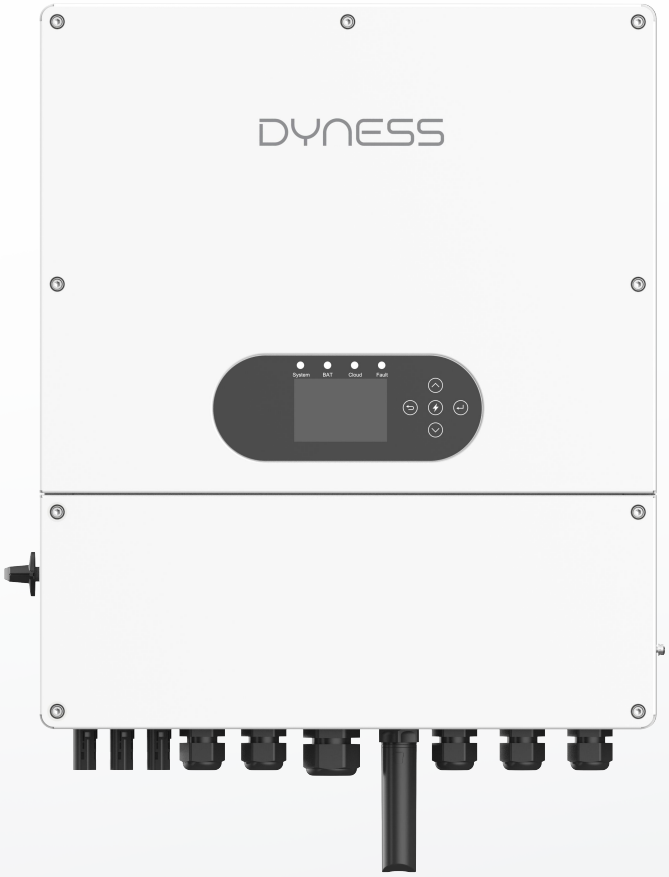


Hybrid Inverter

QUICK INSTALLATION

D3.0K-LS
D3.6K-LS
D5.0K-LS
D6.0K-LS
D8.0K-LS

File version-20251118-V0-EN Information might be subject to change without notice during product improving.

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About APP

Install

Download on the App Store

Download on the Google Play

Operation

*Maximum operating voltage is 600V.

According to the local grid regulation

Can be reached only if PV and battery power is enough

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Statement of Law

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This product complies with the design requirements of environmental protection and personal safety. The storage, use and disposal other products shall be carried out following the product manual, relevant contract or relevant laws and regulations.

Customers can check the related information on the website of Dyness Digital Energy Technology Co., LTD. when the product or technology is updated.

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1. About the Manual

1.1 Manual Description

This manual is an integral part of the inverter and describes the assembly, installation, commissioning, maintenance and faults of the product. Please read it carefully before operation.

1.2 Applicable Models

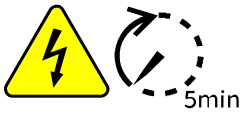
This manual applies to single-phase energy storage inverter models:

D3.0K-LS、D3.6K-LS 、D5.0K-LS、D6.0K-LS、D8.0K-LS.

Only for professionals who are familiar with local regulations, standards and electrical systems, and who have been professionally trained and are knowledgeable about this product.

1.3 Safety Markings

Please carefully read and understand the meaning of the following warning signs to facilitate better use of this manual.

Label	Description
	The symbol indicates the danger of electric shock. If not avoided, could result in serious injury or even death to personnel.
	The symbol indicates some precautions. If not avoided, could result minor injuries to personnel or damage to the inverter.
	The symbol indicates that the surface temperature is high. Please do not touch it.
	Delayed discharge, and the maintenance personnel must wait for 5 minutes before they are completely powered off.
	Please read through the user manual before any operations.
	Please do not dispose of the inverter as household waste. Discard the product in compliance with local laws and regulations, or send it back to the manufacturer.
	CE mark of conformity.
	Grounding mark.

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2. Safety Precaution

2.1 Operator Safety

Personnel installing or servicing the equipment must be highly trained and should be aware of safety precautions and proper operation.

2.2 Installation Safety

	1. Ensure that the equipment is not connected to any electrical connections before installation. 2. When drilling holes in the installation wall ensure to avoid the water and electricity lines in the wall.

	1. During transportation, pay attention to the weight of the product and keep it balanced to avoid falling and hurting the human body. 2. The tools used must be checked prior to installation for compliance with professional requirements.

2.3 Electrical Connection Safety

2.3.1 PV-side Connection Safety

	1. Use the PV input terminals included in the accessory package to connect the DC cables on the PV side. 2. Use a multimeter to check the polarity of the DC cables to ensure that the polarity is correctly connected, otherwise it may lead to equipment damage or personal injury or death. 3. A PV string cannot be connected to more than one inverter. Otherwise, it may lead to equipment damage or personal injury. 4. PV±poles to earth cannot be short-circuited, the impedance to ground should be > Vpv/30mA.

2.3.2 AC-side Connection Safety

	1. Use the cable connection AC terminals included in the accessory package. 2. It is recommended to use copper wire for the AC output cable. 3. It is recommended to install protective devices such as earth leakage protector and breaker on the AC side. The size of the protection device should be at least 1.25 times the rated AC output current.

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2.3.3 Battery-side Connection Safety

	1. Use the cable connection BAT±terminals included in the accessory package. 2. It is recommended to use copper wire for the battery cable. 3. The batteries used with the inverter should be permitted by the inverter manufacturer. 4. Do not connect a battery to more than one inverter at the same time, otherwise it may lead to equipment damage. 5. Use a multimeter to check the polarity of the DC cables to ensure that the polarity is connected correctly, otherwise it may lead to equipment damage or personal injury or death.

2.4 Operation Safety

Any operation on the inverter must be carried out by specialized personnel. While the device is in operation:

	1. Do not touch the inverter case during operation. 2. Do not unplug any connector of the inverter. 3. It is strictly prohibited to touch any terminals of the inverter. 4. It is strictly prohibited to disassemble any parts of the inverter. 5. It is strictly prohibited to operate the peripheral equipment equipped with the inverter, such as DC switch, etc.

2.5 Storage Safety

If the inverter is not installed immediately, it needs to be stored according to the following requirements:

	1. Keep the inverter in the original packing box and store it in a relatively dry place 2. The box should be kept upright and stacked according to the direction of the box tips 3. Do not store the inverter in harsh environments such as direct light and rain. 4. Do not store the inverter in a place where it may be damaged. 5. Please check the inverter and its packaging regularly.

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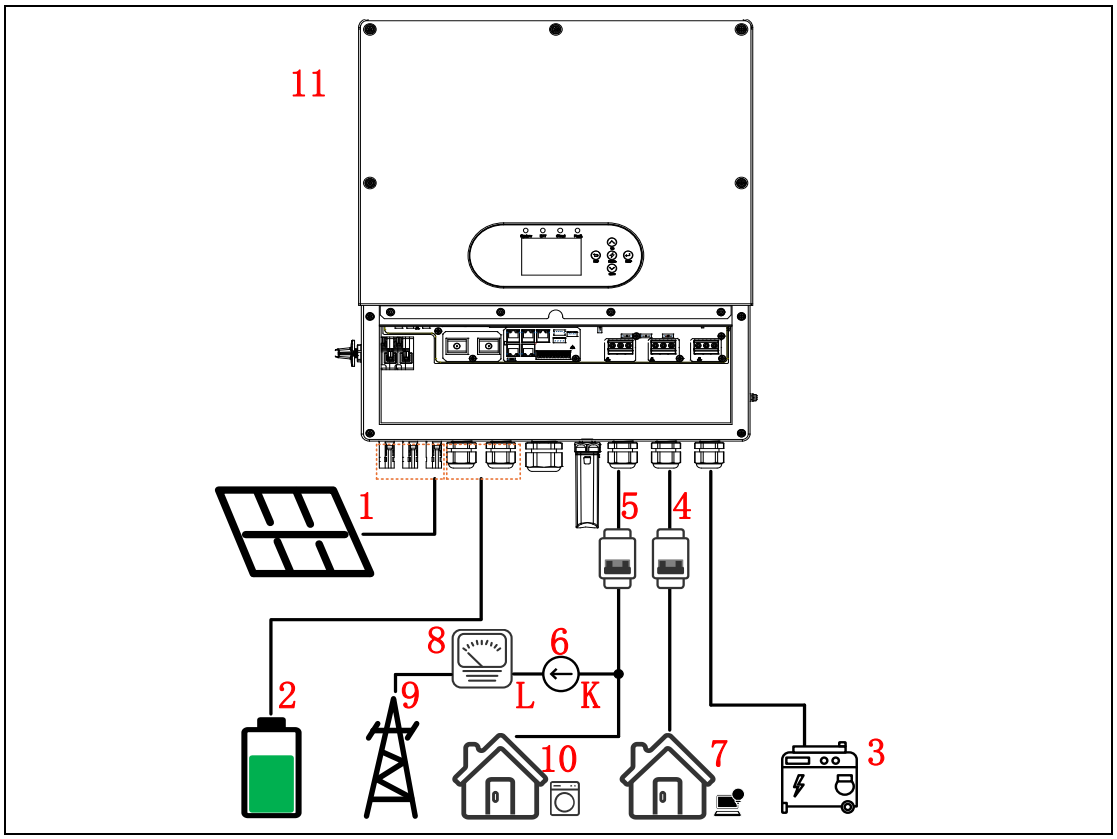
3. Product Instruction

3.1 Product Overview

This product is a hybrid inverter that converts solar energy into AC power for load consumption, stores the energy in batteries for future use or feeds it into the utility grid. The working mode of the inverter depends on the user's settings, the inverter can be used to provide emergency power in the event of grid outage.

3.2 Application diagram

- **System Diagram**



- **System Instruction**

1	PV panel	A PV string consists of PV panels connected in series.
2	Battery system	Inverter-supported batteries can be selected for matching.
3	Generator	The inverter supports connection to the generator and can control the start and stop of the generator.
4	AC circuit breaker	Self-provided BACK-UP side AC circuit breaker, rated current depends on the load and the maximum current of the inverter, recommended > 1.25 times the maximum current; rated voltage ≥ 230Vac.
5	AC circuit breaker	Self-provided ON-GRID side AC circuit breaker, rated current depends on the load and the maximum current of the inverter, recommended > 1.25 times the maximum current; rated voltage ≥ 230Vac.

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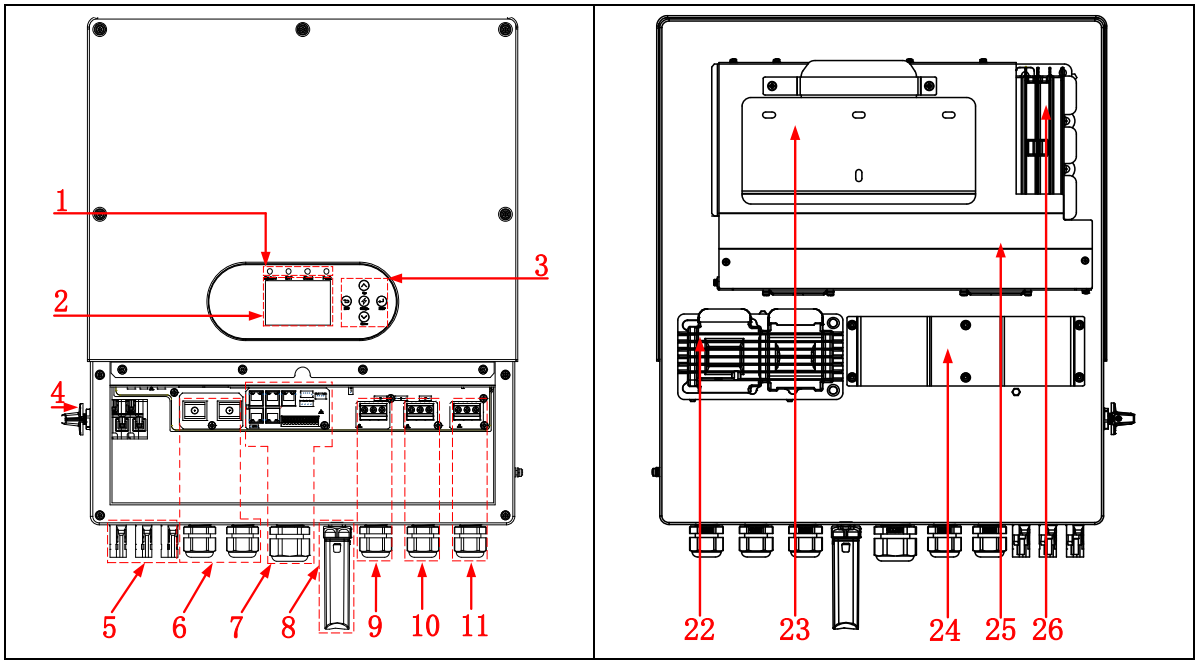
6	CT	The accessory package will come with the CT, which must be connected to the grid in the direction of the CT K→L(from house to grid).
7	BACK-UP	Essential loads can be connected here, and if equipped with batteries, the loads will not be disconnected in case of grid failure.
8	Meter	Selection of meter according to local requirements.
9	Utility grid	Supported Grid Types L/N/PE,220/230/240
10	On-grid	Non-sensitive loads can be connected here, the loads will disconnected in case of grid failure.
11	Inverter	LS 3~8K

NOTE: When the inverter is off-grid, the precautions are as follows

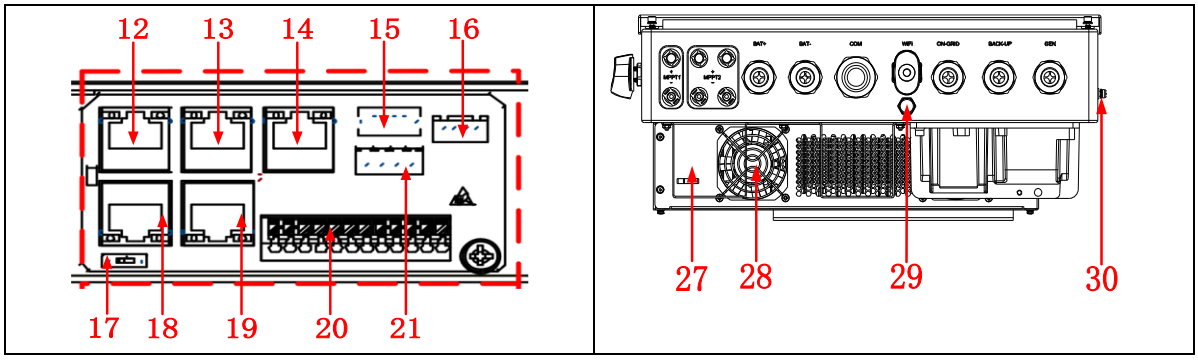
1. If the system is not equipped with batteries, it is not recommended to use the BACK-UP function, otherwise it may cause the system power failure.
2. The load connected to the BACK-UP needs to consider the inductive and capacitive load startup and switching inrush power/current. If the inrush current is too high, it may cause the inverter to trigger overload protection.
3. BACK-UP is not allowed to connect isolation transformer, and not allowed the load to be connected behind the autotransformer.
4. BACK-UP is not allowed to connect the equipment that needs to rely on a stable power supply, such as equipment used for life-sustaining medical equipment or bank data servers and other equipment, to avoid personal injury or property damage caused by abnormal power outages.

