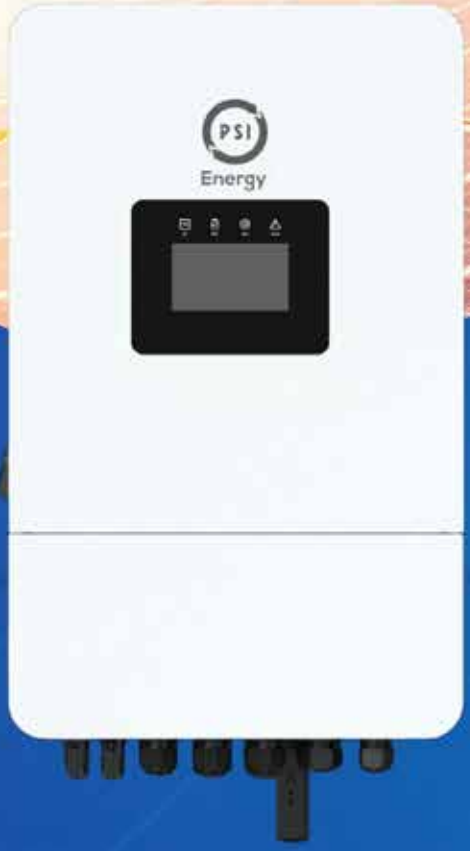
PSI Energy™



HYBRID INVERTER SYSTEM

SINGLE PHASE / 2MPPTs

H6LV

คุณสมบัติ

- กระแสไฟฟ้า PV สูงสุด 20A
- รองรับการติดตั้งแผงโซลาร์เซลล์ เกินกำลังได้ถึง 200%
- รองรับกระแสชาร์จ / ดิสชาร์จได้สูงสุด 120A
- รองรับการเชื่อมต่อแบบ AC Coupling
- ระยะเวลาสลับไฟ น้อยกว่า 10ms

1. About this manual

1.1 Applicability

Please read the product manual carefully before installation, operation or maintenance of the inverter. This manual contains important safety instructions and installation instructions that must be followed during installation and maintenance of the equipment.

1.2 Target group

This manual is intended for technical professionals for installation, commissioning and maintenance of the hybrid inverter. The technical personnel has to be familiar with the product, local standards, and electric systems.

1.3 Symbols used

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

 'Danger' indicates a hazard with a high level of risk that, if not avoided, will result in death or serious injury.
 'Warning' indicates a hazard with a medium level of risk that, if not avoided, will result in death or serious injury.
 'Caution' indicates a hazard with a low level of risk that, if not avoided, could result in minor or moderate injury.
 'Notice' indicates a situation that, if not avoided, could result in equipment or property damage or provides tips that are valuable for the optimal operation of your product.

1.4 Acronyms and abbreviations

BAT	Battery
BMS	Battery Master System
DRM	Demand response modes
DRED	Demand response enabling device
EMI	Electromagnetic interference
EPS	Emergency power supply
LED	Light emitting diode
MPP	Maximum power point
MPPT	Maximum power point tracking
PV	Photovoltaic
RCD	Residual Current Operated Protective Device
RSD	Rapid shutdown
THDi	Total Harmonic Distortion of Current
THDv	Total Harmonic Distortion of Voltage

2. Safety

2.1 General Safety

The hybrid inverter has been designed and tested strictly in according with international safety regulations. Read all safety instructions carefully prior to any work and observe them at all times when working on or with the hybrid inverter. Incorrect operation or work may cause:

◆ Injury or death to the operator or a third party;

◆ Damage to the inverter or other properties.

2.2 Important safety instructions



- PV modules will produce electrical power when exposed to sunlight and can cause lethal voltage and electric shock.
- Only qualified personnel should work on PV modules.
- Do not open lid when the inverter is operating. Unauthorized opening will void warranty and warranty claims and in most cases terminate the operating license.
- When the enclosure lid is removed, live components could be touched which can result in death or serious injury due to electric shock.
- Operating damaged inverter can lead to hazardous situations that can result in death or serious injuries due to electric shock.
- Batteries store large amount of electrical energy, short circuiting or incorrect installation may lead to burns or serious injuries.
- Lethal voltages are present at battery terminals and cables connecting to the inverter. Serious injuries or death may occur if the cables and terminals are touched.
- PV negative (PV-) and battery negative (BAT-) on inverter side are not grounded intentionally. Connecting PV- or BAT- to EARTH is strictly forbidden.



Do not disconnect PV, AC and/or battery plugs and cables while the inverter is operating. Before working on the system power down on all supplies and wait for 5 minutes to discharge. Verify that there is no voltage or current before disconnecting any plugs or cables.

Use personal protective equipment, including rubber gloves and protective boots during installation or maintenance



Do not touch any hot parts (such as the heat sink) during operation, temperature of inverter surface may exceed 60℃ during operation.

NOTICE

- Electrical installation and maintenance must only be carried out by trained and qualified electrician, following all local regulations.
- Do not open inverter lid or change components without manufacturer's authorization. Unauthorized work will invalidate warranty.
- Operate inverter as explained in this manual, failure will damage equipment and invalidate warranty.
- Installation and maintenance must be carried out by competent electricians following all local regulations.
- With an integrated universal current-sensitive residual current monitoring unit included the inverter will disconnect immediately from the mains power once a fault current with a value exceeding the limit is detected. However, if an external residual current device (RCD) is mandatory, the switch must be triggered at a residual current of 300 mA (recommended), or it can be set to other values according to local regulations. For example, in Australia, the inverter can use an additional 100 mA (type A) RCD in installations.

When installing, operating, and maintaining the product, comply with local laws and regulations. The safety instructions in this manual are only supplements and cannot cover all the precautions.

Manufacturer will not be held liable for any damage caused by violating general safety operation requirements, general safety standards, or any safety instruction in this manual.

Anti-Islanding Effect

Islanding is a condition when grid connected PV / batteries back feed power into the Grid when Grid is turned off for maintenance work, putting maintenance personal at serious risk. inverters prevent islanding through Active Frequency Drift (AFD).

2.3 Explanation of symbols

Symbols on the type label:

Symbol	Explanation
	CE mark. The inverter complies with requirements of applicable CE guide-lines.
	Beware of hot surface. The inverter can be hot during operation. Avoid touching during operation.
	Danger of high voltage. Danger to life due to high voltage in the inverter!
	Danger. Risk of electric shock!
	WEEE designation Do not dispose of the system together with the household waste, but in accordance with the disposal regulations for electronic waste applicable at the installation site.

Symbol	Explanation
	Don't work on this inverter until it is isolated from the battery, mains supply, and on-site PV modules.
	Danger to life due to high voltage. The inverter holds stored power, wait for 5 minutes to discharge before opening the lid.
	Please read this manual before installation.
	RCM (Regulatory Compliance Mark) The product meets the requirements of the applicable Australian standards.

3. Introduction

3.1 Block diagram

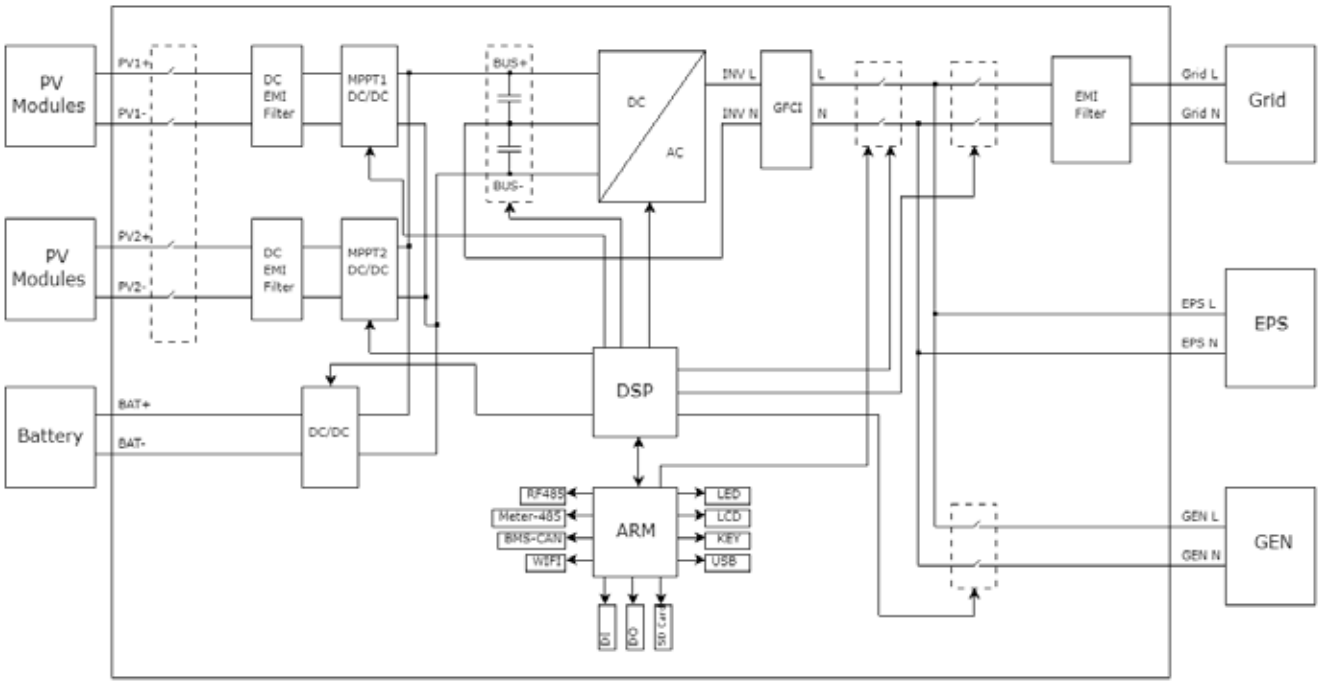


Figure 3-1 Block diagram

3.2 Product overview

hybrid inverters are designed to work with PV modules, battery, grid power, and electrical loads. A hybrid inverter helps to optimize on-site consumption, charge the battery with surplus PV power, and supply power from the battery to meet the load. When PV and battery power are insufficient, grid power will be used to support loads.

