information is switched as below order:

No.	Description	No.	Description
1	PV production today: 50kWh 	2	PV production month: 200kWh 
3	PV production year: 500kWh 	4	PV Total Production: 500kWh 
5	Output1 consumption today: 20kWh 	6	Output1 consumption month: 120kWh 
7	Output1 consumption year: 300kWh 	8	Output1 total consumption: 300kWh 

No.	Description	No.	Description
9	Output2 consumption today: 30kWh 	10	Output2 consumption month: 80kWh 
11	Output2 consumption year: 200kWh 	12	Output2 total consumption: 200kWh 

7.8 BMS information Page

The BMS information will be switched by pressing "UP" or "DOWN" key. The selectable information is switched as below order:

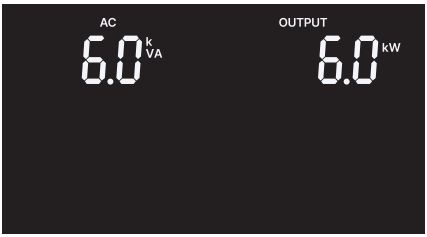
No.	Description
1	**Battery pack number / SOC** Battery pack number is 4, SOC is 50% 

No.	Description	No.	Description
2	**BMS voltage / SOC** BMS voltage is 54.0V, SOC is 50% on battery pack of address 1 	3	**BMS voltage / current** BMS voltage is 54.0V, current is 2.8A on battery pack of address 1 

No.	Description	No.	Description
4	**BMS highest temerpature / lowest temerpature** BMS highest temerpature is 24℃,lowest temerpature is 20℃ on battery pack of address 1 	5	**BMS fault code / flag** BMS fault code is 0, flag is 000 on battery pack of address 1 

7.9 System Information Page

The rated information will be switched by pressing "UP" or "DOWN" key. The selectable information is switchedas below order:

No.	Description	No.	Description
1	**Rated VA / WATT** Rated VA is 6kVA, WATT is 6kW 	2	**Rated battery voltage / Max. charge current** Rated battery voltage is 48V, Max. charge current is 140A 
3	**Firmware version (DSP)** Firmware version is 002001 	4	**Firmware version (EMS)** Firmware version is 001020 

8. Maintenance

⚠ CAUTION	Before maintaining and commissioning inverter and its peripheral distribution unit, switch off all the charged terminals of the inverter and wait at least 10 minutes after the inverter is powered off.

8.1 Routine Maintenance

Items	Check Content	Maintain Content	Maintenance Interval
Inverter output status	Statistically maintain the status of electrical yield, and remotely monitor its abnormal status	N/A	Weekly
Inverter cleaning	Check periodically that the heat sink is free from dust and blockage.	Clean periodically the heat sink.	Yearly
Inverter running status	Check that the inverter is not damaged or deformed. Check for normal sound emitted during inverter operation. Check and ensure that all inverter communications is running well.	If there is any abnormal phenomenon, replace the relevant parts.	Monthly
Inverter electrical connections	Check that all AC, DC and communication cables are securely connected; Check that PGND cables are securely connected; Check that all cables are intact and free from aging.	If there is any abnormal phenomenon, replace the cable or re-connect it.	Semiannually

8.2 Inverter Troubleshooting

When the inverter has an exception, its basic common warning and exception handling methods are shown below.

FAULT (app / LCD)	INSTRUCTION	COMMON CAUSE / REMEDY
A0/ A0	Grid over voltage	1. If the alarm occurs occasionally, possibly the power grid voltage is abnormal temporarily, and no action is required. 2. If the alarm occurs repeatedly, contact the local power station. After receiving approval of the local power bureau, revise the electrical protection parameter settings on the inverter through the app. 3. If the alarm persists for a long time, check whether the AC circuit breaker /AC terminals is disconnected, or if the grid has a power outage.
A1 / A1	Grid under voltage	
A3 / A3	Grid over frequency	
A4 / A4	Grid under frequency	
A2 / A2	Grid absent	Wait till power is restored.