3.3 Appearance

- **Product Appearance**



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- **Functional Description**

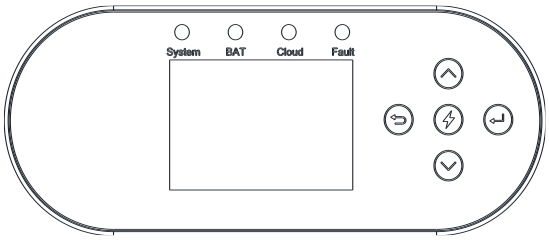
1：Inverter Indicator Light	2：Touch LCD display
3：Function buttons	4：PV Switch
5：PV input（2/3 channel input）	6：Battery connection
7：Communication connection	8：WiFi module
9：ON-GRID connection	10：BACK-UP connection
11：GEN connection(Generator)	12：Parallel-2 connection
13：Battery BMS connection	14：EMS connection
15：USB flash drive interface	16：WiFi module connection
17：Dip switch	18：Parallel-1 connection
19：CT/Meter connection	20：DI/DO connector
21：BAT temperature sampling and RS485	22：Power inductor
23：Back plate	24：Support frame
25：Air duct plate	26：Power transformer
27：Fan shroud	28：Fan cover net
29：Breather valve	30：Ground connection

- **Indicator Description**

No.	Define	Colour	OFF	Single flash	Double flash	ON
1	System	Green	Standby/Fault/Upgrade	Off-grid	Self-check	On-grid
2	BAT	Green	Battery not connected	BMS NG	/	Normal
3	Cloud	Green	WiFi Module not recognized	Not connected to router	Not connected to cloud	Normal
4	Fault	Red	Normal	BACK-UP overload	/	Fault

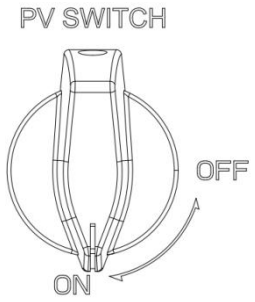
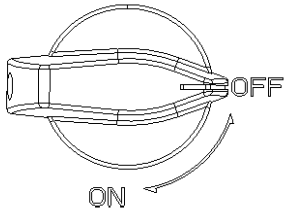
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- **Button Description**

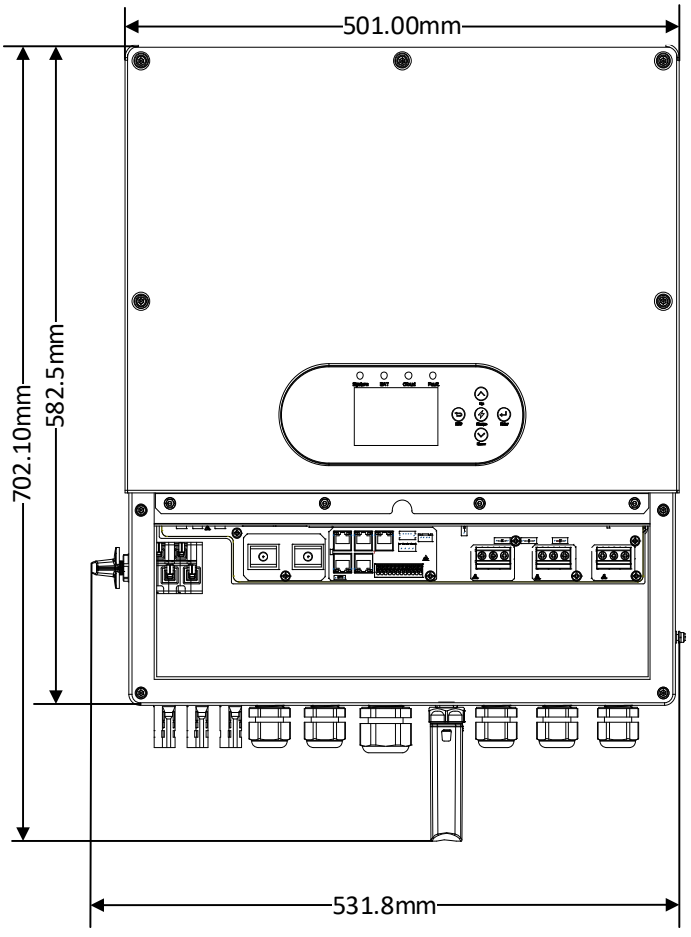


↩	ESC
↵	Reserved
∧	Page up
ϟ	Reserved
∨	Page down

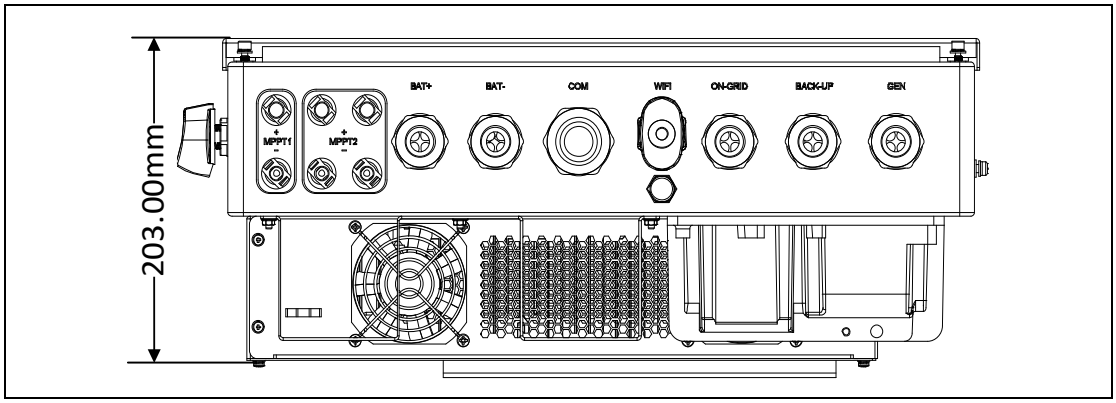
- **PV Switch**

ON	OFF
	

3.4 Dimensions

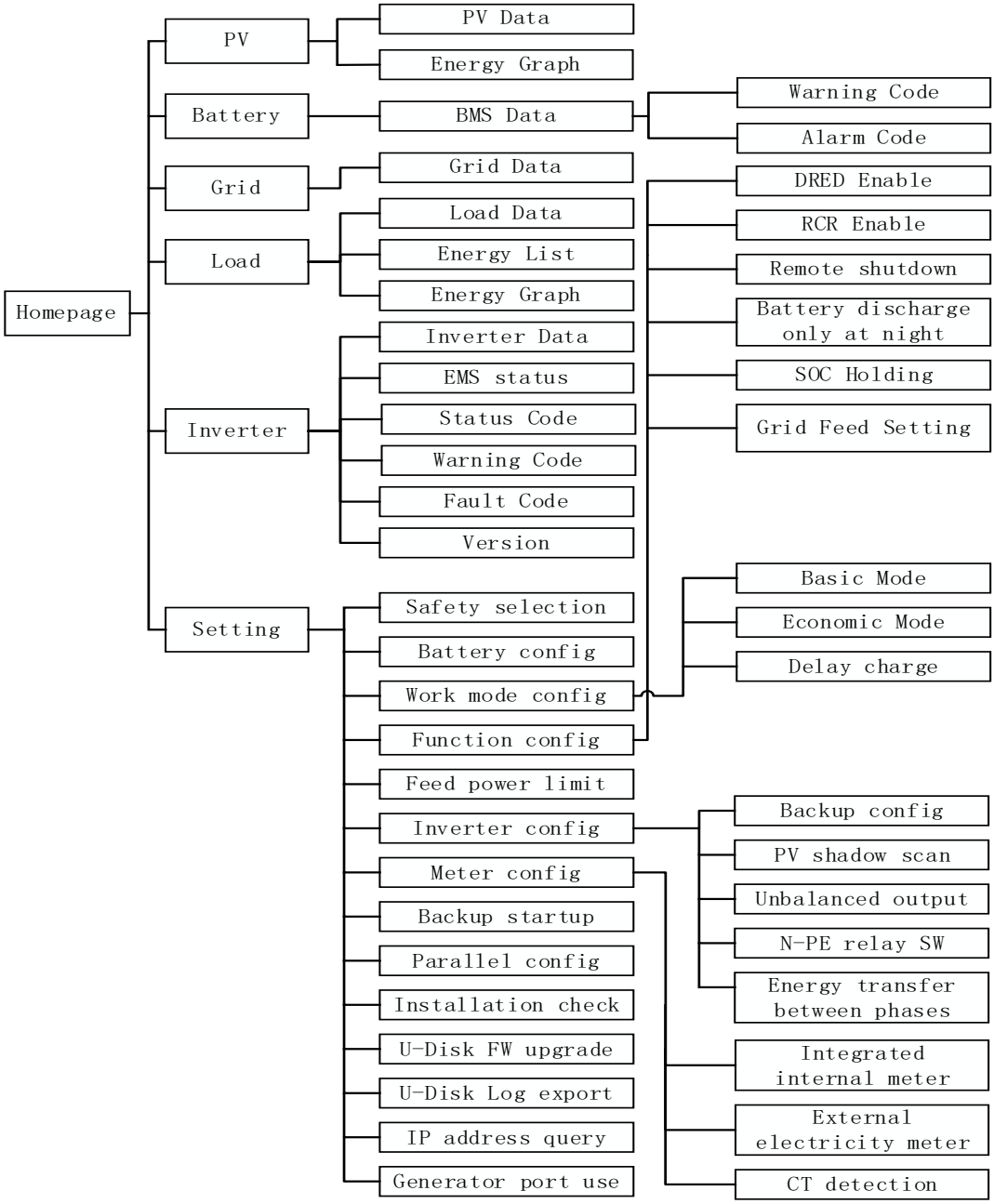


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3.5 LCD Function Tree Diagrams

- The LCD function tree diagram is as follows, users can operate the LCD screen according to this tree diagram.



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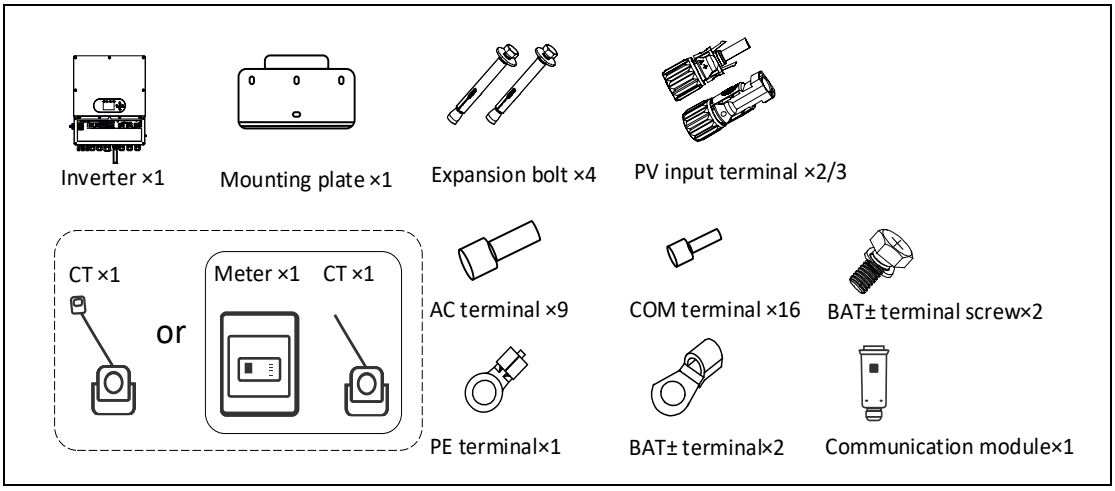
4. Inverter Installation

4.1 Pre-receipt inspection

⚠	Before installation, please check the packaging for any abnormalities such as damage or deformation to ensure that the product are in good condition. If there is any obvious damage, please do not install and contact the supplier promptly.

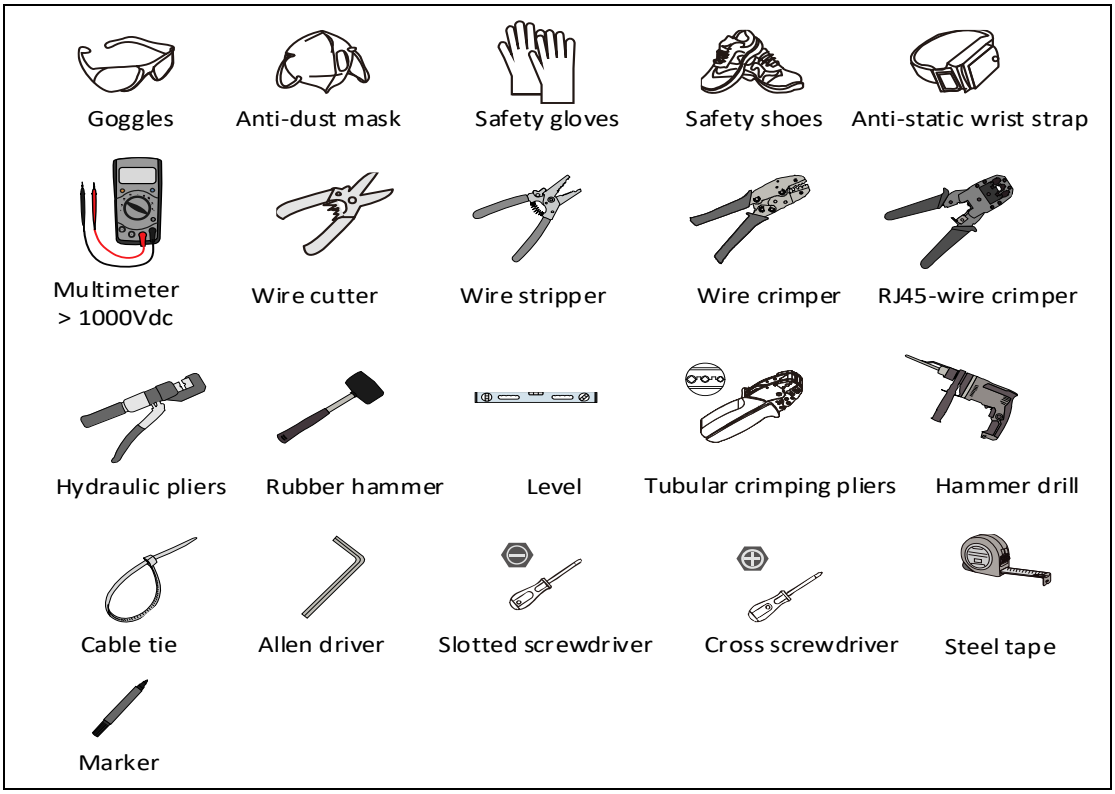
4.2 Packing List

Open the package and check whether the following items are included in the accessory package, if there is any missing, please contact the after-sales service immediately.



4.3 Installation Tools

Please prepare the following professional tools for installing the inverter.