3.3 Dimensions

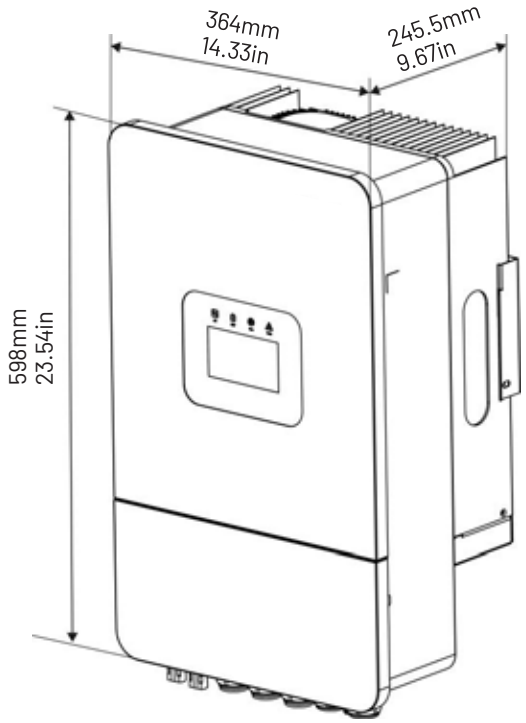


Figure 3-2

3.4 Application Scenarios

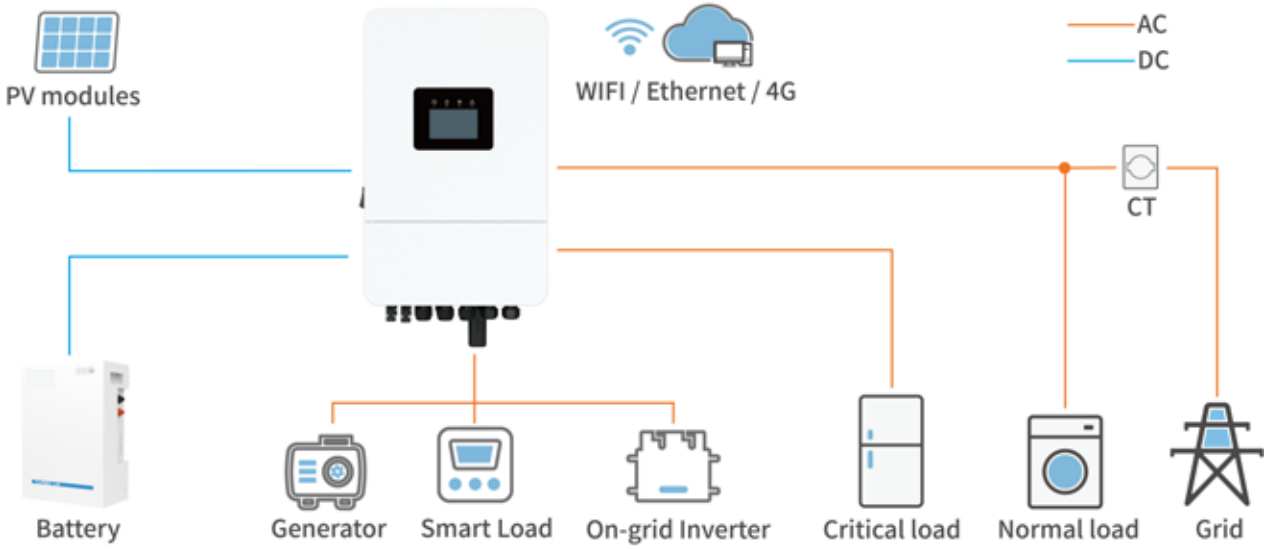
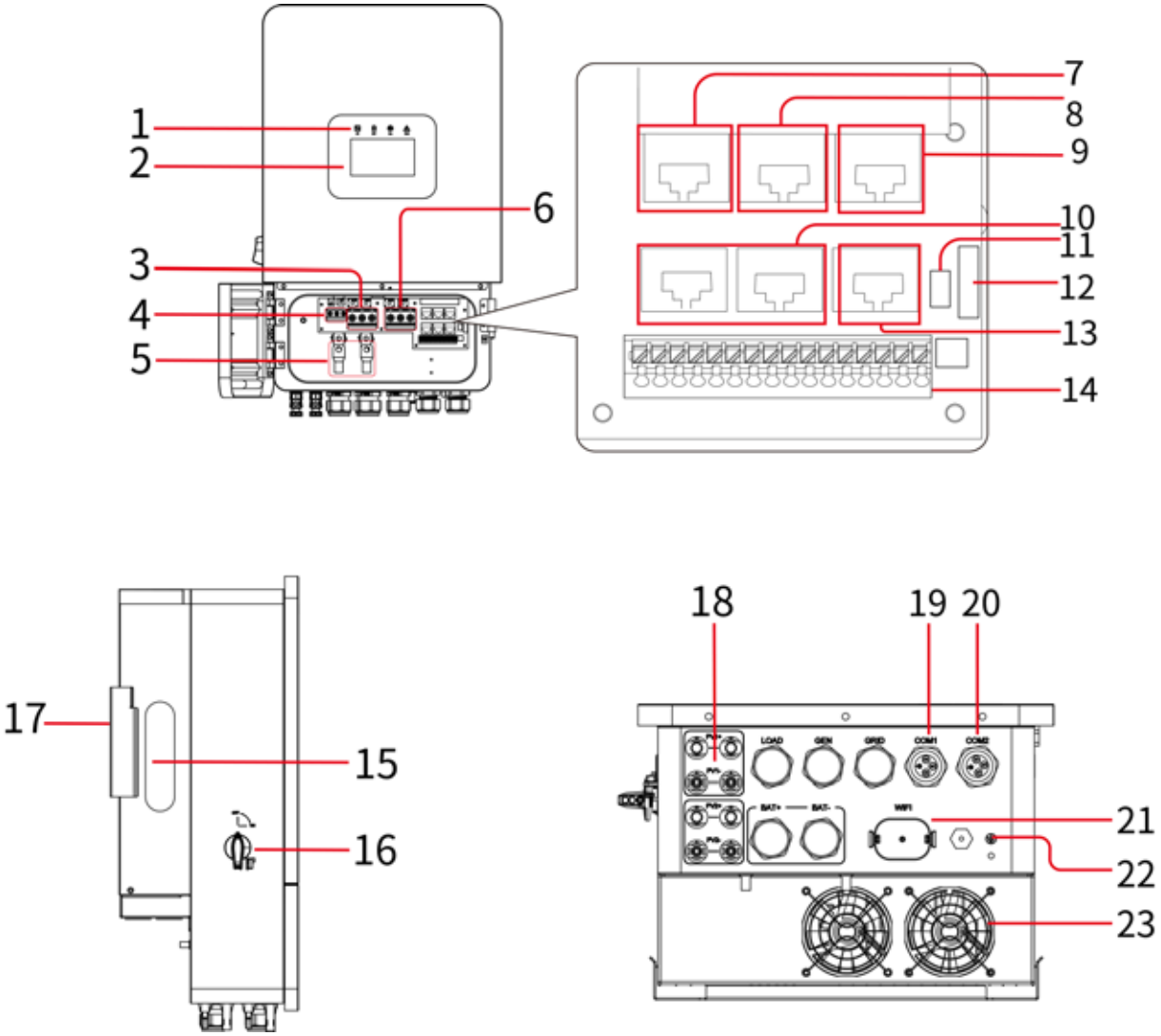


Figure 3-3

3.6 Components Introduction

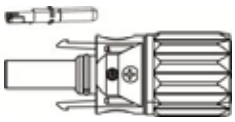
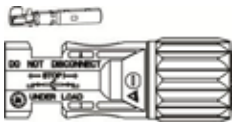
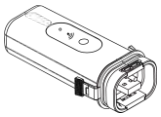


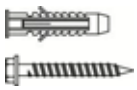
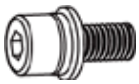
No.	Name	No.	Name
1	LED Indicators	2	LCD screen
3	Generator input	4	Load terminals
5	Battery terminals	6	Grid terminals
7	DRM port	8	BMS-CAN port
9	Meter port	10	Parallel communication port
11	DIP Switch for CAN Bus in Parallel Systems	12	BMS 12V (for battery wake-up)
13	RS485 port	14	Function port
15	Handle	16	DC Switch
17	Mounting bracket	18	PV input terminals
19	Communication port 1	20	Communication port 2
21	Smart dongle port	22	Grounding terminal
23	Cooling fan		

4. Installation

4.1 Unpacking

Before opening the package, please check whether the packing box is complete and whether there is any damage or if it is soaked in water; if the package is incomplete or obviously damaged, please contact the supplier. If the package is complete, please open the box to check whether the contents are complete against the material list or as shown in the figure below; if there is any omission or damage, please contact the supplier.

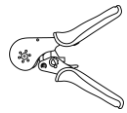
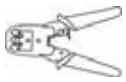
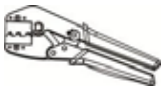
No.	Shape	Model	Quantity
1		inverter	1
2		Mounting bracket	1
3		PV cable terminal(+) with a corrugated pipe	4
4		PV cable terminal(-) with a corrugated pipe	4
5		WIFI dongle (Standard) or 4G/Ethernet dongle (Optional)	1

No.	Shape	Model	Quantity
6		CT	1
7		RJ45 plug	6
8		Expansion tube M6 & screw M6*55	4 & 4
9		Fastening screw	2
10		Ground screw	1
11		Ground OT terminal	1
12		Battery terminal	2
13		Tube terminal (Large-diameter)	6
14		Tube terminal (Small-diameter)	3
15		Quality certificate	1
16		User manual	1
17		Factory Report	1

4.2 Preparation for installation

4.2.1 Installation tools

No.	Tool	Model	No.	Tool	Model
1		Spirit level	8		Knife
2		Wire stripper	9		Marker

No.	Tool	Model	No.	Tool	Model
3		Tube Terminal Crimping Pliers	10		Rubber hammer
4		Heat gun	11		RJ45 crimping tool
5		Hammer drill	12		Torque screwdriver
6		PV terminals crimping tool	13		Multimeter
7		Hydraulic Crimping Tool			

4.2.2 Protective tools

No.	Tool	Model	No.	Tool	Model
1		Dust mask	4		Insulated shoes
2		Goggles	5		Safety helmet
3		Insulated gloves			

4.2.3 Required cables

No.	Cable	Model	Cross-section
1		PV cable	12 AWG
2		Grounding cable	8 AWG
3		Grid / GEN /GND cable	6/8 AWG
4		Load cable	8/10 AWG
5		Standard network cable	/

4.3 Installation precaution

WARNING

Loading capacity and hardness of the supporting surface, load rating of the mounting bracket should be at least four times the weight of the devices according to IEC62109-1. And supporting characteristics will be impaired by wear, corrosion, and material fatigue or ageing, which should be calculated by inspection of the design data of supporting material and consulting a construction engineer.

inverter is designed for outdoor installation (IP65).

- Do not install the inverter in direct sunlight.
- Do not mount the inverter on flammable material.
- Do not install an inverter in areas where flammable materials are stored.
- Do not install an inverter in potentially explosive areas.
- Do not install the inverter during rain or high humidity (>95%).
- Provide adequate ventilation when using batteries, and also read the warning label on the bottom of the inverter.
- Install the inverter where the air temperature would be below 40°C. Children should not have access to an inverter.
- The inverter emits a slight noise when operating. This is normal and will not affect performance.
- Mounting should not tilt more than 5 degrees.
- The inverter is heavy; ensure the mounting is strong enough to hold the weight of the inverter.
- If installed in a cabinet, closet, or other small enclosed areas, sufficient air circulation must be ensured in order to dissipate heat generated by the unit.
- Please select a concrete wall with load-bearing capacity and a non-flammable surface for installation.

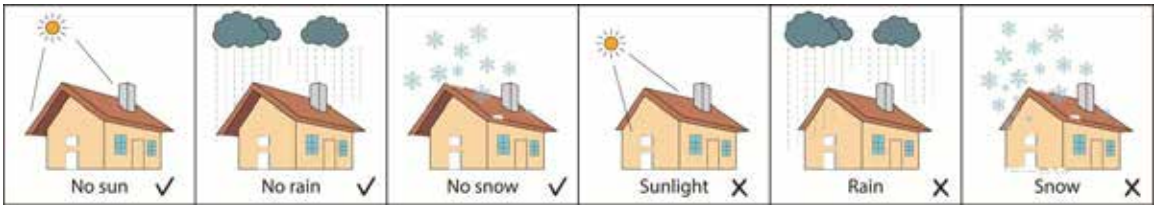


Figure 4-1 Installation environment

4.4 Space requirement

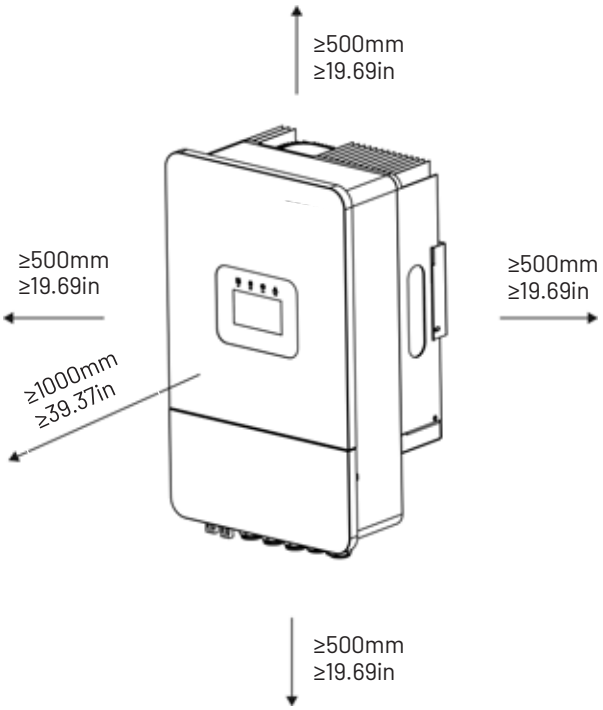


Figure 4-2 Installation space

4.5 Installation steps

CAUTION

- Due to the heavy weight of the inverter, at least 2-3 people should work during manual handling and installation to avoid falling accidents or injuries.
- Do not walk or stand beneath or in the proximity of the load.

1. Use the mounting bracket as a template to mark the position of the 4 holes, and use a level to make sure it is parallel to the ground.