FAULT (app / LCD)	INSTRUCTION	COMMON CAUSE / REMEDY
A8 / A8	Grid N abnormal	1.Check whether the live wire, neutral wire, and ground wire are connected correctly. 2. Measure the DC voltage between the neutral wire and the ground wire to see if it exceeds 36Vdc. If it does, pls. check whether the neutral and ground wires are connected correctly.
A9/ A9	Neutral live wire reversed	Check whether the neutral wire and live wire are connected in reverse.
B0/ b0	PV over voltage	Check whether the maximum input voltage of a single PV string exceeds the MPPT working voltage. If yes, modify the number of PV module connection strings.
B7 / b7	PV string reverse	Check and modify the positive and negative polarity of the input of the circuit string.
C0 / C0	Internal power supply abnormal	1. If the alarm occurs occasionally, the inverter can be automatically restored, and no action is required. 2. If the alarm occurs repeatedly, please contact the customer service.
C2 / C2	Inverter over dc-bias current	1. If the alarm occurs occasionally, possibly the power grid voltage is abnormal temporarily, and no action is required. 2. If the alarm occurs repeatedly, and the inverter fails to generate power, contact the customer service
C5 / C5	Inverter over temperature	1. If the alarm occurs occasionally, the inverter can be automatically recovered. No action is required. 2. If the alarm occurs repeatedly, please check whether the installation site has direct sunlight, bad ventilation, or high ambient temperature (such as installed on the parapet). Yet, if the ambient temperature is lower than 45° C and the heat dissipation and ventilation is good, please contact customer service.
C7/ C7	System type error	1. Restart the inverter to see if the alarm can be cleared. 2. If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
C8 / C8	Fan abnormal	1. If the alarm occurs occasionally, pls. restart the inverter. 2. If it occurs repeatedly or cannot be recovered for a long time, check whether the external fan is blocked by foreign objects. Otherwise, contact customer service.

FAULT (app / LCD)	INSTRUCTION	COMMON CAUSE / REMEDY
C9 / C9	DC link unbalance or under voltage	Batteries exceeded their current discharge limit.
CA / CA	DC link over voltage	1. If the alarm occurs occasionally, the inverter can be automatically recovered and no action is required. 2. If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
CC / CC	Software incompatibility	1. If the alarm occurs occasionally, the inverter can be automatically recovered and no action is required. 2. If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
CD / Cd	Internal storage error	1. If the alarm occurs occasionally, the inverter can be automatically recovered and no action is required. 2. If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
CF / CF	Inverter abnormal	1. If the alarm occurs occasionally, the inverter can be automatically recovered and no action is required. 2. If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
CG / CG	Boost abnormal	1. If the alarm occurs occasionally, the inverter can be automatically recovered and no action is required. 2. If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
CN / Cn	Remote off	1. Shut down manually via app. 2. The monitor executed the remote shutdown instruction. 3. If the alarm continues, please contact the customer service center.
CP / CP	AC output over dc-bias voltage	1. If the alarm occurs occasionally, the inverter can be automatically recovered and no action is required. 2. If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
CU / CU	DC-DC abnormal	1. If the alarm occurs occasionally, the inverter can be automatically recovered and no action is required. 2. If the alarm occurs repeatedly, please check: 1) Check whether the MC4 terminal on the PV side is securely connected.

FAULT (app / LCD)	INSTRUCTION	COMMON CAUSE / REMEDY
CU / CU	DC-DC abnormal	2) Check whether the voltage at the PV side is open circuit, ground to ground, etc. If exclude the above, the alarm continues to occur, please contact the customer service center.
D1 / d1	Battery absent	1. If the battery is not connected, pls. change the "battery type" to "AGM", "Flooded" or "Self-defined" on app. 2. Check whether the battery connection cable to the inverter is correct. 3. If the lead-acid battery is connected, please measure whether the output voltage of the battery is normal. 4. If the lithium battery is connected, please check whether the battery voltage is normal. If the lithium battery is in a dormant state, please check whether the battery type is set correctly. After the battery type is set correctly, restart the inverter and wait for the battery to activate.
D2 / d2	Battery over voltage	1. If the alarm occurs occasionally, the inverter can be automatically recovered and no action is required. 2. Check that the battery overvoltage protection value is improperly set. 3. The battery is abnormal. 4. If exclude the above, the alarm continues to occur, please contact the customer service center.
D3 / d3	Battery under voltage	1. If the alarm occurs occasionally, the inverter can be automatically recovered and no action is required. 2. Check the communication line connection between BMS and inverter (lithium battery). 3. The battery is empty or the battery voltage is lower than the SOC cutoff voltage. 4. The battery undervoltage protection value is improperly set. 5. The battery is abnormal. 6. If exclude the above, the alarm continues to occur, please contact the customer service center.
D4 / d4	Battery discharger over current	1. Check whether the battery parameters are correctly set. 2. Battery undervoltage. 3. Check whether a separate battery is loaded and the discharge current exceeds the battery specifications. 4. The battery is abnormal. 5. If exclude the above, the alarm continues to occur, please contact the customer service center.