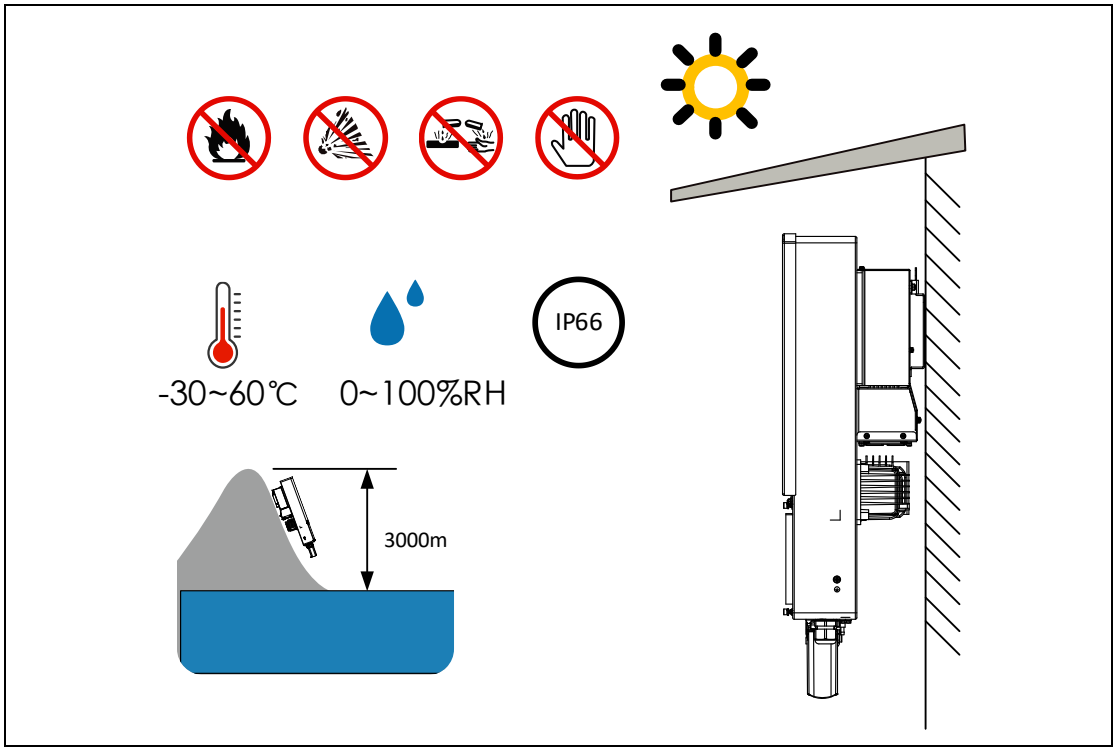


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4.4 Installation Requirements

- **Environmental requirements**

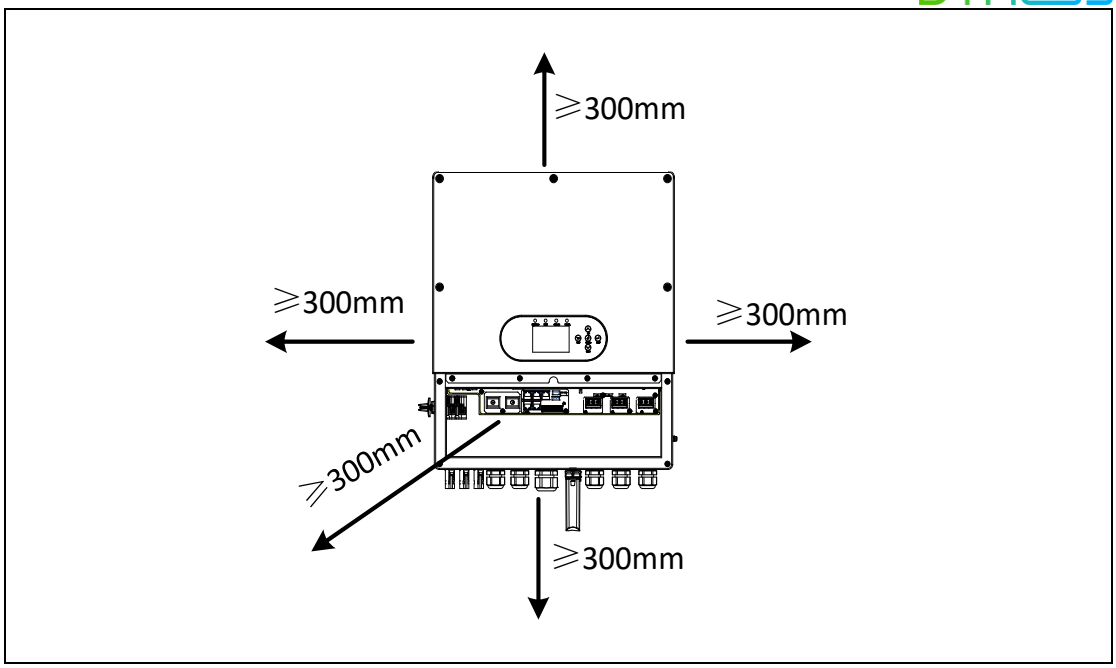
⚠	1. Don't install the equipment in an environment with flammable, explosive, corrosive materials. 2. Don't install the equipment in the place where it can be easily touched, especially for children. 3. Drill holes to avoid water pipes and electrical cables in the wall. 4. The inverter should be installed to avoid direct sunlight, rain, and snow. 5. The space where the equipment is installed should be well ventilated for heat dissipation and operation. 6. The altitude at which the inverter is installed should be less than the maximum working altitude of 3000m above sea level.



- **Space requirements**

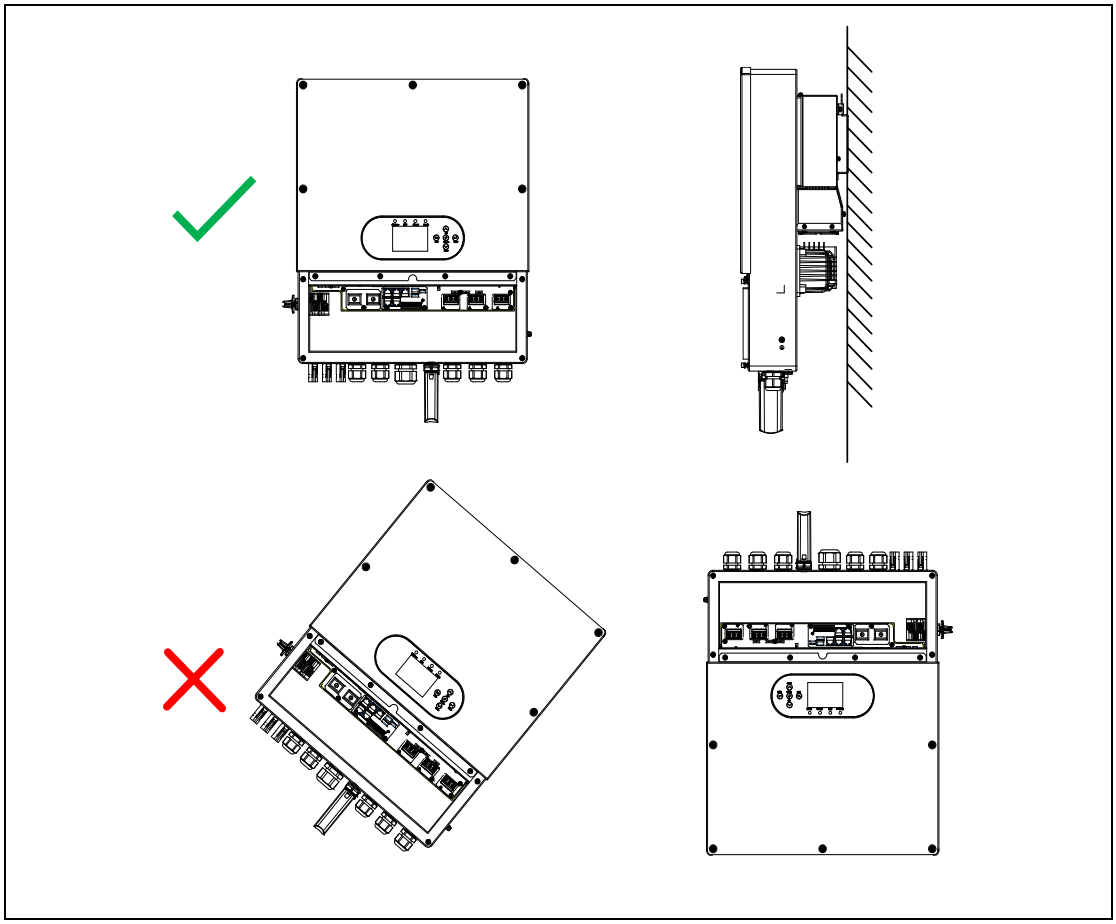
Installation of the inverter, need to reserve enough space for heat dissipation, not less than 300mm

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- **Angle and Load Carrier Requirements**

1. Mount the inverter on a solid surface to bear the weight.
2. Do not install the inverter on a poorly soundproofed carrier to avoid noise.
3. Mount the inverter at an angle of up to 5 degrees backward, not forward, inverted, sideways or excessively tilted.



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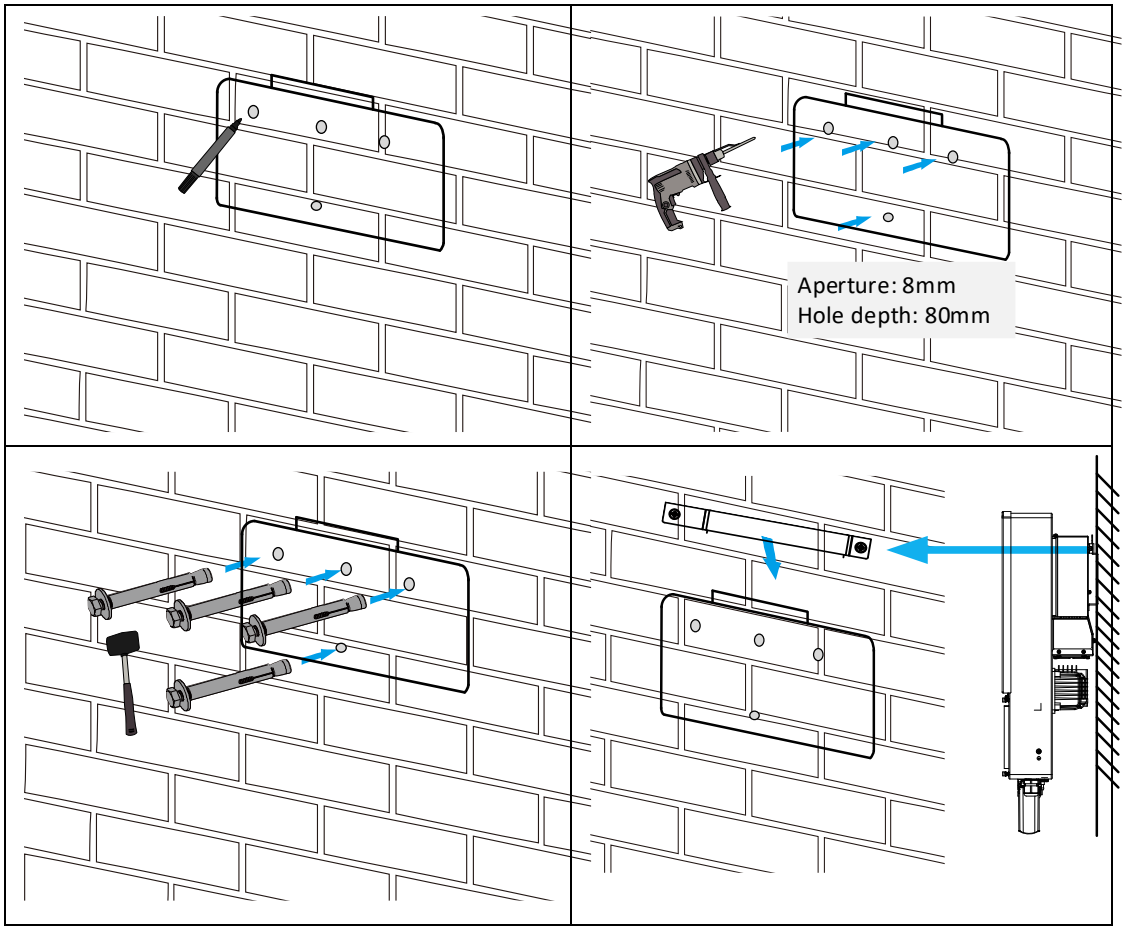
4.5 Installation steps

Step 1: Place the backing plate supplied with the box on the wall and mark the drilling position.

Step 2: Drill the holes with a hammer drill with an 8mm diameter drill bit to a depth of 80mm.

Step 3: Fix the drilled holes on the wall with the expansion bolts supplied with the accessory package.

Step 4: Hang the inverter vertically on the back plate and make sure it is securely mounted.



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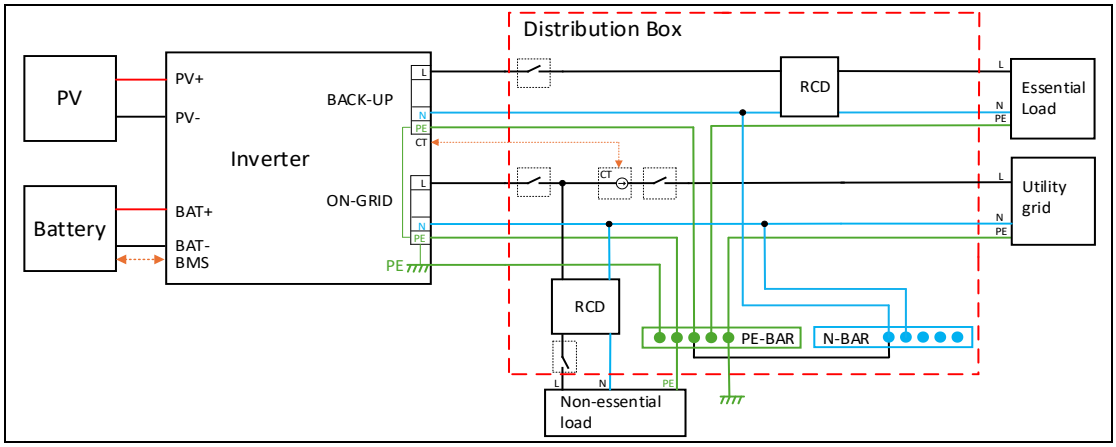
5. Electrical Connection

5.1 Wiring Diagram

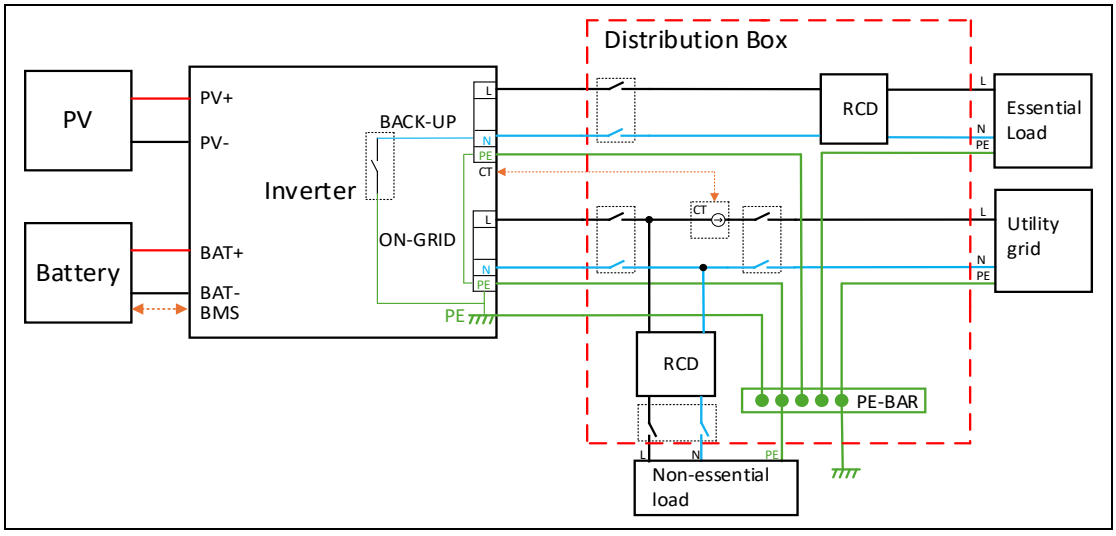
Two wiring diagrams are as follows:

⚠	1. According to the regulations and requirements of different regions, N and PE are connected in different ways. Please choose the wiring method reasonably. 2. When the inverter is powered on, the BACK-UP port is energized. Power off the inverter first if maintenance is required on the BACK-UP loads. Otherwise, it may cause electric shock. 3. The wiring diagram takes the built-in meter as an example. The inverter has a built-in meter. If the length of the CT connection to the inverter is more than 30m, you can choose to use an external meter (see section 5.5.3).