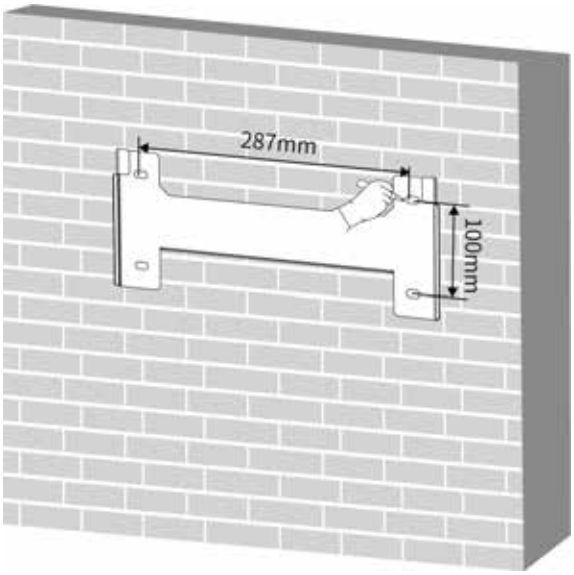


Figure 4-3

2. Drill 4 holes ⩾55mm deep in the wall with a Φ10mm drill. The mounting bracket is then secured to the wall with expansion screws.

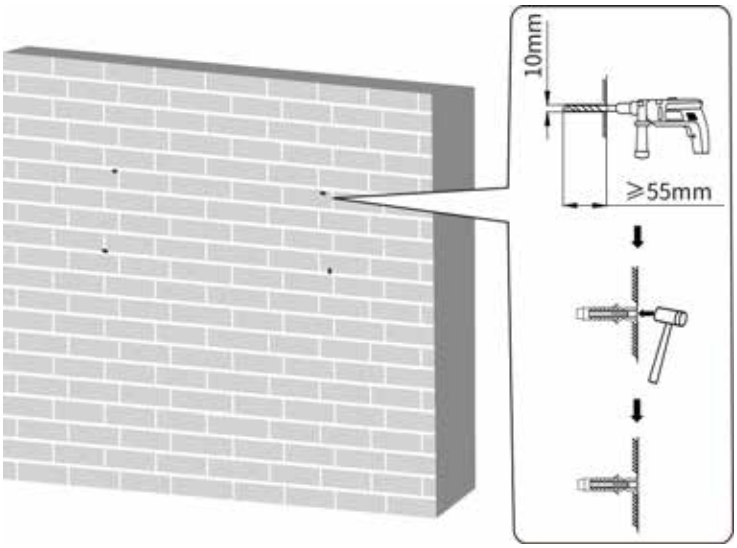


Figure 4-4

3. The mounting bracket is then secured to the wall with expansion screws.

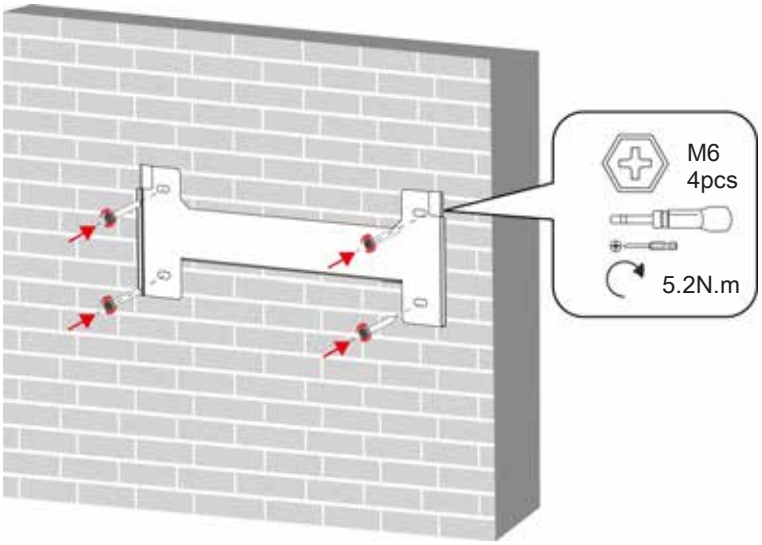


Figure 4-5

4. Hang the inverter on the mounting bracket, and make sure the unit hangs on the hanging bracket.

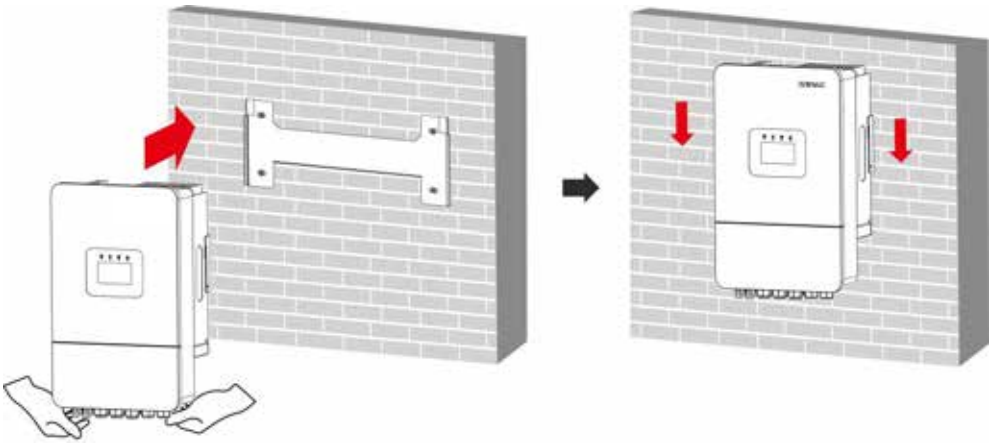


Figure 4-6

5. Secure the mounting bracket to the inverter with fastening screw.

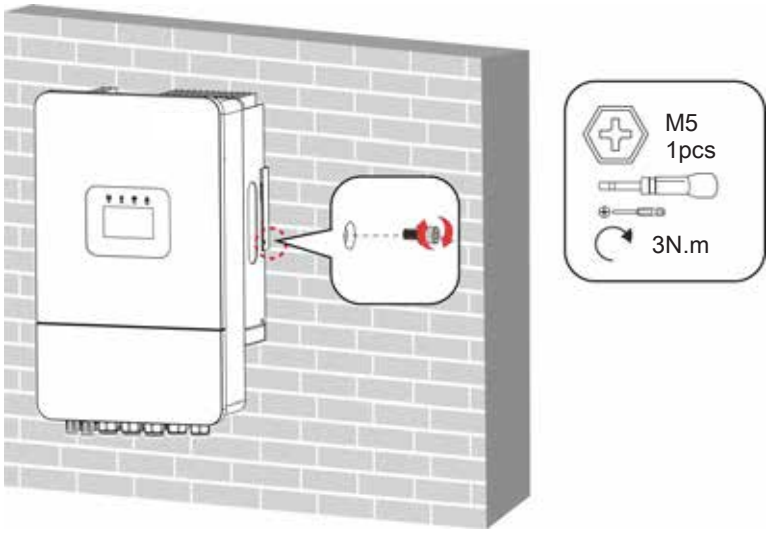


Figure 4-7

5. Electrical wiring connection

5.1 Grounding connection

1. Connect the grounding cable before connecting other cables. Users need to prepare their own grounding cable with a recommended cross-sectional area of 6-10mm^2. Slide the heat shrink tubing over the connector and shrink it with a heat gun.

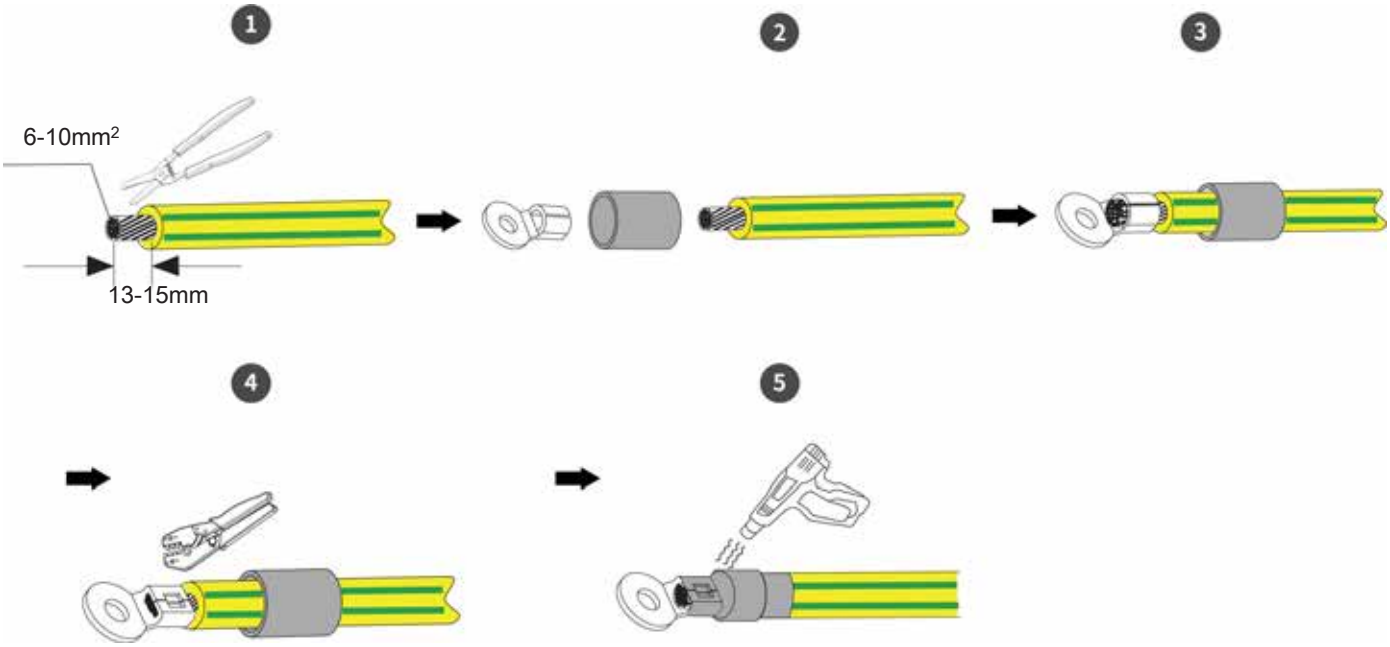


Figure 5-1

2. Connect the grounding cable at the inverter end.

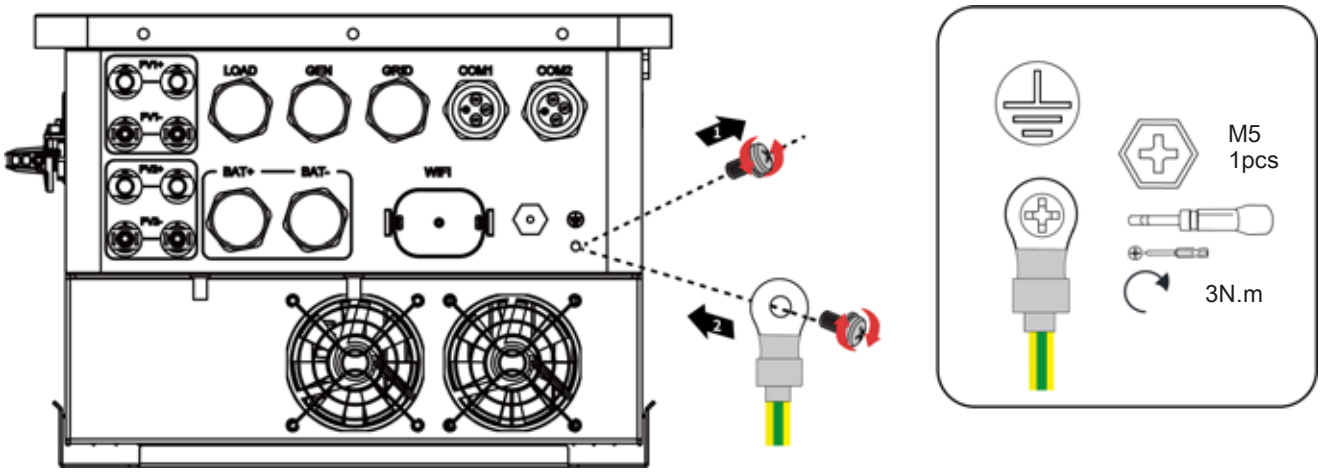


Figure 5-2

5.2 PV connection

CAUTION

- The total short- circuit current of PV string must not exceed inverter's maximum DC current.
- Make sure that open circuit voltage of PV string is less than 500V.
- PV strings are not connected to earth/grounding conductor.
- Use the right PV plugs from accessory box, Battery plugs look similar to PV plugs, do confirm before using.
- Ensure that the DC switch is in the off state.

WARNING

- The inverter must only be operated with PV strings with class II protection in accordance with IEC 61730, application class A. It is not allowed for the positive pole or the negative pole of the PV strings to be grounded.
- Verify that the Positive and Negative PV connectors are connected correctly. Otherwise, it may lead to system failure or even personal injury or death.