FAULT (app / LCD)	INSTRUCTION	COMMON CAUSE / REMEDY
D5 / d5	Battery over temperature	1. If the alarm occurs repeatedly, please check whether the installation site is in direct sunlight and whether the ambient temperature is too high (such as in a closed room). 2. If the battery is abnormal, replace it with a new one. 3. If exclude the above, the alarm continues to occur, please contact the customer service center.
D6/ d6	Battery under temperature	
D7 / d7	AC output voltage abnormal	1. Check whether the AC OUTPUT voltage and frequency Settings are within the specified range. 2. Check whether the AC OUTPUT circuit is overloaded. 3. When not connected to the power grid, check whether AC OUTPUT voltage is normal. 4. If exclude the above, the alarm continues to occur, please contact the customer service center.
D8 / d8	Communication error (Inverter-BMS)	1. Check whether the battery is disconnected. 2. Check whether the battery is properly connected with the inverter. 3. Confirm that the battery is compatible with the inverter. It is recommended to use CAN communication. 4. Check whether the communication cable or port between the battery and the inverter is faulty. 5. If exclude the above, the alarm continues to occur, please contact the customer service center.
D9/ d9	Internal communication loss(E-M)	1. If the alarm occurs occasionally, the inverter can be automatically recovered and no action is required. 2. If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
DB / db	AC output short circuit	1. Check whether the live line and neutral line of AC OUTPUT are short-circuited. 2. If it is confirmed that the output is not short-circuited or an alarm, please contact customer service to report for repair. (After the troubleshooting of alarm problems, AC OUTPUT breaker needs to be manually turned on during normal use.)
Dd/ dd	GEN voltage abnormal	1. Check whether the "L2/GEN-N2" port is set to the second AC output or the generator via app. 2. Check the voltage of the"L2/GEN-N2" port. If the "L2/GEN-N2" port is set to the 2nd AC output via app, AC input does not allow. 3. If the "L2/GEN-N2" port is set to the Generator input via app, please check whether the voltage of the "L2/GEN-N2" port is within the specified range. Otherwise, please contact the customer service.

FAULT (app / LCD)	INSTRUCTION	COMMON CAUSE / REMEDY
Dr / dr	AC output over load	1.Disconnect the AC OUTPUT breaker and check whether the alarm is cleared. 2.If the load is disconnected and the alarm is generated, please contact the customer service. (After the alarm is cleared, the AC OUT breaker needs to be manually turned on for normal use.)
P1 / P1	Parallel ID warning	It is Parallel ID Alarm. Pls. check the parallel communication cable, and check whether any inverter joins or exits online. All inverters are powered off completely, check the line, and then power on the inverters again to ensure that the alarm is cleared.
P2 / P2	Parallel SYN signal warning	Parallel synchronization signal is abnormal. Check whether the parallel communication cable is properly connected.
P3 / P3	Parallel BAT abnormal	The parallel battery is abnormal. Whether the battery of the inverter is reported low voltage or the battery is not connected.
P4 / P4	Parallel GRID abnormal	The parallel grid is abnormal. Whether the grid of the inverter is abnormal.
P5 / P5	Phase Sequence abnormal	Ensure that the phase sequence of power grid is consistent with that of L1/L2/L3 on app. To clear phase sequence abnormal alarm: Option 1: Power off all inverters, correct the phase sequence of each inverter and then restart the inverters. Option 2: Under inverter standby mode, correct the phase sequence of each inverter on app, power off all inverters and then restart the inverters. If the alarm continues, please contact the customer service center.