- N and PE of BACK-UP terminals are wired together in the distribution box for regions such as **Australia and New Zealand**.



- N and PE of BACK-UP terminal are wired independently in the distribution box, suitable for **most areas**.

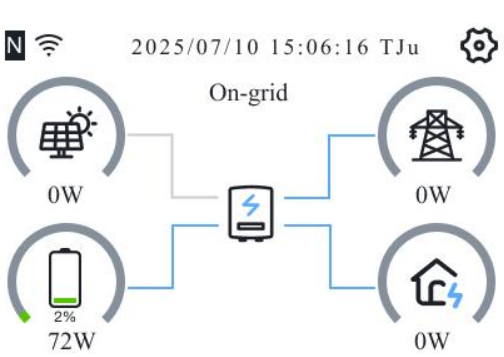
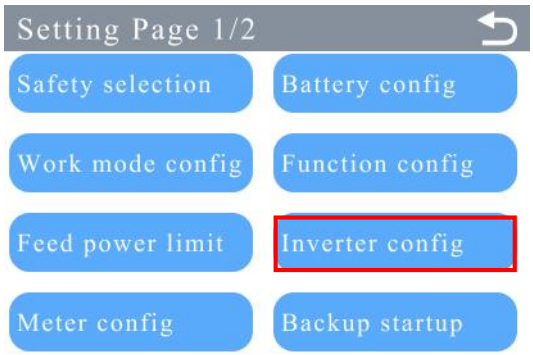
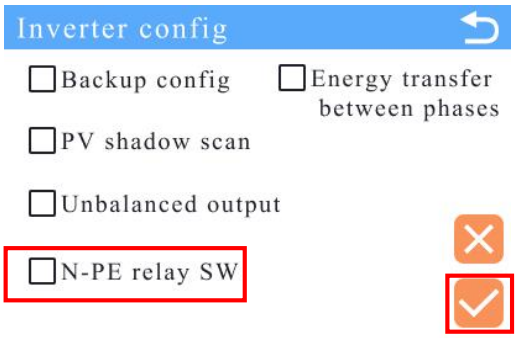


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- Some regions require that “N and PE” can not be directly connected inside the inverter. Users can control the disconnection or closure of “N and PE” according to the actual needs of the site, the operation steps are as follows:

1. Click on the "N-PE relay SW" option, which indicates that “N and PE” are connected within the inverter.

2. Do not click on the "N-PE relay SW" option, which indicates that “N and PE” are not connected within the inverter.

<table>
<tr>
<td>Step1

</td>
<td>Step2

</td>
</tr>
<tr>
<td>Step3


1. Click “N-PE relay SW”
2. Click “√”</td>
<td></td>
</tr>
</table>

5.2 PV connection

- **The inverter has 2/3 sets of PV inputs, to connect the PV cables make sure that**

1. The open-circuit voltage of the panel is within the input voltage range specified by the inverter, and the operating voltage is within the MPPT range.
2. The panel cannot be grounded to ensure that the minimum insulation resistance to ground meets the minimum insulation impedance requirement.
3. The short-circuit current of the panel is within the range specified by the inverter.
4. Positive and negative poles are connected correctly
5. Use the connectors supplied with the accessory package, and prohibit different brands from plugging into each other.

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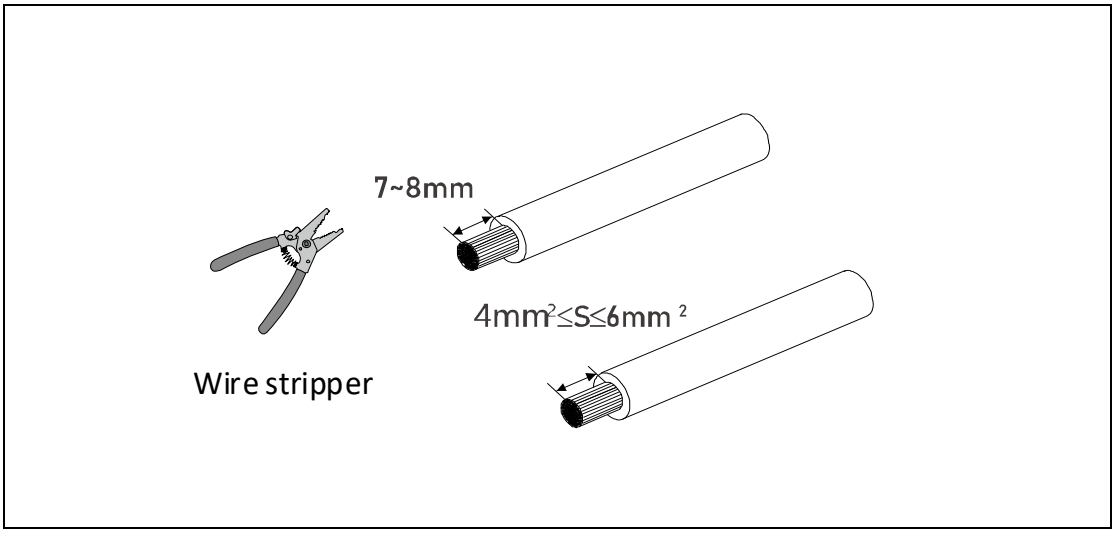
6. It is not recommended to connect MPPT series in parallel, otherwise it will affect the tracking efficiency of MPPT. MPPT series parallel access must meet local laws and regulations.

- **PV Cable Specification Recommendations**

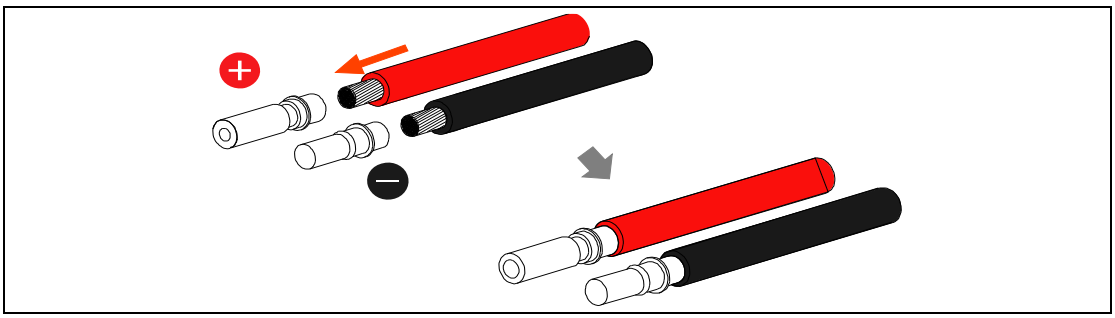
Model	Type	Cable Specifications
LS 3-8K	Copper wire cable	4-6mm^2

- **PV Cable Wiring Procedure**

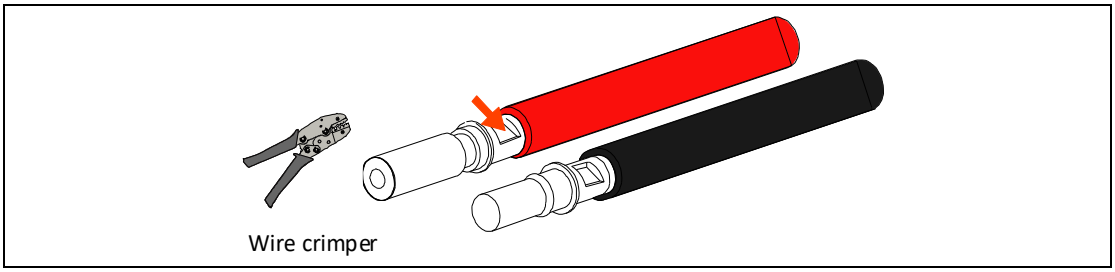
1. Cable stripped 7-8mm at one end, cross sectional area 4-6mm^2



2. Take out the metal terminal and thread the dialed cable

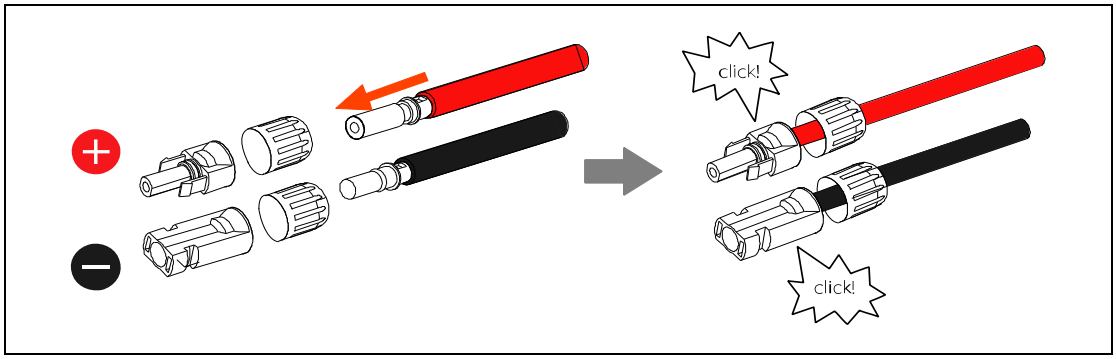


3. Use crimping pliers to crimp the unwound cable to the connector

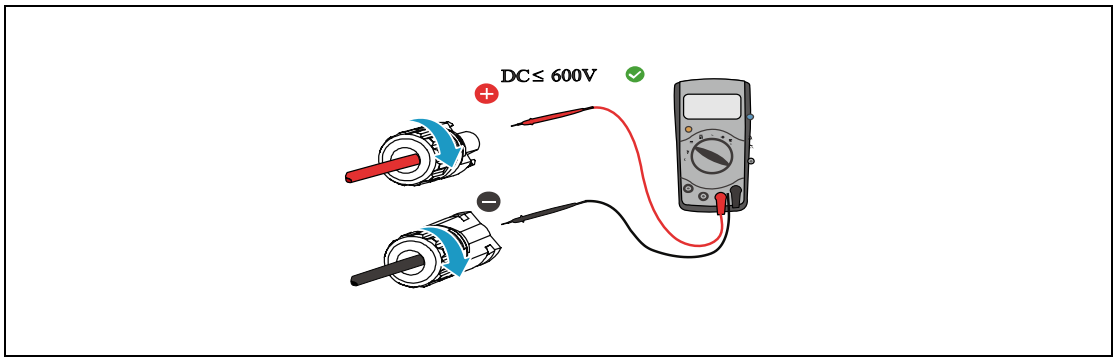


4. Thread the metal terminal through the nut and into the connector until you hear a “click”.

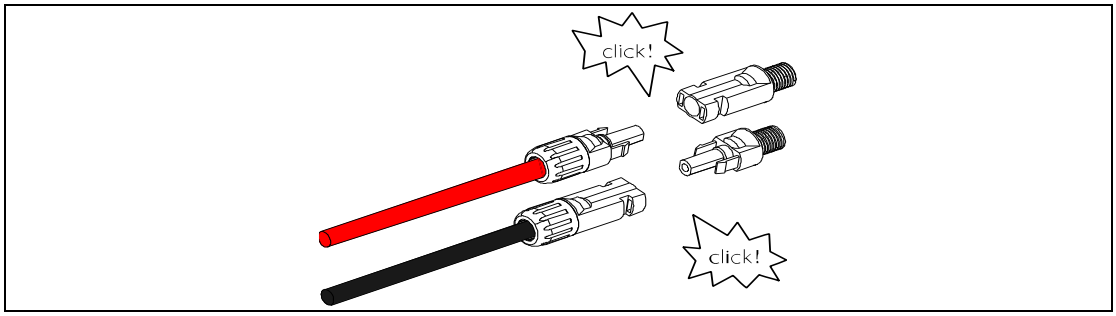
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5. Use the multimeter to measure the positive and negative terminals and DC voltage <600V, then lock the nut.



6. Insert the connector into the inverter and “click” to tighten it.



5.3 BAT Connection

- **The inverter needs to be connected to its matching battery, to connect the battery cable make sure that**

1. It is prohibited to connect the same battery pack to multiple inverters simultaneously.
2. It is prohibited to connect a load between the inverter and the battery.
3. When connecting battery cables, use insulated tools to prevent accidental electric shock or short circuit to the batteries.
4. Battery voltage is within the permissible range of the inverter.
5. The positive and negative terminals of the batteries are correctly connected.