1. Strip about 7mm of the cable insulation with a wire stripper.

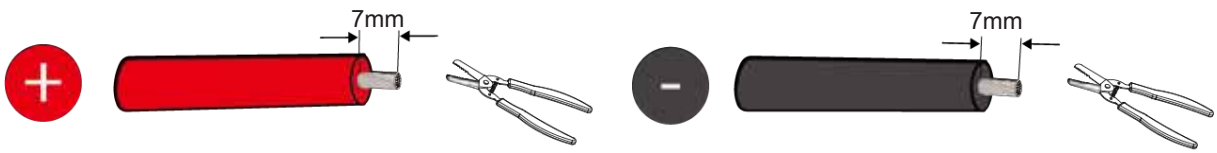


Figure 5-3

2. Unscrew the swivel nut and thread the PV cable through the swivel nut.

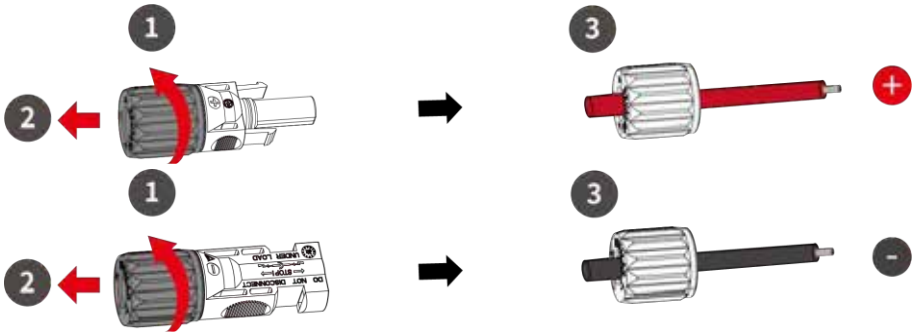


Figure 5-4

3. Using a crimping tool to perform crimping. Insert the cable into the PV cable terminal until a "Click" is heard. Tighten the swivel nut clockwise.

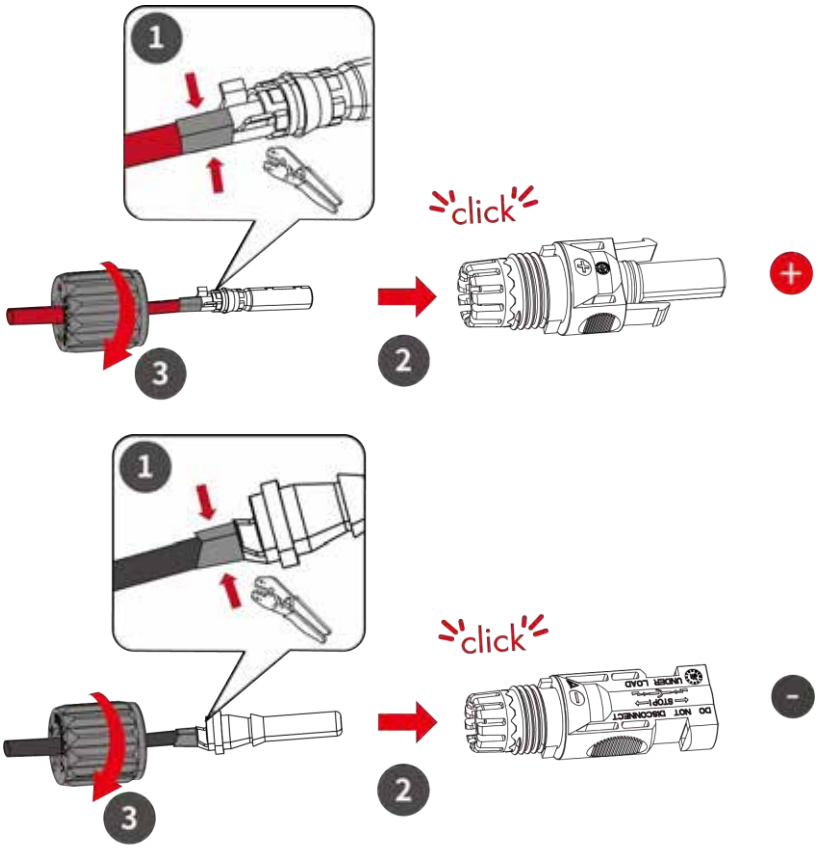


Figure 5-5

4. Use a multimeter to measure the positive and negative voltages at the PV cable terminal. Ensure that the open circuit voltage does not exceed the 500V input limit.

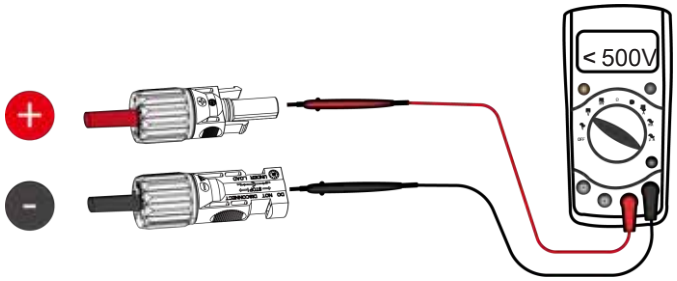


Figure 5-6

5. Remove the PV terminal caps of the hybrid inverter and connect the PV cable terminal to corresponding terminals until there is a "Click".