8.3 Removing the Inverter

WARNING	Before removing DC input connector, double check DC input breakers are turned to OFF to avoid inverter damage and personal injury.

Perform the following procedures to remove the inverter:

Step 1: Disconnect all cables from the inverter, including communications cables, DC input power cables, AC output power cables, and PGND cable.

Step 2: Remove the inverter from the mounting bracket.

Step 3: Remove the mounting bracket.

9. Technical Specifications

Line Mode Specifications	
INVERTER MODEL	MPHi-6KW#48VPVSE
Input Voltage Waveform	Sinusoidal (utility or generator)
Nominal Input Voltage	230Vac
Low Loss Voltage	170Vac±3% (UPS application); 90Vac±3% (Home application)
Low Loss Return Voltage	180Vac±3% (UPS application); 100Vac±3% (Home application)
High Loss Voltage	280Vac±3%
High Loss Return Voltage	270Vac±3%
Max AC Input Voltage	280Vac
Nominal Input Frequency	50Hz / 60Hz (Auto detection)
Low Loss Frequency	40±1Hz
Low Loss Return Frequency	42±1Hz
High Loss Frequency	65±1Hz
High Loss Return Frequency	63±1Hz
Output Short Circuit Protection	Circuit Breaker
Efficiency (Line Mode)	>95% (Rated R load, battery full charged)
Transfer Time	10ms typical (UPS application), 20ms typical (home application), 50ms @ Parallel
Max Bypass input current	50A
Max Bypass overload current	40A
Max inverter/rectifier current	27.3A/6000W
Inverter Mode Specifications	
Rated Output Power	6KVA/6KW
DC Max. Charging/Discharging current	140A/140A
Output Voltage Waveform	Pure Sine Wave
Output Voltage Regulation	230Vac±5%
Output Frequency	50Hz/60Hz
Overload Protection	105%--150% after 10.5s shutdown, 150%--200% after 5.5s shutdown
Surge Capacity	12,000VA, 5s
Nominal DC Input Voltage	48Vdc
Cold Start Voltage	46Vdc
Low DC Cut-off Voltage	43Vdc<50% load 42Vdc>=50% load
High DC Cut-off Voltage	62Vdc
High DC Recovery Voltage	60Vdc

Charge Mode Specifications	
Charging Algorithm	3-Step
Bulk Charging Voltage	56.4Vdc for AGM/Gel 58.4Vdc for flooded
Floating Charging Voltage	54Vdc
Nominal AC input voltage	230Vac
AC input range	90--280Vac
Max. PV Array Power	9000W
Max. PV Input Current	36A
Start-up Voltage	60Vdc
PV Array MPPT Voltage Range	60--450Vdc
Max. PV Array Open Circuit Voltage	500Vdc
Max. AC Charging current	140A
Max. PV Charging Current	140A
Max. Charging Current(PV+AC)	140A
Protection	
Ingress Protection	IP54
Over Voltage Protection	Yes
Overload Protection	Yes
Short Circuit Protection	Yes
Over Temperature Protection	Yes
Surge Protection	DC: Type III, AC: Type III
General	
Communication	USB(OTG), RJ45(for BMS,CAN/RS485),RJ45(for Parallel), Dry-Contact, Built-in Wi-Fi/Bluetooth, External Wi-Fi/LAN/4G(Optional)
Operation temperature range	-10 ~ +55°C
Humidity	5%-95%
Max. operating altitude	4000m, >2000m derating
Cooling method	Intelligent fan cooling
Noise	54.2dB typical; 58.8dB MAX
Display	LED+LCD
Mounting	Wall-mounted
Dimensions W*H*D(mm)	347*445*120
Net Weight (KG)	10.7
Certification	EN/IEC62109-1, EN/IEC62109-2,EN/IEC 61000
Warranty	3 Years

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