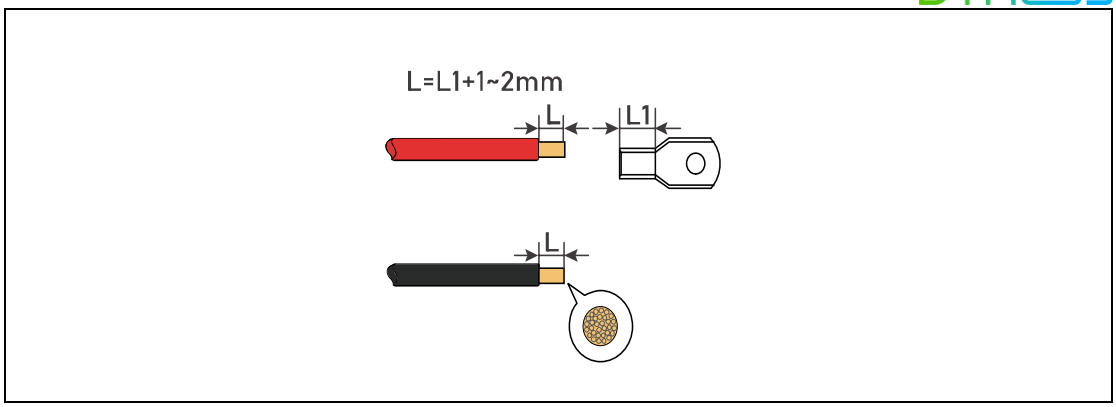
- **Battery Cable and Circuit Breaker Specification Recommendations**

Model	Type	Cable Specifications
LS 3K-3.6K	Copper wire cable	25mm^2
LS 5K-8K	Copper wire cable	35mm^2

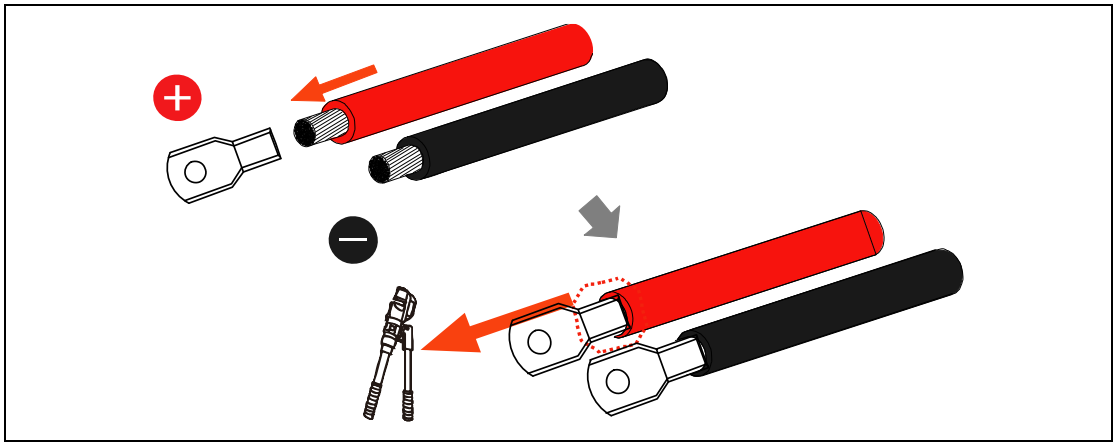
- **Battery Cable Wiring Procedure**

1. Stripping the wire.

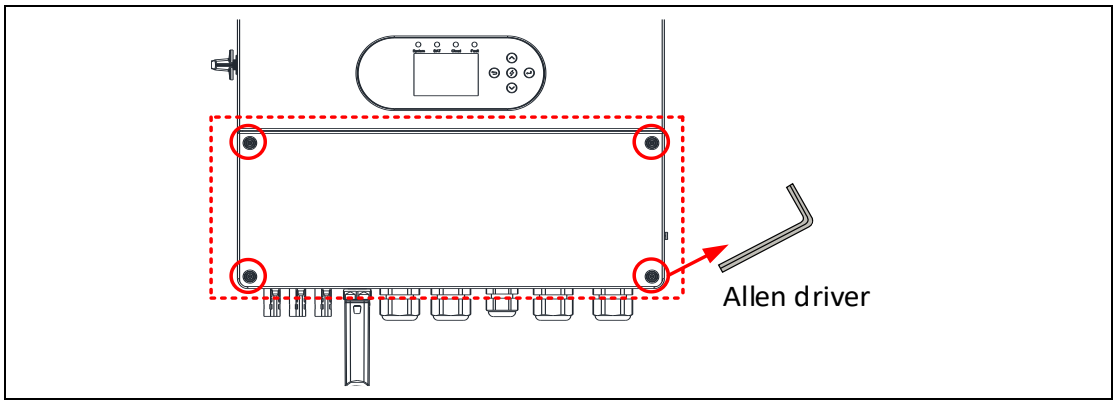
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2. Use the OT terminals provided in the accessory package to insert the wired cables and then use the hydraulic pliers to press them together.

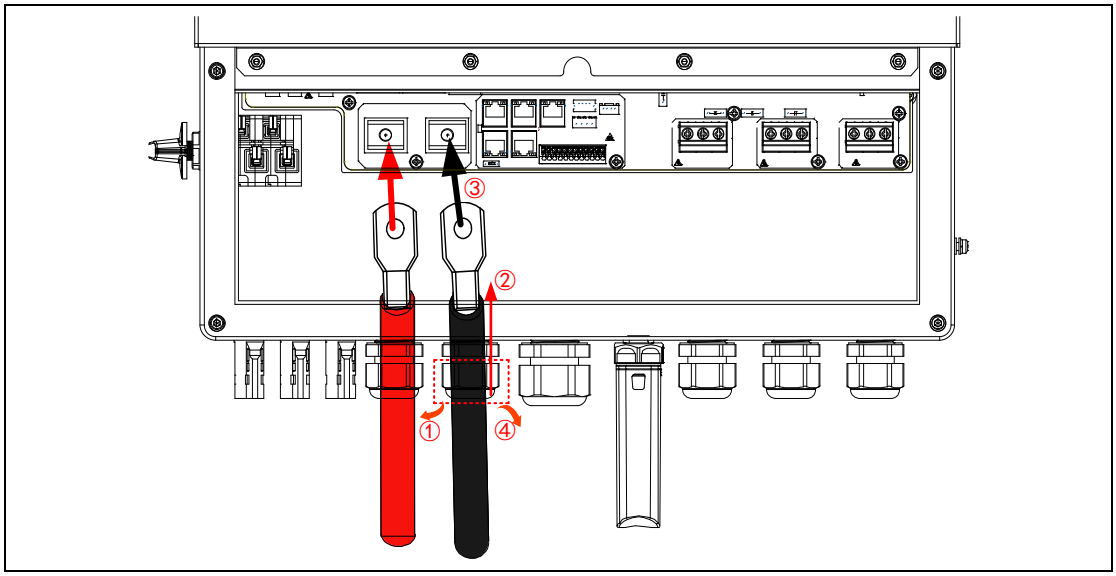


3. Remove the lower cover plate using a hexagonal screwdriver



4. The procedure for connecting the cables is as follows:
   1) Loosen the gland nut by turning it to the left.
   2) Thread the cable into the glands. Pay attention to the correct polarity.
   3) Using M8 cross screwdriver or sleeve to lock.
   4) Rightward tighten the gland nut.

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5.4 AC Connection

- **The inverter has three sets of AC interfaces, BACK-UP、ON-GRID and GEN, to connect the AC cables make sure that**

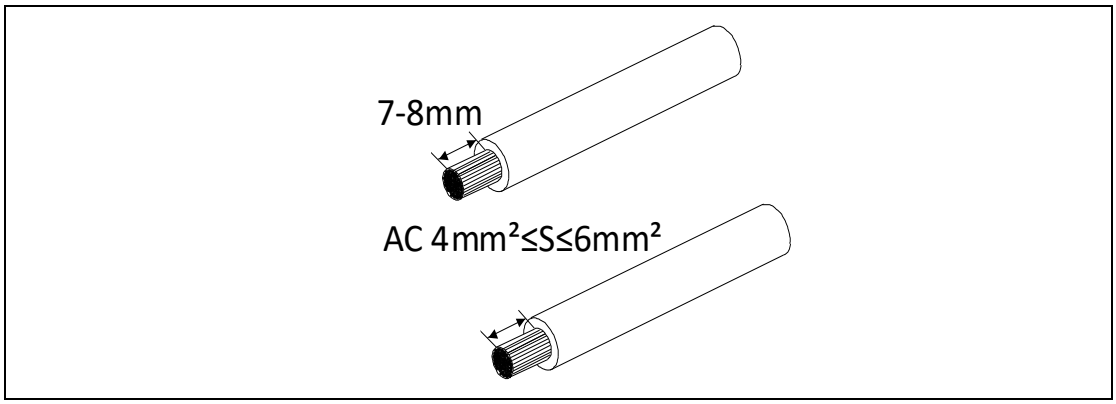
1. AC circuit breakers should be installed separately on the AC side of each inverter to ensure that the inverter can be safely disconnected from the grid in the event of an abnormality.
2. When the inverter is powered on, the BACK-UP port is powered on. If you need to maintain the loads in the BACK-UP port, please disconnect the inverter first.

- **Suggested Specifications for AC Cables and Breakers**

Port	Type	Model	Specifications
BACK-UP ON-GRID GEN	Copper wire cable	LS 3K-3.6K	Copper core cross-sectional area 4-6mm^2
		LS 5K-8K	Copper core cross-sectional area 6-10mm^2
	AC Circuit Breaker	LS 3K-3.6K	Nominal current ≥ 40A，Nominal voltage ≥ 230Vac
		LS 5K-8K	Nominal current ≥ 63A，Nominal voltage ≥ 230Vac

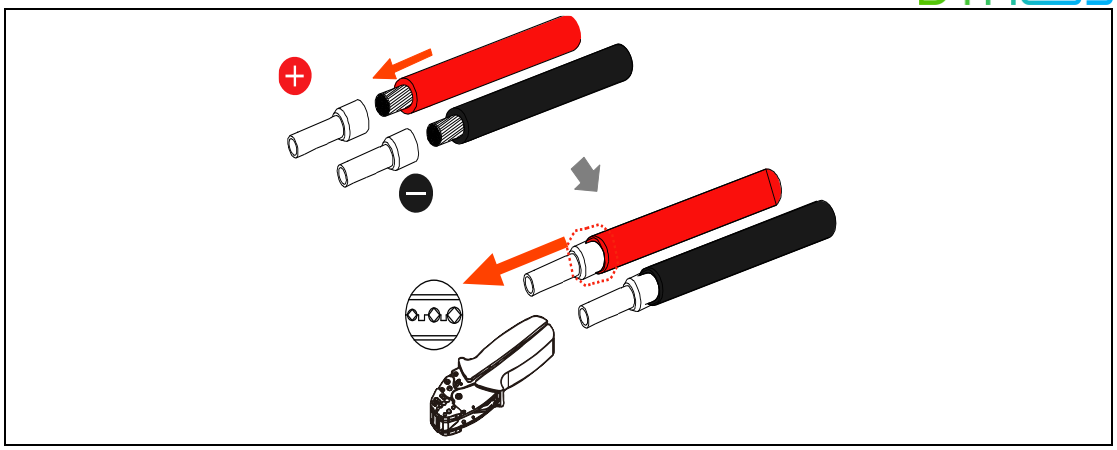
- **AC Cable Wiring Procedure**

1. Cable stripped 7-8mm at one end.

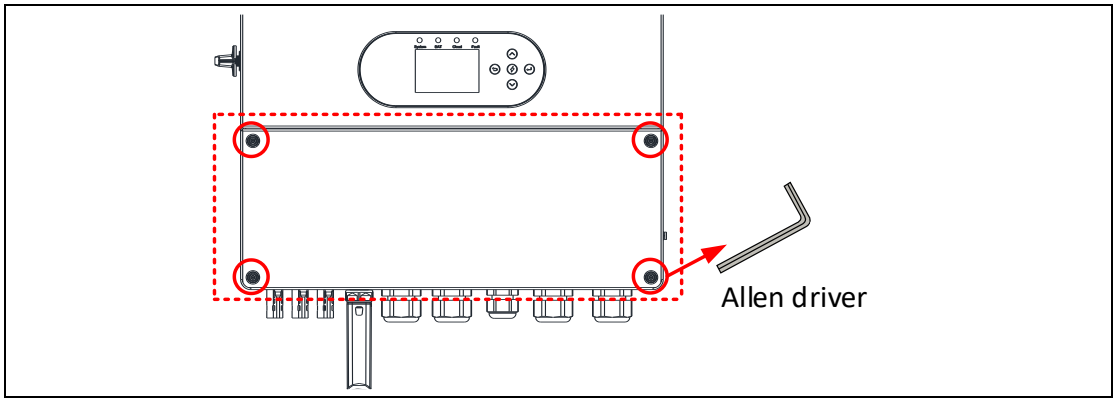


2. Using the tubular terminals included in the accessory package, thread the unraveled cables and crimp them together using tubular crimping pliers.

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3. Remove the lower cover plate using a hexagonal screwdriver



4. The AC is connected in the same way as the battery, and the procedure for connecting the cables is as follows:

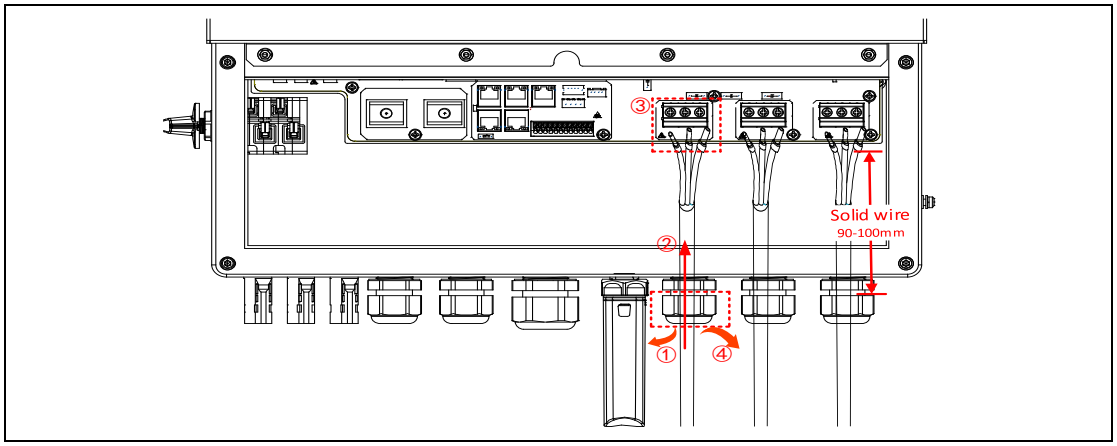
1) Loosen the gland nut by turning it to the left.

2) Thread the cable into the glands. Insert the cable into the inner core of the terminal according to the polarity and silkscreen.

3) Using M4 cross screwdriver to lock.

4) Rightward tighten the gland nut.

Note: If it is a solid wire, please set aside the outer wire skin by 90~100mm to facilitate the wiring operation.



5.5 Grounding

- **The inverter has a dedicated grounding point, to connect the ground wire please make sure that**

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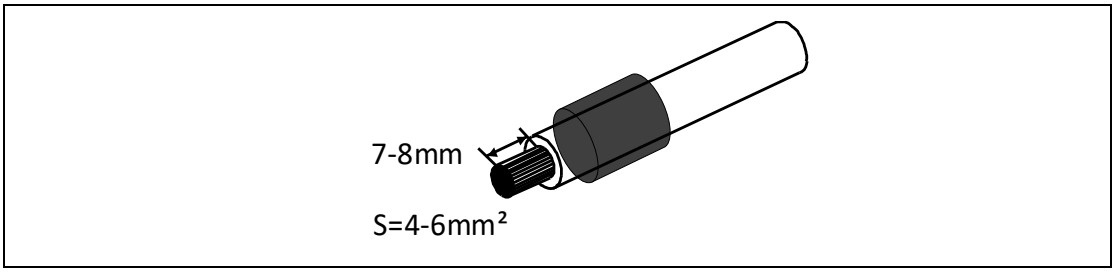
1. The ground wire connected to the inverter frame cannot replace the ground cable connected to the AC output, make sure both are grounded.
2. When using more than one inverter, please make sure that the grounding points of all inverter frame housings are connected at equal potential.
3. To improve the corrosion resistance of the metal terminal, please apply silicone or paint after installing the ground cable.