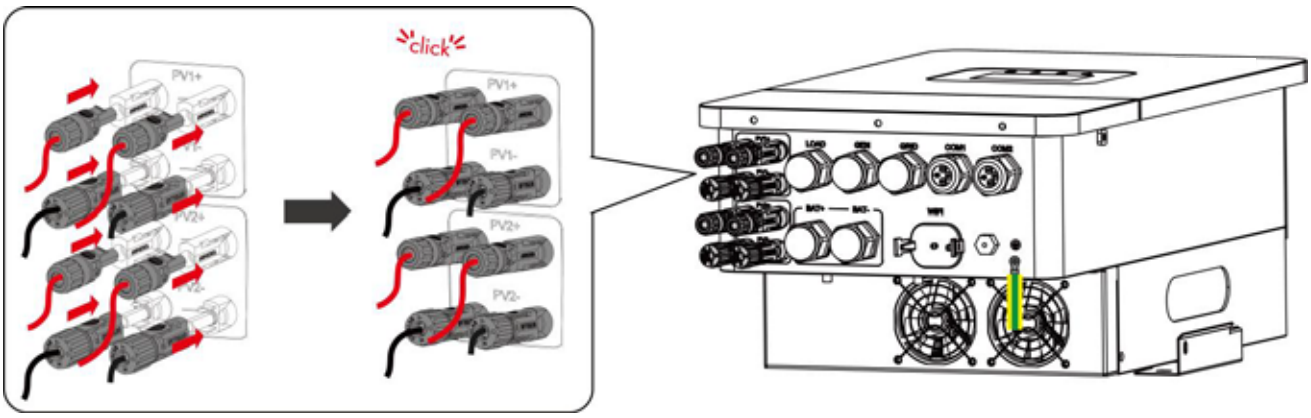


Figure 5-7

5.3 Battery connection

1. Make and connect the positive and negative cables of the battery as shown in the following picture.

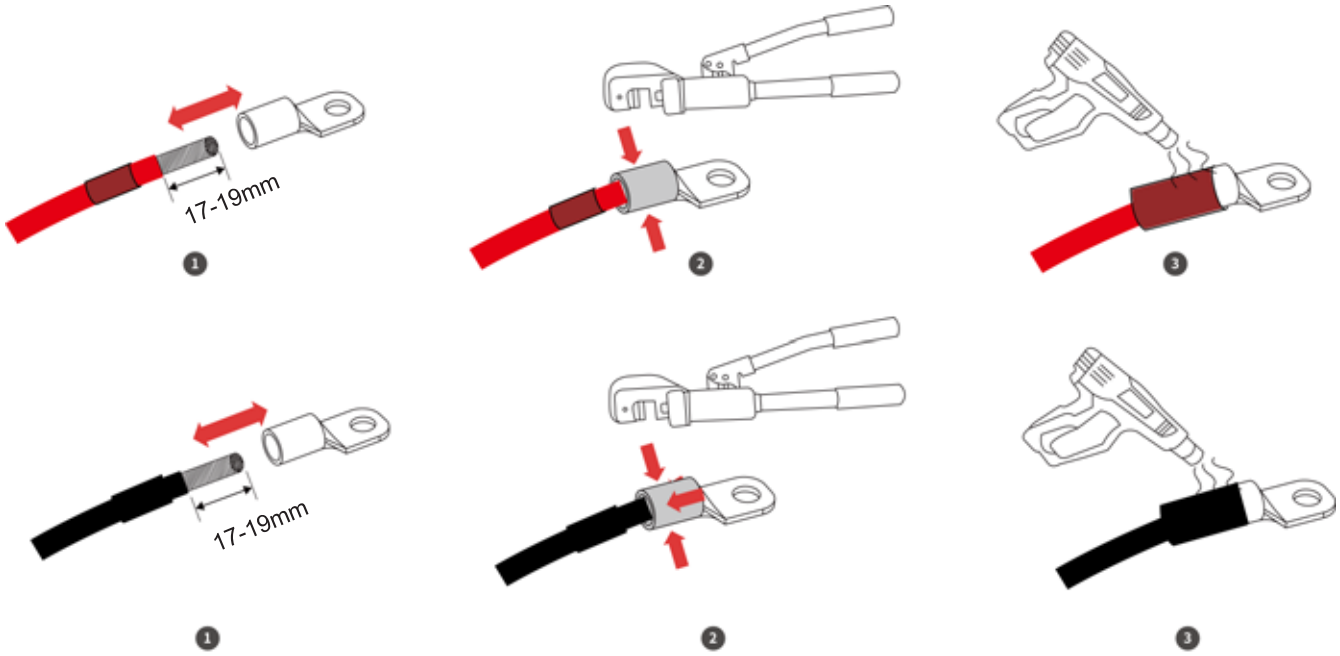


Figure 5-8

2. Connect the power cables according to the cable positions and sequence shown in the diagram below.

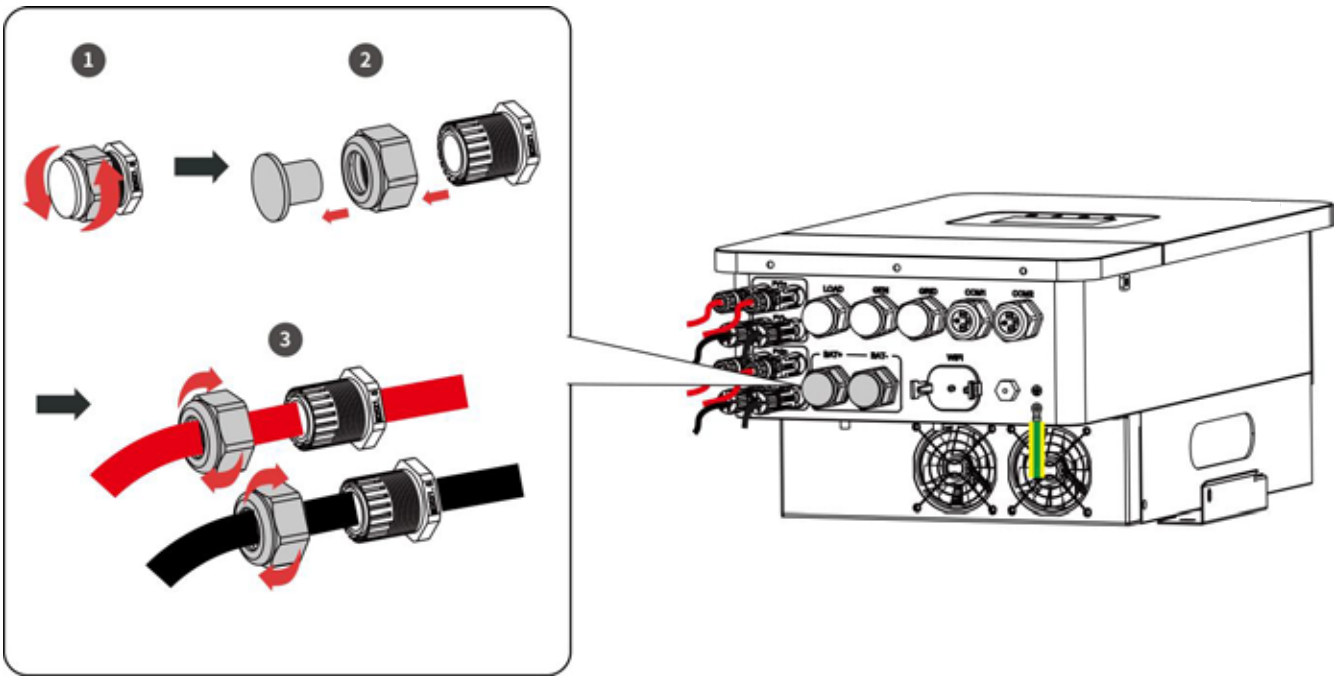


Figure 5-9

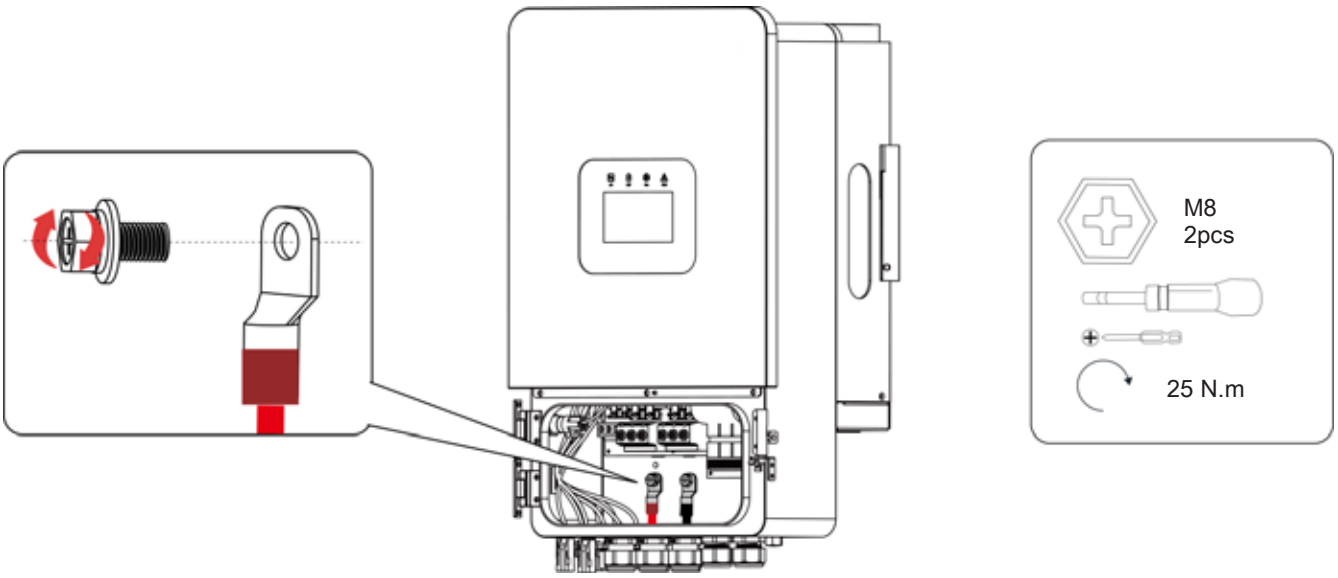


Figure 5-10

5.4 GRID & LOAD & GEN connection

Connect the L, N, and PE cables according to the cables' position and order shown in the diagram below.

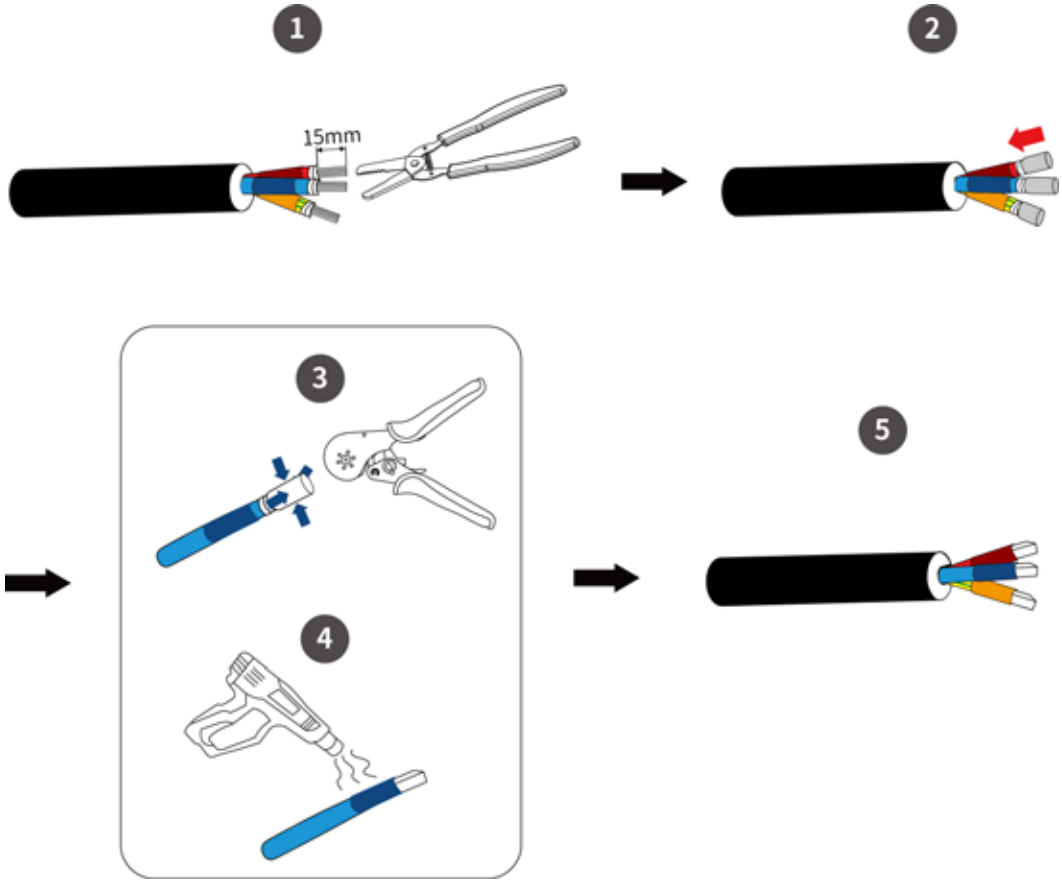


Figure 5-11

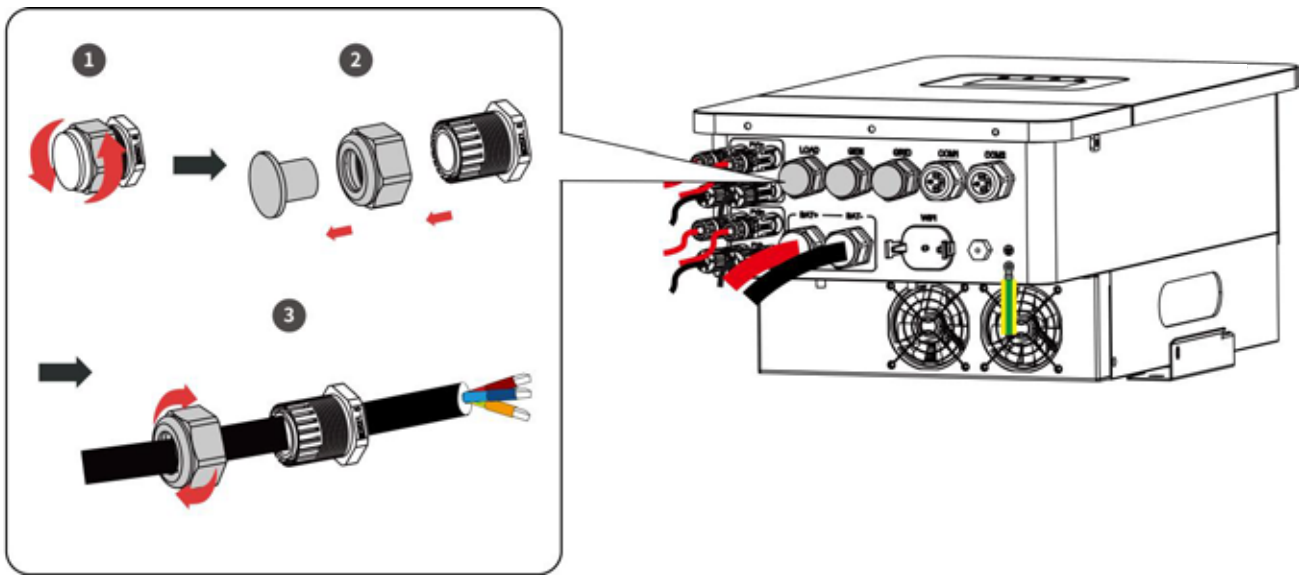


Figure 5-12

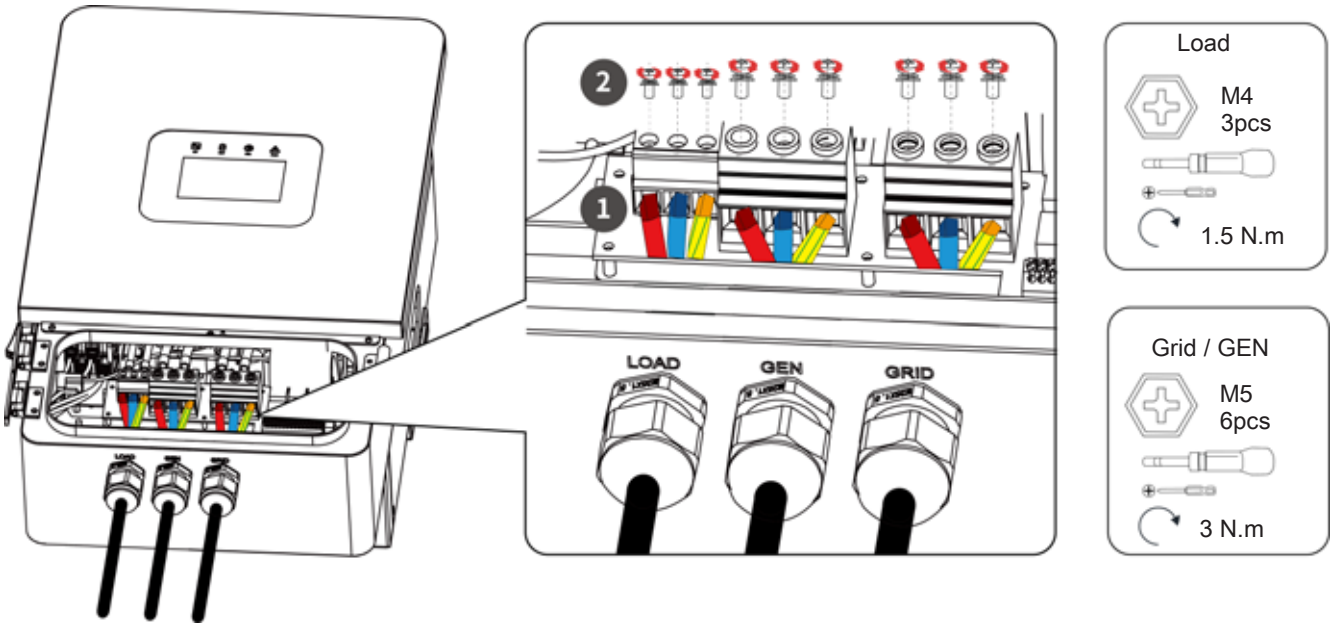


Figure 5-13

DANGER

- Before connecting AC inputs and outputs, the circuit breaker must be opened to avoid the risk of electric shock and must not be operated with electricity.
- Please check that the cable used is sufficient for the requirements, too thin, poor quality cables are a serious safety hazard.

5.5 Communication connection

Connect the communication cables according to the cables' position and order shown in the diagram below.