- **Grounding cable specification recommendations**

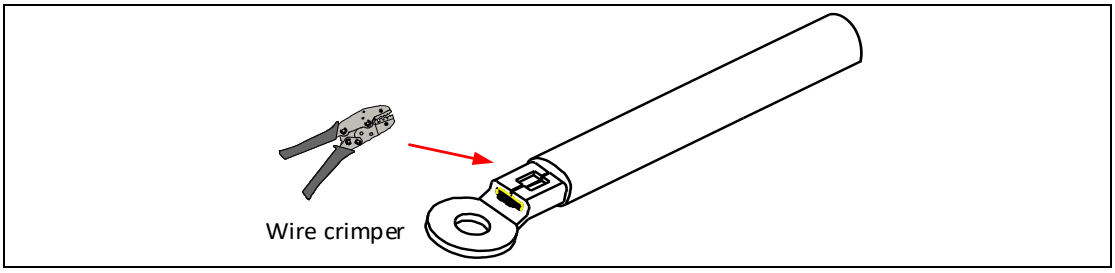
Model	Type	Cable Specifications
LS 3K-3.6K	Copper wire cable	4-6mm^2
LS 5K-8K	Copper wire cable	6-10mm^2

- **Ground cable wiring procedure**

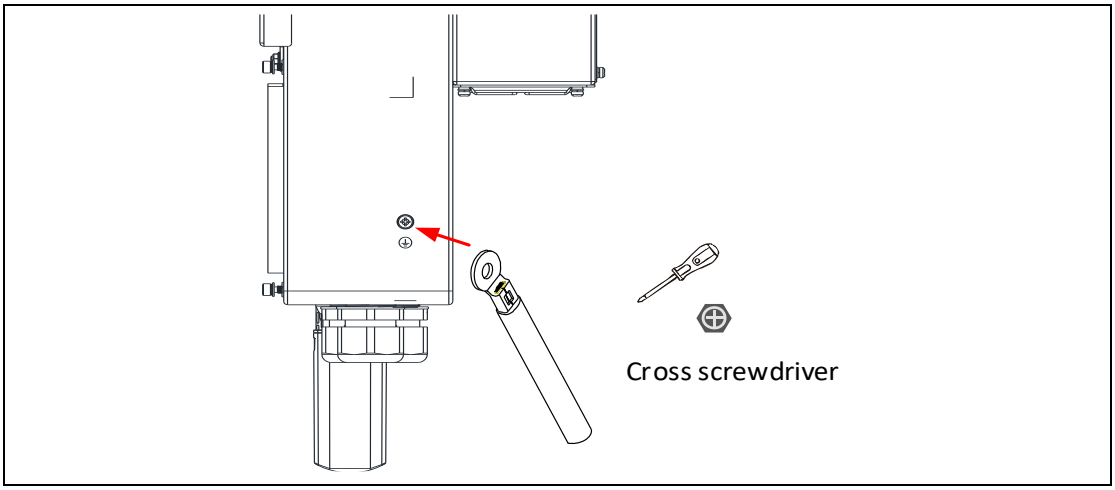
1. Cable stripped 7-8mm at one end and thread it into the heat shrink tubing.



2. Using crimping pliers, crimp the ground wire to the ground terminal supplied with the accessory package and blow the heat shrink tubing tightly with a heat gun.



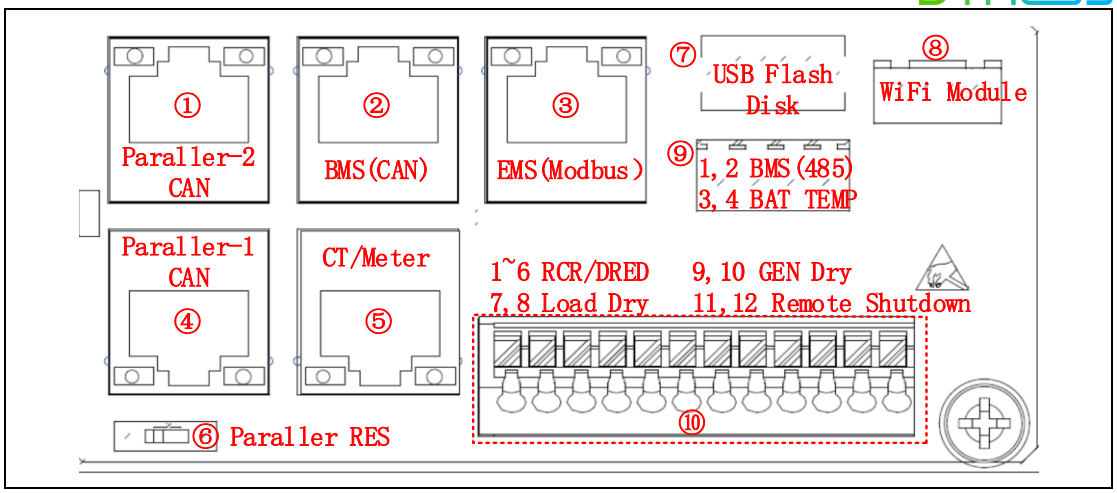
3. Connect the ground wire to the ground terminal of the box and lock it using the M5 ground screw and Phillips screwdriver included in the accessory kit.



5.6 Communications Connection

- **Communication interface board external schematic**

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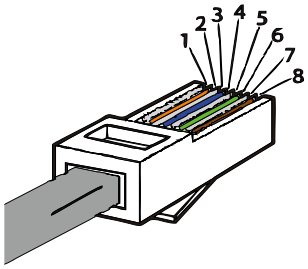
- **External interface definition**

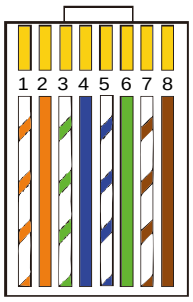
No.	Label	Function	Connection method
1	Parallel-2	Parallel communication interface 2 (CAN communication)	Standard network cable
2	BMS	Battery communication interface (CAN communication)	Standard network cable
3	EMS	485 communication interface (Modbus) to connect to a host computer or third-party device	Standard network cable
4	Parallel-1	Parallel communication interface 1 (CAN communication)	Standard network cable
5	CT/Meter	Built-in metering meter CT interface / communication interface for external metering meter (RS-485)	Standard network cable
6	Parallel RES	Parallel CAN termination resistor 120Ω	Dip switch
7	U Disk	Updating the inverter program using a USB flash drive; local data exports	USB flash drive
8	WIFI Module	WIFI Module connection	WIFI Module
9	BMS/BAT Temp	Battery communication interface (485 communication) / Battery Temperature sensor for lead-acid battery	Outdoor Copper Cable
10	RCR/DRED: 1-6	The interface of the inverter to the grid output power control, DRED and RCR function multiplexing. European safety standard is RCR; Australian safety standard is DRED.	Outdoor Copper Cable
	Load Dry: 7,8	Load Control Dry, connect dry contact signals for load control. Max24Vdc 1A	
	GEN Dry: 9,10	GEN_Start_Dry, Connect the generator and control start/stop. Max24Vdc 1A	
	RSD: 11,12	Remote Shutdown, One-touch shutdown of control devices.	

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5.6.1 BMS communication

- **BMS communication line pin definition**





1) White with orange stripes
2) Orange
3) White with green stripes
4) Blue
5) White with blue stripes
6) Green
7) White with brown stripes
8) Brown

1	2	3	4	5	6	7	8
none	none	none	BMS_CANH	BMS_CANL	none	none	none

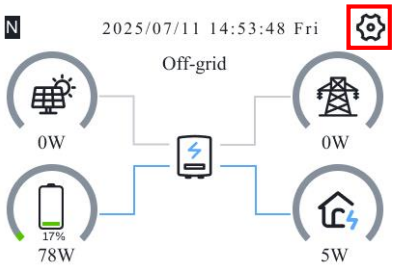
- **Battery protocol selection**

The inverter supports **automatic recognition of battery communication protocols**.

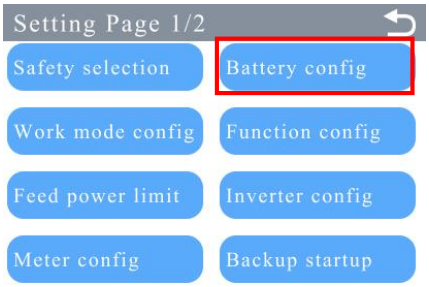
1. If the battery used is on the inverter's support list, the communication protocol will be recognized and connected automatically after the communication cable is plugged in for the first time.
2. If the first connection is unsuccessful, or if you need to replace the battery after the first connection, you can manually select the communication protocol, or you can click Auto Scan again to automatically scan the battery.

The operation steps are as follows:

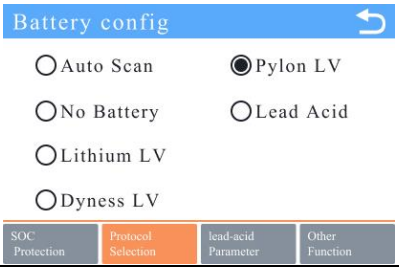
Step1



Step2



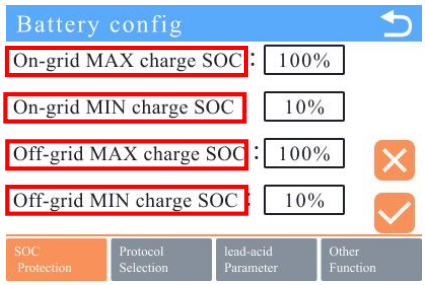
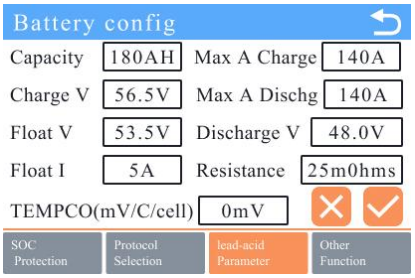
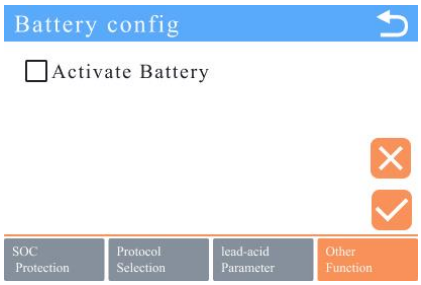
Step3



- **Explanation of functions in the "Battery config" interface**

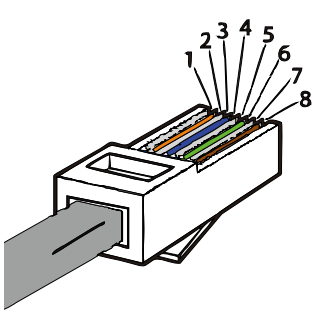
“SOC Protection” interface	**1,3:** The max SOC at which battery charging is permitted in the “On-grid/Off-grid” mode. **2,4:**

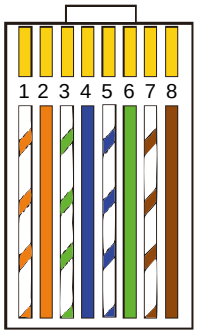
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	The min SOC at which the battery is allowed to discharge in the “On-grid/Off-grid” mode. If the SOC is lower than this value, discharging is not permitted.
“Lead-acid Parameter” interface 	If you choose “Lead Acid”, you need to set the parameters of this interface based on the parameters of the “Lead-acid” battery. **1:** The capacity of lead-acid batteries. **2,3:**The maximum charging and discharging current. **4:** Maximum charging voltage. **5:** Minimum discharge voltage. **6:** Floating charge voltage. **7:** Floating charge current. **8:** The Internal resistance of “Lead-acid” batteries. **9:** Temperature and voltage compensation coefficient of “Lead-acid” batteries.
“Other Function” interface 	**Activate Battery:** Battery activation function. When the battery is completely drained, and when there is PV energy, this function can be used to activate the battery.

5.6.2 EMS communication

- **EMS communication cable pin definition**





1) White with orange stripes
2) Orange
3) White with green stripes
4) Blue
5) White with blue stripes
6) Green
7) White with brown stripes
8) Brown

1	2	3	4	5	6	7	8

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EMS_485_A	EMS_485_B	none	none	none	none	none	none

- **EMS Communication Function Description**

1. When used as a stand-alone device, external monitoring can be achieved through this interface.
2. When used in a parallel, this interface can jointly achieve the monitoring of both the master device and the slave device.

Note: EMS port adopts Modbus protocol format, if you need to control the inverter in depth, please contact the after-sales staff to get the Modbus protocol document.

5.6.3 CT/Meter Communication

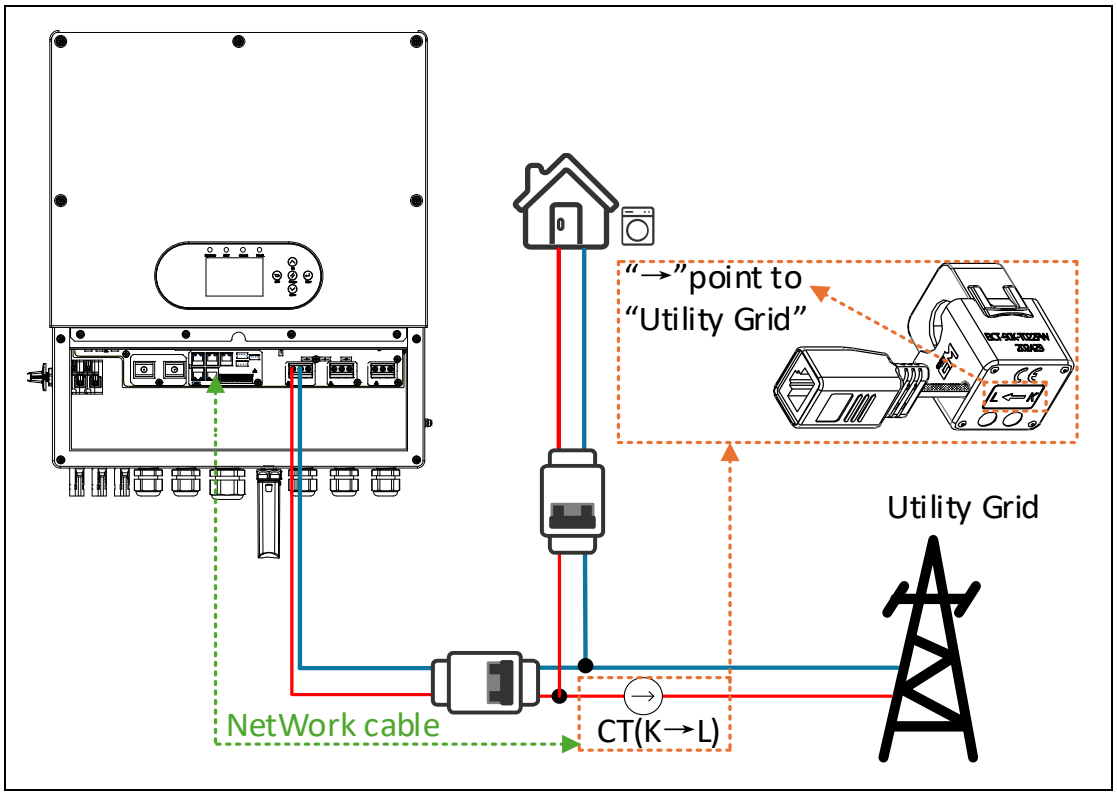
- **CT/Meter communication cable pin definition**

1	2	3	4	5	6	7	8
IL1-	IL1+	/	/	/	/	METER_485_B	METER_485_A

Note: CT/Meter communication cable requires standard network cable of category 6 and above (category 7 cable is recommended). If the length of the connecting cable between the inverter and CT is more than 30m, an optional external metering meter is available. If you want to continue to use CT, you can contact the after-sales service to confirm.

5.6.3.1 Built-in meter

- **Connection diagram of built-in meter（standard package）**



- **CT_AI self-test function**

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When CT wiring is completed, please use the CT_AI self-test function. For the complex wiring environment, this function can help users to determine whether the wiring is correct or not, as well as error alerts.

Note: AI self-test function only supports built-in metering meters, not external meter.

- **CT_AI self-correcting function**

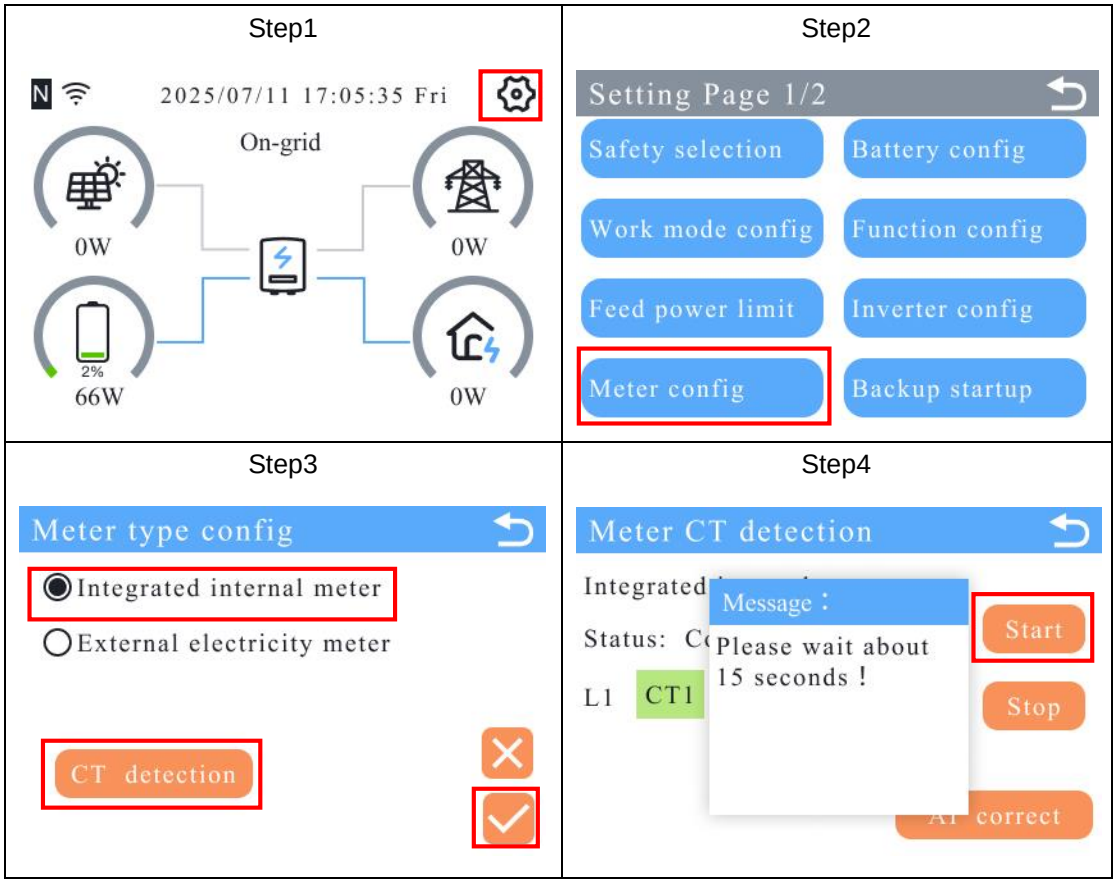
When the CT self-test is completed, if there is an error, this function can help the user to avoid manual adjustment, directly **AI self-correction**

Note:

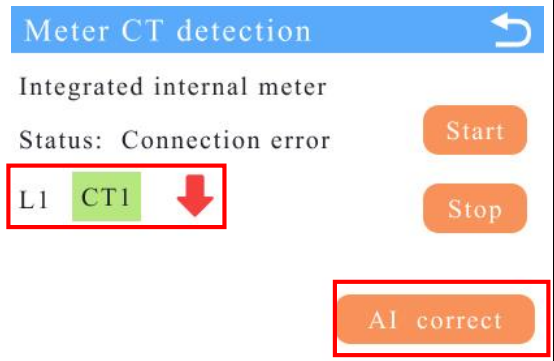
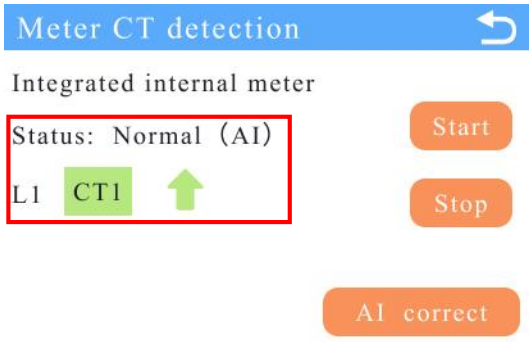
1. AI self-correction function only supports built-in meter, does not support the external meter.
2. The prerequisite for AI self-correction is that the CT should be stuck on the L wire (allowing CT to be in the wrong direction and in the wrong wire sequence).
3. After AI self-correction, the installer does not need to adjust the CT position system can work normally, but the correction result will have AI prompts.

- **The procedure for CT_AI self-test and CT_AI self-correction is as follows:**

1. After the detection is completed, it will show whether the direction and connection of CT are correct or not and prompt an error message.
2. Refer to the steps shown in the following picture. In step 5, it can be seen that the installation direction of the CT is incorrect. However, at this point, the installer does not need to re-adjust the direction of the CT. Instead, by using the **"AI correct"** function, the software can complete the adjustment, allowing the system to function normally.

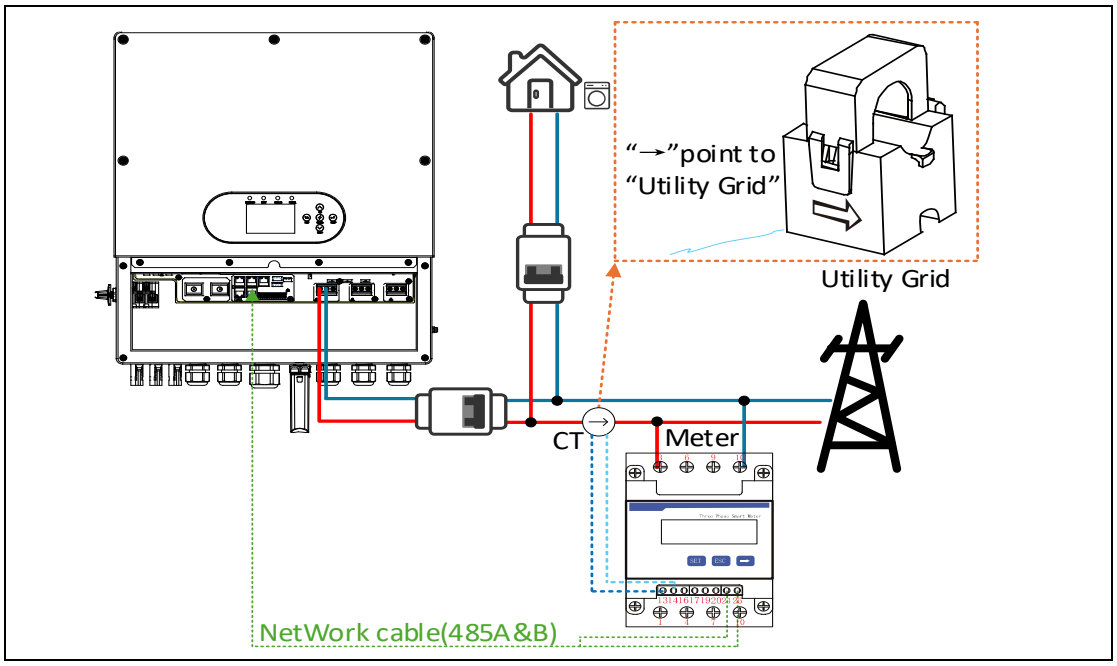


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1. Select meter type 2. Click “√” 3. Click “CT detection”	
Step5 	Step6 
1. See error message 2. Click “AI correct”	You can see the results after "AI correct"

5.6.3.2 External meters

- **External meter connection schematic（optional）**

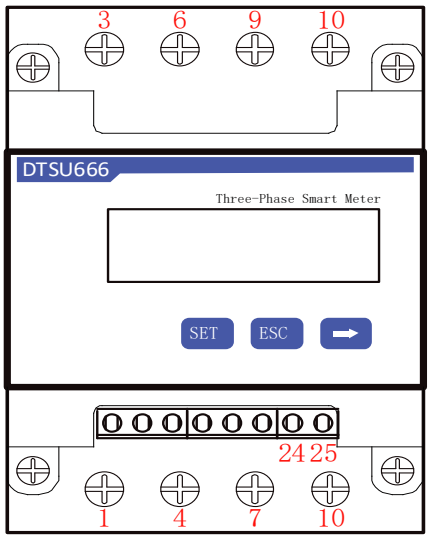


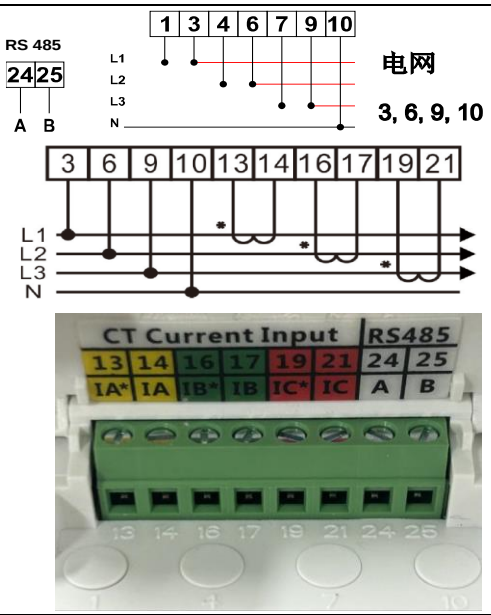
- **External Meter Communication Procedures**

1. Use the CT included in the box of the external meter to connect correctly to the IA of the meter according to the wire markings respectively.
2. According to the above diagram, connect the breaker outlet end with 3, 10 of the external meter.
3. Dial one end of the standard network cable to use pin7, 8 corresponding cable (white brown, brown) to access the meter's 485B, 485A, the other end of the crystal head to connect to the communication interface terminal.

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Note: Follow the above instructions, if there is still a problem, you can refer to the instructions in the box of the external meter.



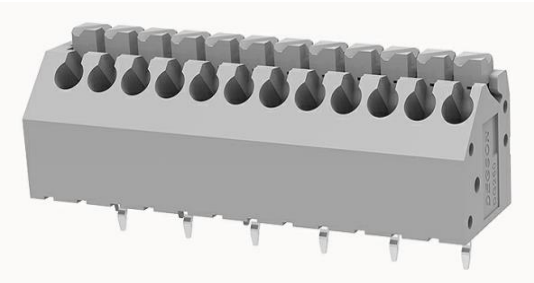


5.6.4 DI/DO Communication

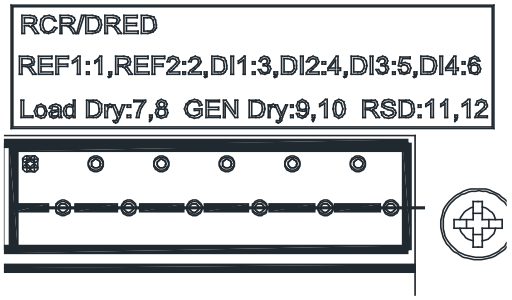
- **DRED/RCR**

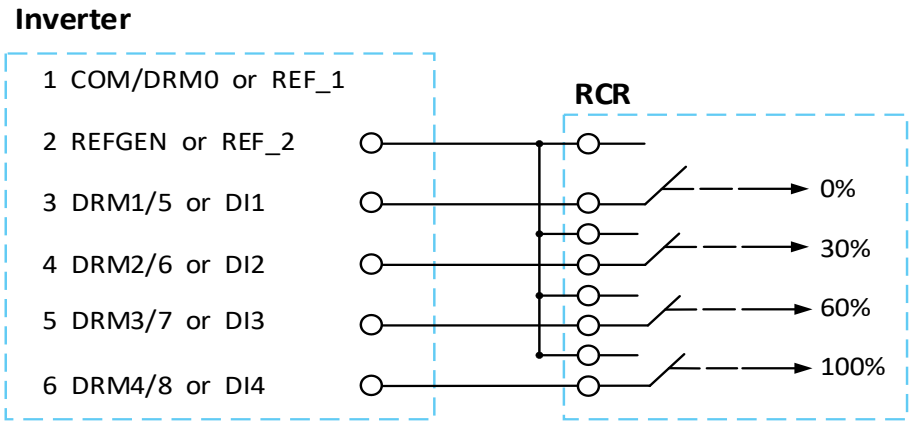
The inverters are compliant with Australian DRED standards and provide a separate DRED signal control port. In Germany and some European regions, grid companies use RCR to convert grid dispatch signals to dry contact transmission, and power plants receive grid dispatch signals via dry contact.

- **DI/DO Communication Interface Definition**



From left to right: Pin1、Pin2.....Pin12





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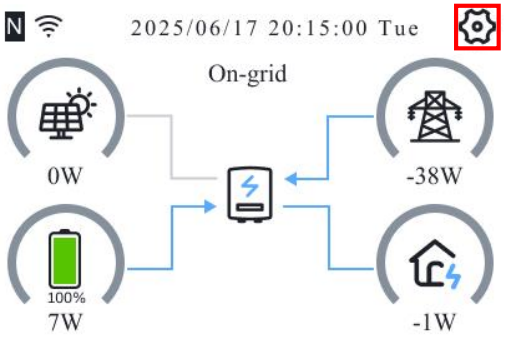
1	COM/DRM0 or REF_1
2	REFGEN or REF_2
3	DRM1/5 or DI1
4	DRM2/6 or DI2
5	DRM3/7 or DI3
6	DRM4/8 or DI4
7	DRY_RLY3_OUT+
8	DRY_RLY3_OUT-
9	DRY_RLY2_OUT+
10	DRY_RLY2_OUT-
11	IO_IN1_O
12	GND-S

- **DI/DO function operation steps**

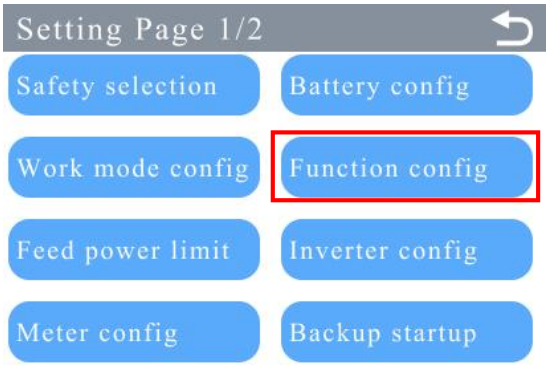
1. The cables are accurately connected according to the silk-screening marks.
2. "DRED, RCR, Remote shutdown" are within the scope of DI/DO functions.