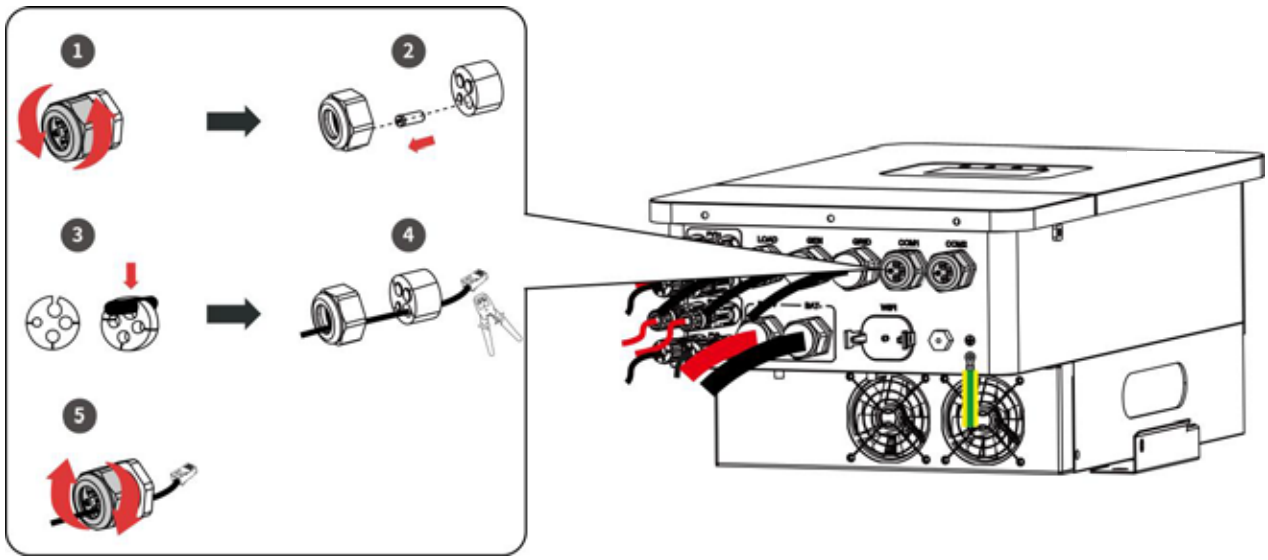


Figure 5-14 Communication port without waterproof cover

NOTE:

The 4-hole fastening rings inside the cable gland for COM1 and COM2 are with openings on the side.

Please separate the gap with hand and squeeze the cables into the holes from the side openings

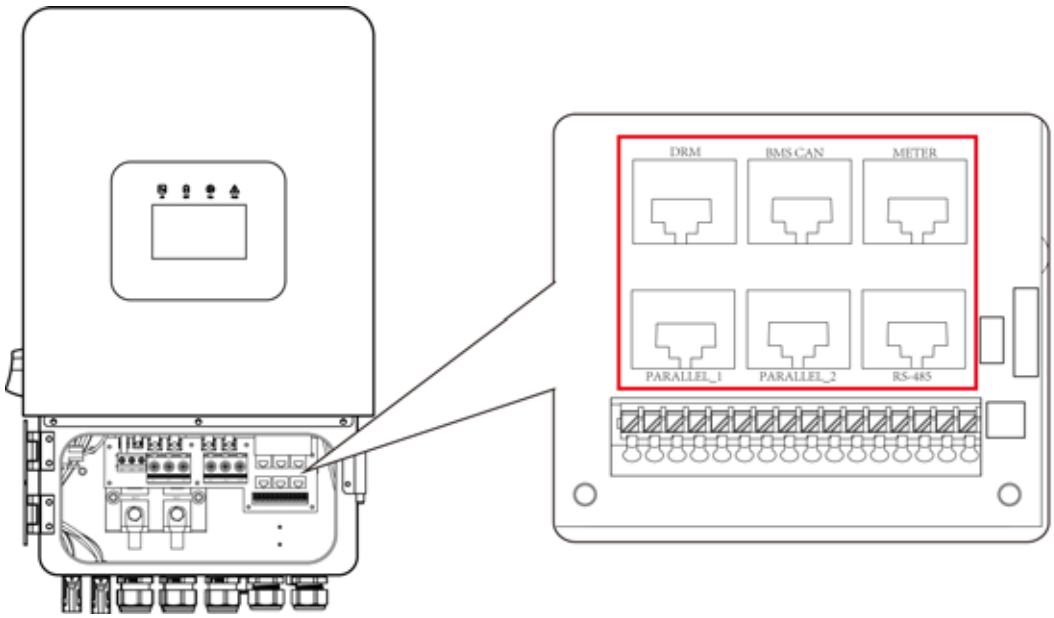
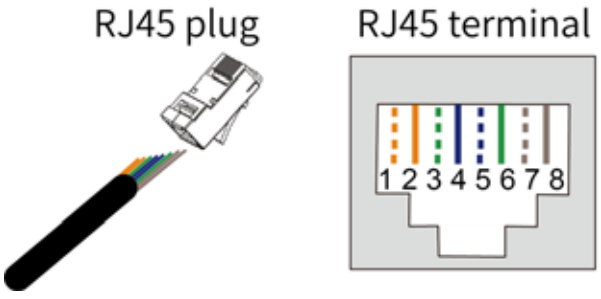


Figure 5-15

No.	Port definition	Description
1	DRM port (Reserve)	For external digital input signals.
2	BMS-CAN	For communication between the inverter and the battery.
3	Meter port	For communication between the inverter and the meter.
4	Parallel_1 port (Reserve)	For the parallel connection of inverters.
5	Parallel_2 port (Reserve)	For the parallel connection of inverters.
6	RS485 (Reserve)	For communication with a 3rd-party external device or controller.



No.	Color	No.	Color
1	White- Orange	5	White- Blue
2	Orange	6	Green
3	White-Green	7	White-Brown
4	Blue	8	Brown

Figure 5-16

(1) DRM port (Reserve)

Pins definition:

Pin	1	2	3	4	5	6	7	8
Function	DRM1/5	DRM2/6	DRM3/7	DRM4/8	+3.3V	DRM0	-	-

In the Australian grid code, requirements for connection call for compatibility with Demand Response Enabling Devices (DRED).

The DRED is controlled by a local network operator and allows putting the inverter in one of the Demand Response Modes (DRMs)

defined by the standard:

- DRM 0 Operate the disconnection device.
- DRM 1 Do not consume power.
- DRM 2 Do not consume more than 50% of the rated power.
- DRM 3 Do not consume more than 75% of the rated power and source reactive power if capable.
- DRM 4 Increase power consumption (subject to constraints from other active DRMs).
- DRM 5 Do not generate power.
- DRM 6 Do not generate at more than 50% of rated power.
- DRM 7 Do not generate at more than 75% of rated power and sink reactive power if capable.
- DRM 8 Increase power generation (subject to constraints from other active DRMs).

Note: Only DRM0 is currently supported.

(2) BMS-CAN port

Pins definition:

Pin	1	2	3	4	5	6	7	8
Function	NC	NC	NC	CANH	CANL	NC	NC	NC

Note: Only 4 and 5 PIN pins are used.

(3) Meter port (Reserve)

Pins definition:

Pin	1	2	3	4	5	6	7	8
Function	485A	485B	NC	NC	NC	NC	NC	NC

Note: Only 1 and 2 PIN pins are used.

(4) Parallel_1 port & Parallel_2 port (Reserve)

Pins definition:

Pin	1	2	3	4	5	6	7	8
Function	CANH	CANL	/	CAN1 H	CAN1 L	/	/	GND

(5) RS485 port (Reserve)

Pins definition:

Pin	1	2	3	4	5	6	7	8
Function	RS485_A	RS485_B	NC	NC	NC	NC	NC	NC

(6) Function Port

Pins definition:

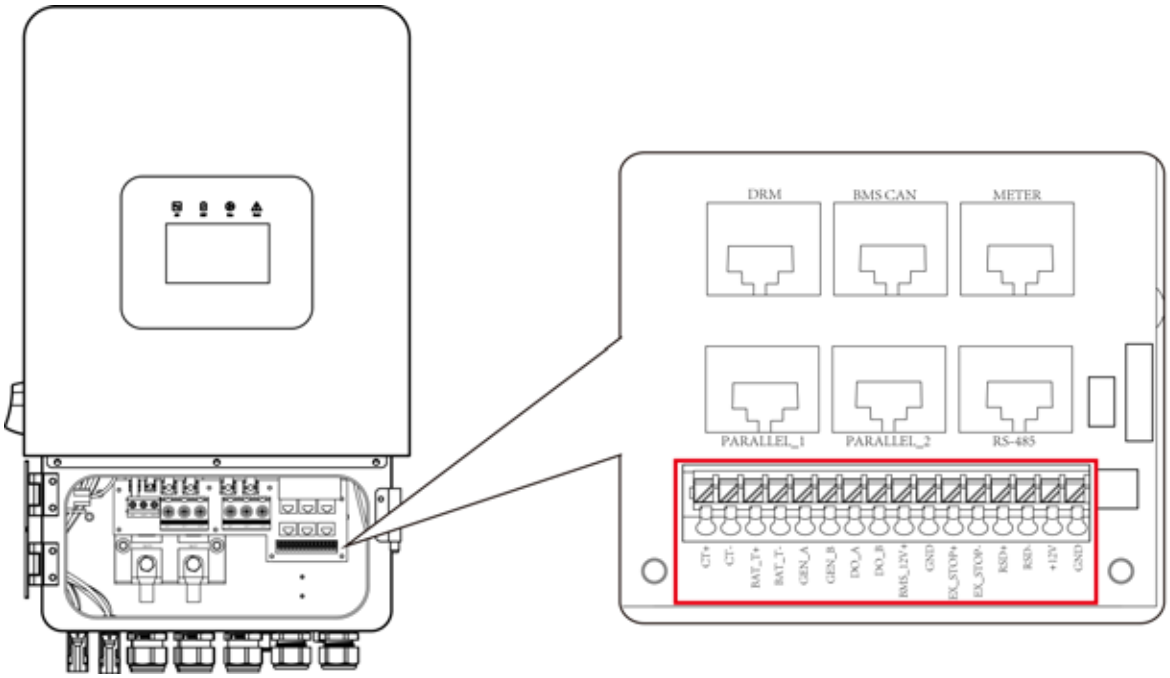


Figure 5-17

Pin	1	2	3	4	5	6	7	8
Function	CT+	CT-	BAT_T+	BAT_T-	GEN_A	GEN_B	DO_A	DO_B
Pin	9	10	11	12	13	14	15	16
Function	BMS_12V+	GND	EX_STOP+	EX_STOP-	RSD+	RSD-	+12V	GND

Pin1 & Pin2：External CT input for client side

Pin3 & Pin4：Lead-Acid battery temperature sensing (Reserve*)

Pin5 & Pin6：Diesel generator remote start interface

Pin7 & Pin8：Reserved dry contact (Reserve*)

Pin9 & Pin10：BMS wake-up (Reserve*)

Pin11 & Pin12：Emergency stop

Pin13 & Pin14：RSD power supply (Reserve*)

Pin15 & Pin16：12V power supply

Note: (Reserve*) indicates that this function will be implemented in a future release.

6. LED indicator status

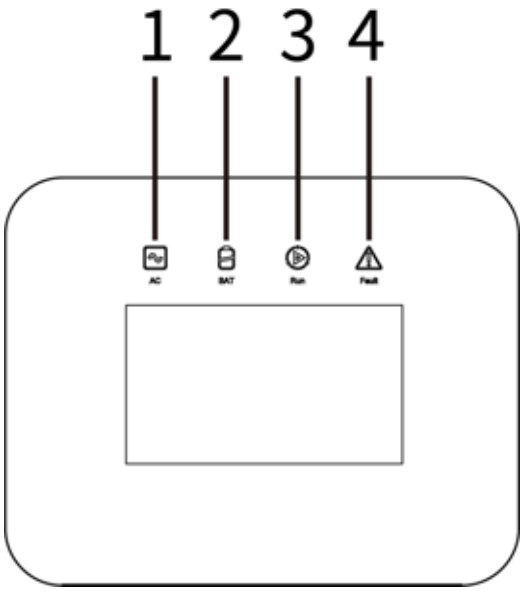


Figure 6-1

No.	Name	Description	
1	AC indicator	On	The inverter is in on-grid state.
		Off	The inverter is not in on-grid state.
2	BAT indicator	On	The battery is selected and operating normally.
		Flashing	The battery is selected but not operating normally.
		Off	The battery is not selected.
3	RUN indicator	On	The inverter is operating normally.
		Flashing	The inverter is shut down.
4	Fault indicator	On	The inverter is operating abnormally.
		Flashing	The inverter is in alarm.

7. HMI screen setting

7.1 Main Interface

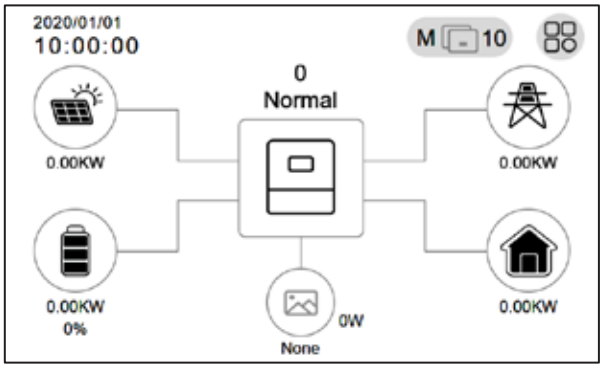


Figure 7-1

Icon	Description	Icon	Description
	PV array		Load
	Battery		Grid
	Inverter status		Smart load
	AC couple		Generator
	Paralleling status		Setting menu

7.2 Time/Language setting



Figure 7-2

7.3 Safety setting



Figure 7-3

7.4 Battery setting

7.4.1 Connect to a Lithium Battery



Figure 7-4

Settings	Description
Bat capacity	The value depends on the actual battery capacity.
Min on-grid SOC	When the inverter is in on-grid, the battery will stop discharging once the SOC value reaches this setting.
Max SOC	Charging will stop when the SOC value reaches this setting
Max chg-I	Setting the amount of current when charging the battery.
Min off-grid SOC	When the inverter is in off-grid, the battery will stop discharging once the SOC value reaches this setting.
Bat restart dischg SOC	When the battery SOC is too low to discharge, the battery SOC needs to reach this setting to discharge again.
Max dischg-I	Set the max battery discharger current.

7.4.2 Connect to a Lead-Acid Battery



Figure 7-5

Settings	Description
Bat capacity	The value depends on the actual battery capacity.
Min on-grid-V	When the inverter is in on-grid, the battery will stop discharging once the voltage value reaches this setting.
Equalization-V	The charging voltage used for a limited time to balance the voltage and state of charge of battery cells.
Bat low voltage alarm	Battery under-voltage alarm point, when the battery voltage is lower than the judgment point, the under-voltage alarm will be reported
Bat restart dischg-V	When the battery voltage is too low to discharge, the battery voltage needs to reach this setting to discharge again.
Max dischg-I	Set the max battery discharger current.
Min off-grid-V	When the inverter is in off-grid, the battery will stop discharging once the voltage value reaches this setting.
Float-V	The maintenance charging voltage used to keep the battery fully charged and compensate for self-discharge.
Bat high voltage alarm	Battery over-voltage alarm point, when the battery voltage is higher than the judgment point, the over-voltage alarm will be reported
Max Chag-I	Setting the amount of current when charging the battery.

7.4.3 No battery

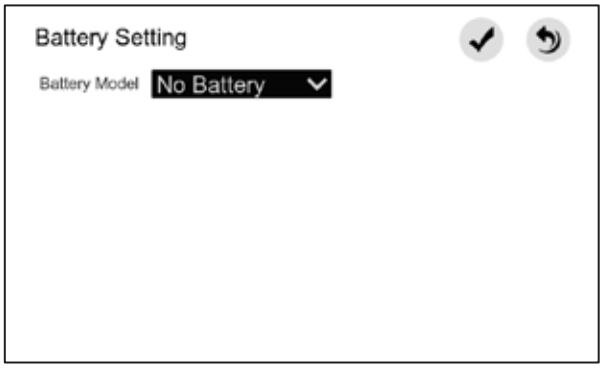


Figure 7-6

7.5 PV connect mode



Figure 7-7

Settings	Description
Independent	Each PV string is connected to the inverter MPPT input on a one-to-one basis.
Parallel	When external PV strings are connected to the inverter PV input terminals, a single PV string is connected to multiple PV input terminals.

7.6 Meter/CT setting



Figure 7-8

Settings	Description
AC power offset	Set inverter power output reduction value (this value can be used to reduce export power when grid feed-in occurs).

7.6.1 CT Installation

The CT provided in the product box is required for hybrid system installation. The primary function of the CT is to measure current and provide accurate input data for power calculation and energy management control.

CT Model:

CT Cable:

Please install the CT on the power line at the system grid connection point and the arrow on the CT needs to point to the inverter direction.

Lead the CT wires through the COM port at the bottom of the inverter and connect the CT wires to the Function Port.

CT Wire	Function Port
Black	CT+
White	CT-

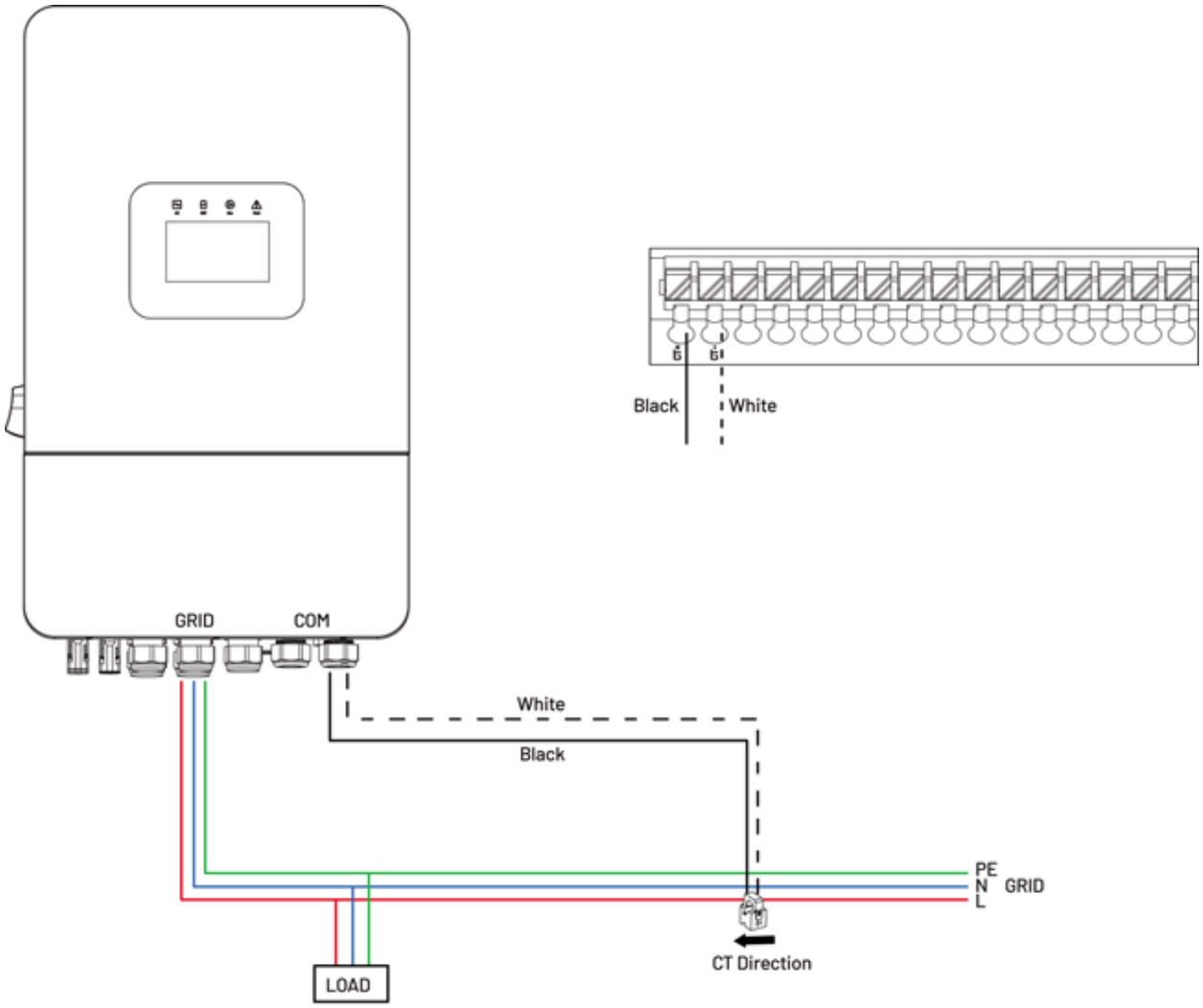


Figure 7-9

7.7 Export setting



Figure 7-10

Settings	Description
Power limited	Output power enable
Export power	Setting output power value

7.8 Working mode



Figure 7-11 Self-use Mode



Figure 7-12 TOU Mode

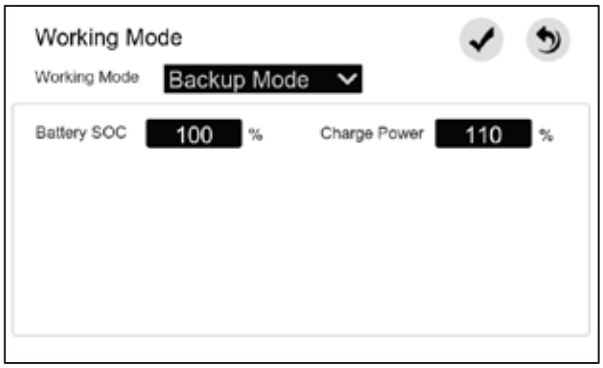


Figure 7-13 Backup Mode

Settings		Description
Self-use mode		PV power consumption priority: load ＞ battery ＞ grid. In this mode, the PV power supplies to the load preferentially, and the excess power is charged to the battery.
TOU mode	Bat chg	Battery charging settings.
	Start time	Start charging or discharging time setting.
	End time	End charging or discharging time setting.
	Max-P(%)	Maximum charge/discharge power setting (rated power %)
	Enable	Charge/discharge time period enabled.
	Bat dischg	Battery discharging settings.
	Time enable	Enable date setting
Backup mode	Battery SOC	When the battery SOC falls below this value, the battery will charge until

		the SOC reaches this value.
	Charge power	Charge power value

8. Troubleshooting and maintenance

8.1 Troubleshooting

This section contains information and procedures for solving possible problems with inverters and provides you with troubleshooting tips to identify and solve most problems that could occur with inverters.

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

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

Fault	Solutions
Parallel Slave Comm Lost	1. Check if the parallel wiring is correct. 2. Check the inverter setting, ensure that only one inverter was set to "Master".
LCD Comm Lost	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
DSP Comm Lost	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
Meter Comm Lost	1. Check if the communication cable between smart meter and Inverter is connected correctly. 2. Check if the smart meter is powered on.
ARM EEPROM Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
RTC Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
BMS Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
BMS Comm Lost	Check if the communication cable between BMS and inverter is connected correctly.
CT Fault	Check if the cable between CT and inverter is connected correctly.
AFCI Comm Lost	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
LCD Comm Lost	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
AFCI Permanent Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
FAN1 Fault	Check whether the external fan is securely connected to the PCB
FAN2 Fault	Check whether the battery side fan and PCB are securely connected
FAN3 Fault	Check whether the relay side fan is reliably connected to the PCB
AFCI Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.

Fault	Solutions
PV Over Current Protect	1. Check whether the inverter PV connection is normal, and whether PV+, PV- is reversed. 2. If the PV connection is normal and the inverter still fails, restart the inverter. 3. Contact the dealer or the after-sales service if the problem persists.
Bat Over Voltage Protect	Check if the battery input voltage is within the normal range, then restart the system and confirm whether the fault persists.
Bat Over Current Protect	1. Check whether the power cable connection from the battery to the inverter is normal. 2. If the power cable connection is normal and the inverter still fails, restart the inverter. 3. Contact the dealer or the after-sales service if the problem persists.
Bat Chg Over Voltage Protect	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
Bat Over Load Protect	1. Check the EPS load to ensure it does not exceed the inverter EPS Rated Power. 2. Disconnect the AC output switch and DC input switch & battery switch, then connect them 5 minutes later.
Bat Soft Bus Time Out	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
Out Over Load	1. Check the EPS load to ensure it does not exceed the inverter EPS Rated Power. 2. Disconnect the AC output switch and DC input switch & battery switch, then connect them 5 minutes later.
Bat Open Fault	Check if the cable between BAT and inverter is connected correctly.
Bat Dischg Voltage Low	Check whether the battery voltage is below the allowed discharge voltage threshold
Bus Over Voltage Protect	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
Bus Under Voltage Protect	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
PV Over Voltage Protect	Check the serial connection of the PV array. Make sure that the open circuit voltage of the PV string is not higher than the maximum operating voltage of the inverter.
AFCI Check Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
PV Input Mode Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
Bus Hardware Over Voltage Protect	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
PV Hardware Over Current Protect	Check the serial connection of the PV array. Make sure that the open circuit voltage of the PV string is not higher than the maximum operating voltage of the inverter.
Self Test Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
Inv Hardware Over Current Protect	1. Check whether the inverter grid is normal. 2. If the power grid is normal and the inverter still fails, restart the inverter. 3. Contact the dealer or the after-sales service if the problem persists.
Sampling Bias	1. Check if the inverter is connected correctly.

Fault	Solutions
Fault	2. If the problem persists, please contact the dealer or after-sales service.
NE Voltage Fault	Check whether the neutral and live wires are reversed and whether the earth wire is properly grounded.
DRM0 Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
Out Short Protect	1. Disconnect the AC output switch, DC input switch & battery switch, Check for any short circuits on the load side and the network side， then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
Grid High Freq Protect	If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover automatically after detecting that the utility grid is normal. 2. If the problem occurs frequently, check whether the grid frequency is within the permissible range.
Grid Under Freq Protect	
DCV Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
Grid Failure	Check if the power grid is correctly connected
Heart Beat Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
RCD Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
DCI Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
ISO Check Fault	1. Check whether the resistance of the PV string to PE exceeds 50k. If no, check the short circuit point. 2. Check whether the PE cable is connected correctly.
Relay Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
DSP EEPROM Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
Over Temp Protect	Check the ventilation and the ambient temperature at the installation point. If the ventilation is poor or the ambient temperature is too high, improve the ventilation and heat dissipation.
Low Temp Protect	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
DSP/ARM Comm Interrupted	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
RCD Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
RCD Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
DCI Check Fault	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.
Grid Over Voltage Protect	1. If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover automatically after detecting that the utility grid is normal. 2. If the problem occurs frequently, check whether the grid voltage is within the permissible range.
Grid Under	1. If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover

Fault	Solutions
Voltage Protect	automatically after detecting that the utility grid is normal. 2. If the problem occurs frequently, check whether the grid voltage is within the permissible range.
Grid 10-min Over Voltage Protect	1. If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover automatically after detecting that the utility grid is normal. 2. If the problem occurs frequently, check whether the grid voltage is within the allowed range. • Contact the local power company if the grid voltage exceeds the permissible range. • Modify the grid overvoltage rapid protection threshold after obtaining the consent of the local power company if the grid voltage is within the permissible range.
Off-grid Under Voltage Protect	1. Disconnect the AC output switch, DC input switch & battery switch, then connect them 5 minutes later. 2. Contact the dealer or the after-sales service if the problem persists.

8.2 Maintenance

Item	LCD display	Period
System clean	Check the temperature and dust of the inverter. Clean the inverter enclosure if necessary. Check if the air inlet and outlet are normal, Clean the air inlet and outlet if necessary	Six months to a year (- depend on the dust contents in air.)
Cable entry	Check whether the cable entry is insufficiently sealed or the gap is excessively large, and reseal the entry when necessary!	Once a year
Electrical Connection	Check whether all cable are firmly in place. Check whether a cable is damaged, especially the part contacting the metal enclosure.	Six months to a year
Fans	Check whether there is an abnormal noise when the fan rotates. Clean or replace the fan if necessary (see the following sections) **Note:** Only inverters with a rated power of 6 kW or greater are equipped with a fan.	Once a year

Maintenance Instruction

Cleaning Air Inlet and Outlet

A huge amount of heat is generated in the process of running the hybrid inverter. The inverter (Only models with a power of 6K or above have fans) adapts a controlled forced-air cooling method. In order to maintain good ventilation, please check to make sure the air inlets and outlets are not blocked. Clean the air inlet and outlet with a soft brush or vacuum cleaner if necessary.

The fans inside the hybrid inverter are used to cool the hybrid inverter during operation. If the fans do not operate properly, the hybrid inverter may not be able to cool, and the efficiency of the hybrid invOnly models with a power of 6K or above have fans.erter may be reduced. Therefore, it is necessary to clean the dirty fans in time and replace the bad fans.

Remove the fan board:

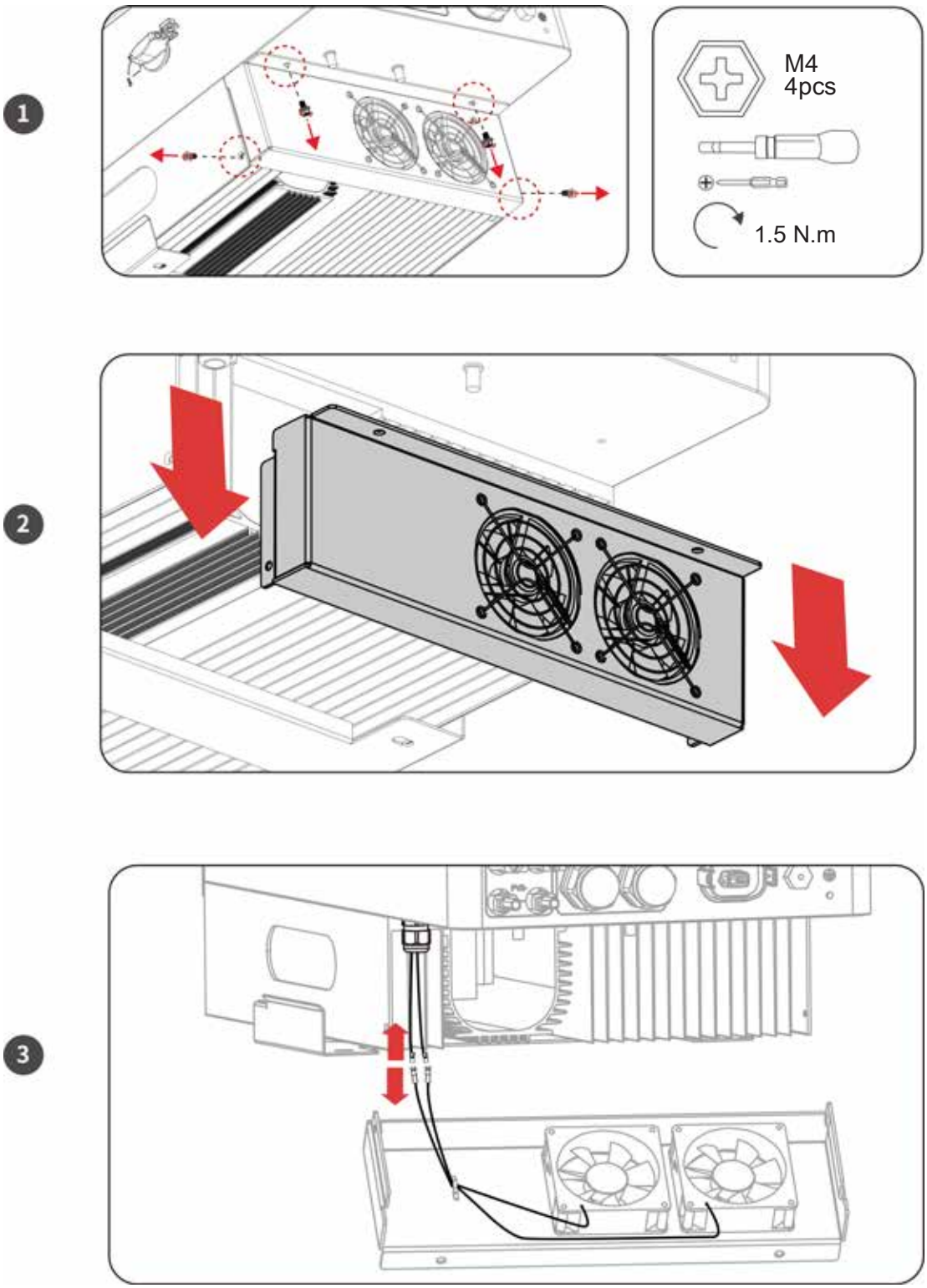
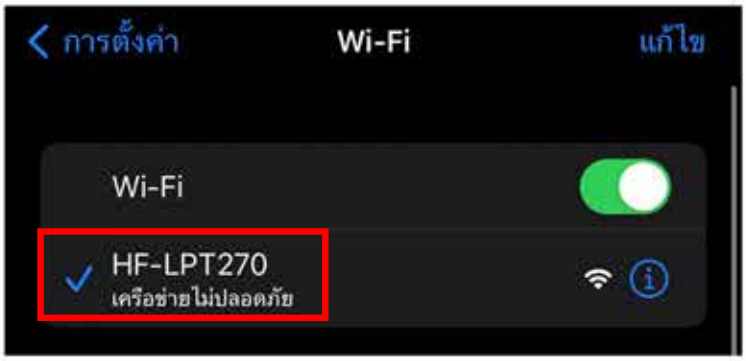


Figure 8-1

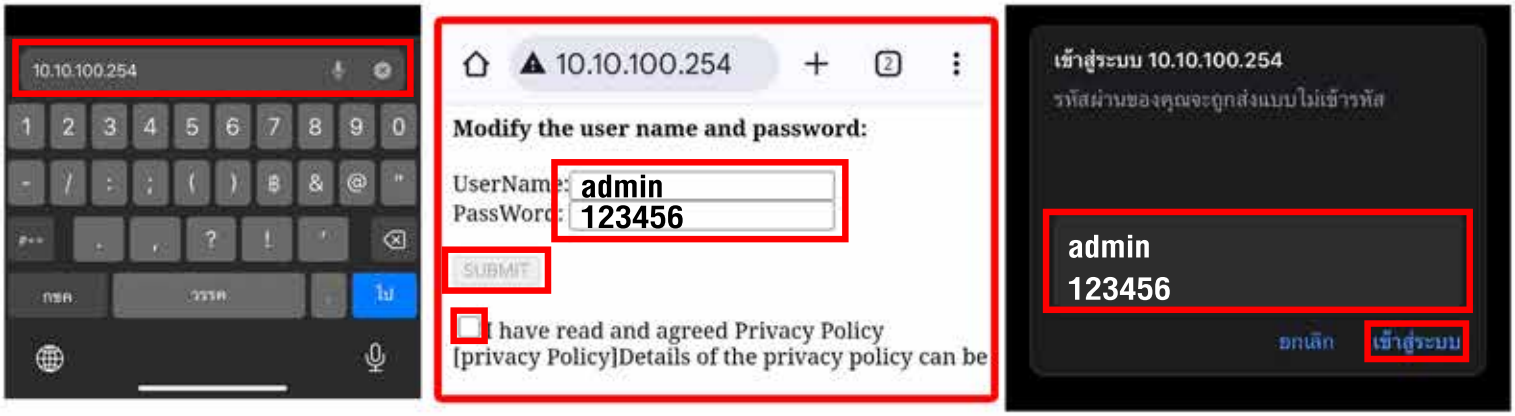
วิธีเชื่อมต่อ WiFi Inverter (2025)

1. กดปุ่มที่อุปกรณ์ค้างไว้ 5 วินาที ไฟจะดับไปแล้วเชื่อมต่อ WIFI ชื่อ HF-LPT270

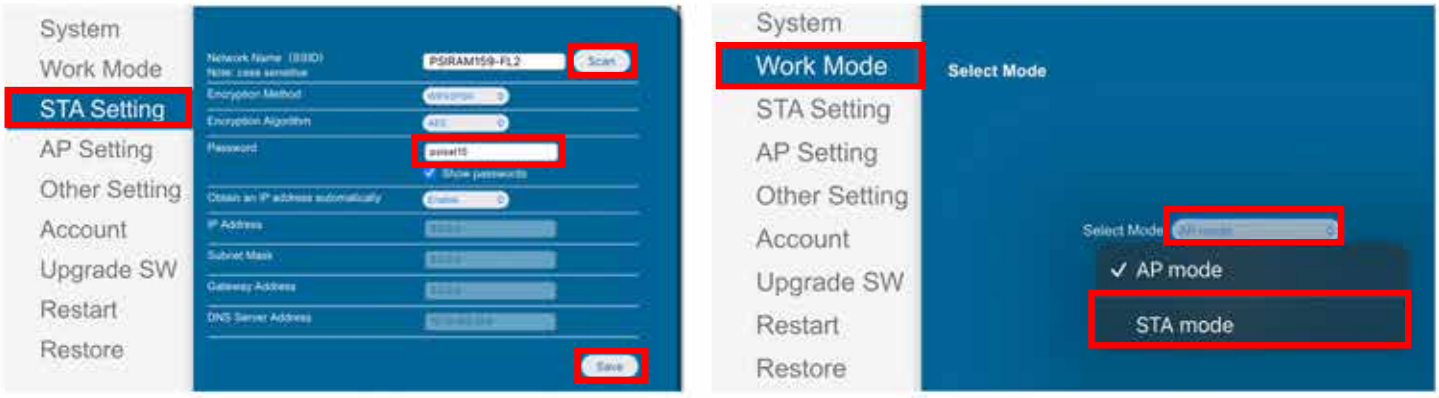


2. เปิด Safari หรือ Chrome แล้วพิมพ์ 10.10.100.254

Username : admin Password : 123456



3. เลือก STA Setting และกด Scan เลือก WiFi ใส่รหัสผ่าน แล้ว Save



4. เลือก Work Mode และ เปลี่ยน AP mode เป็น STA mode แล้ว Save

5. กด Restart รอสักครู่ ไฟสีเขียวจะแสดงที่อุปกรณ์ WiFi