The operation steps are as follows：

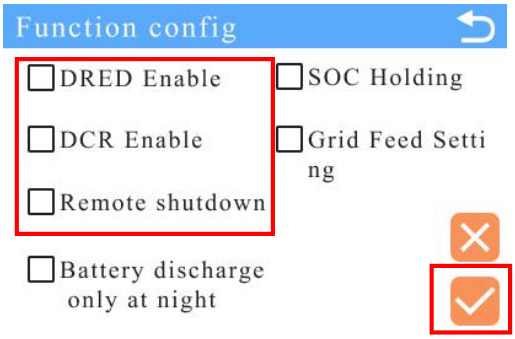
Step1



Step2



Step3



1. Click on any one of the three functions.
2. Click “√”

5.6.5 Module Communication

- **Functional Description**

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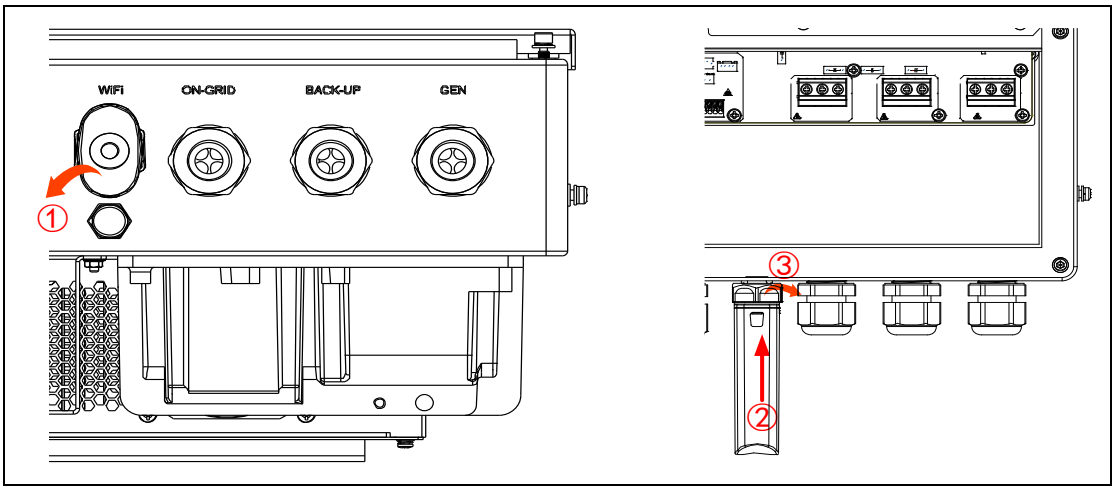
The inverter is equipped with a dedicated communication module. Connecting to cell phone or WEB enumeration, which is used to set up the inverter related parameters, view the operation information, error information, and understand the system status in time. For specific operation, please refer to the attached communication module user manual.

Two modules are provided for customers to choose from. The differences are as follows:

Module	Main Difference
	Support **WiFi, Bluetooth, LAN** communication; IP65
	Support **WiFi, Bluetooth** communication; IP20

- **Monitoring Module Installation Procedure**

1. Remove the dust cover of the communication module interface.
2. Insert the communication module.
3. Right turn the communication module buckle, make sure it is not loosened.

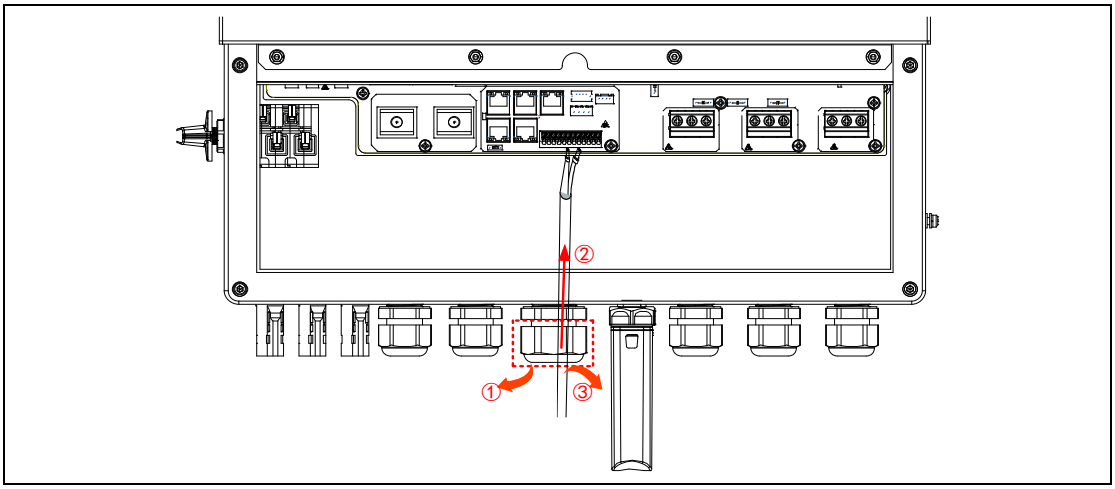


5.6.6 Communication cable wiring procedure

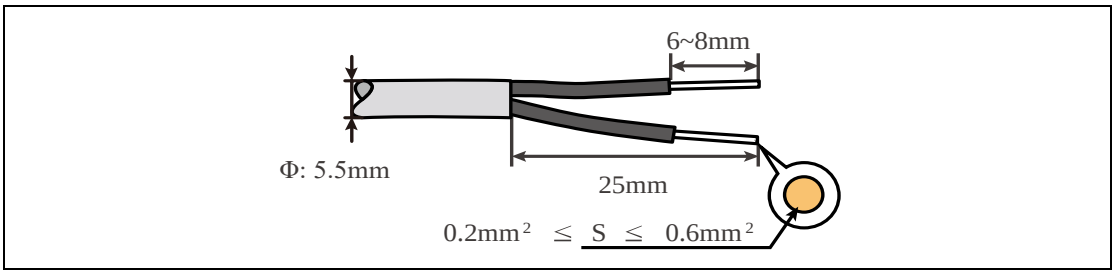
- To crimp the **tubular signal terminals**, proceed as follows:

Step 1: Using an hexagon socket tool, remove the lower case cover, unscrew the communication glands, and thread the communication cables.

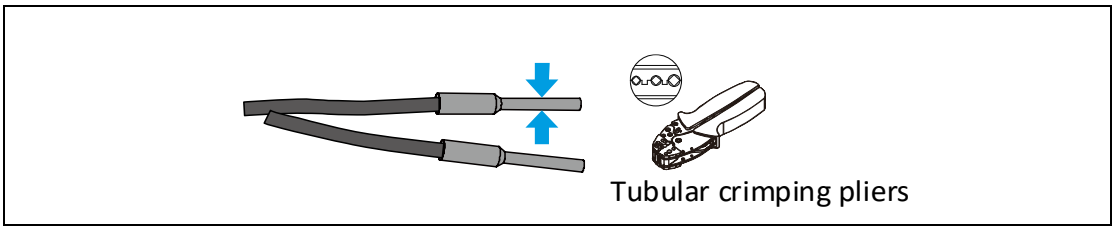
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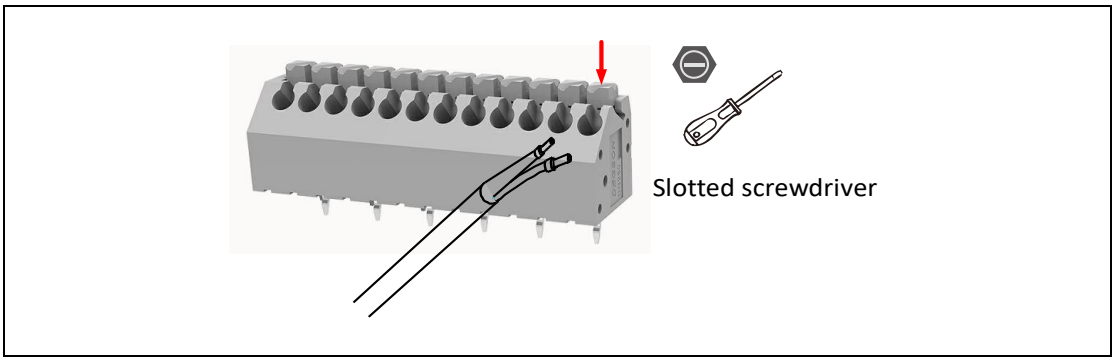
Step 2: Using wire strippers, pivot the wire 6-8mm.



Step 3: Thread the cable into the signal tubular terminal of the accessory package and crimp using tubular terminal crimping pliers.



Step 4: Use your finger or a small screwdriver to press down on the position shown in the illustration, then insert the terminal and release the screwdriver to snap it into place, tugging it outward to ensure that it snaps into place.



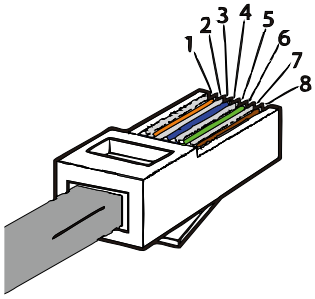
Step 5: Tighten the communication glands as illustrated in step 1

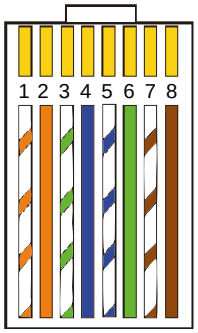
- **The standard network cable** crimping procedure is as follows:

Step 1: Same as **Tubular Signal Terminal** Crimp Step 1.

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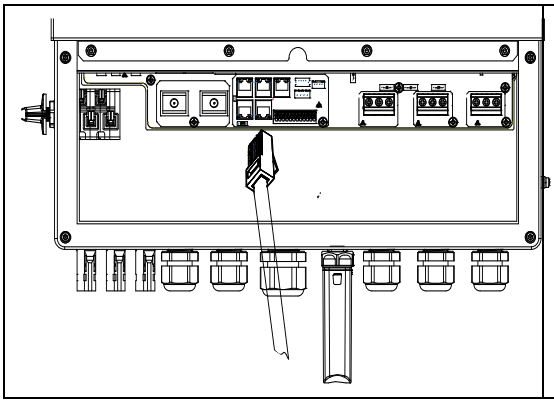
Step 2: Set aside 15mm of the outer insulation of the standard network cable, set aside 6-8mm at one end of the cable, insert the crystal head and use the standard crimping pliers to crimp the cable.

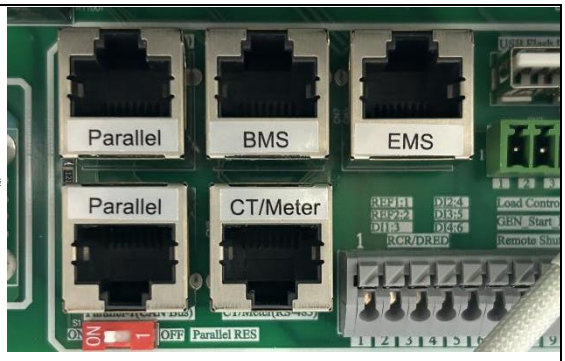




1) White with orange stripes
2) Orange
3) White with green stripes
4) Blue
5) White with blue stripes
6) Green
7) White with brown stripes
8) Brown

Step 3: Plug in the corresponding communication interface.



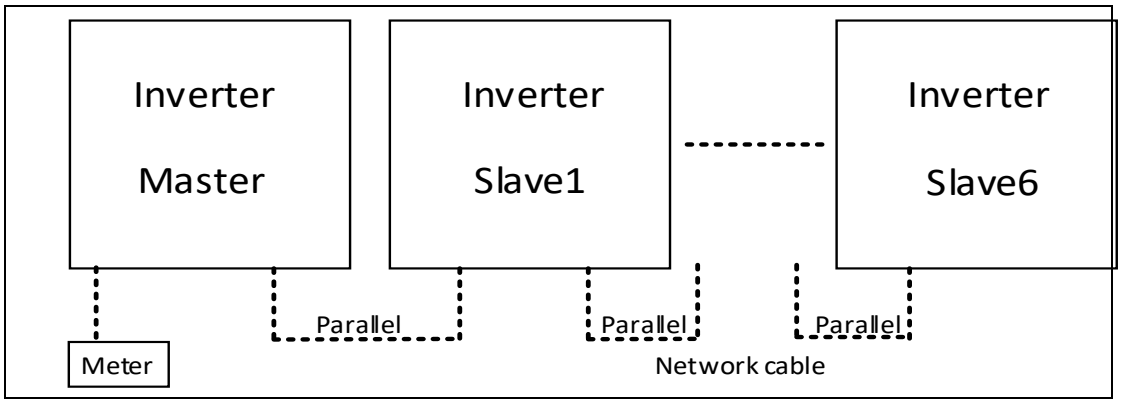


Step 4: Same as **Tubular Signal Terminal** Crimp Step 5

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Parallel Connection

- **Parallel communication connection diagram**

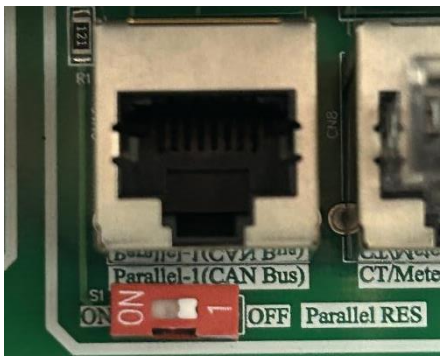
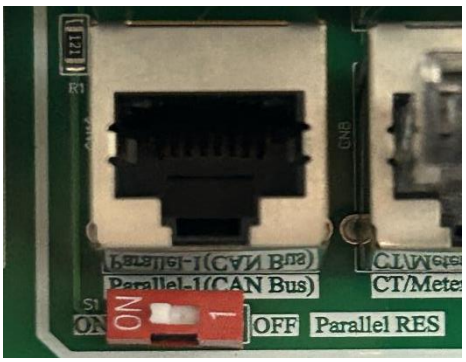


- **Parallel port wiring sequence definition**

1	2	3	4	5	6	7	8
/	/	SYN_BUS_1	PARALLEL-CANH1	PARALLEL-CANL1	GND-S	SYN_BUS_2	GND-S

- **Parallel communication operation**

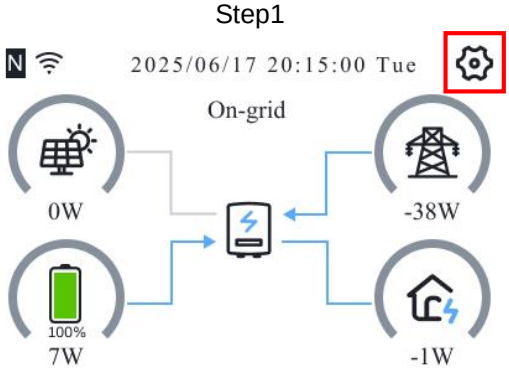
1. Connect one end of the standard network cable to the "Inverter 1" Parallel (CAN Bus), and the other end to the "Inverter 2" Parallel (CAN Bus). Repeat this connection method for all the other inverters.
2. Set the "Parallel RES" toggle switch of the first and last inverters to ON (the factory default is OFF).

OFF state	ON state
	

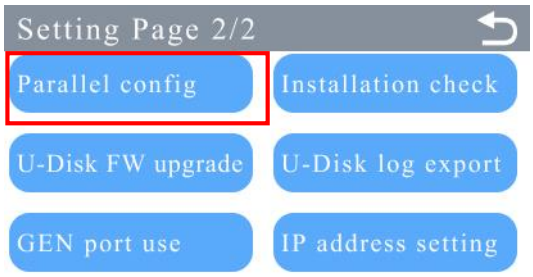
3. LCD Setting→Parallel config→Set a master. After the setting is completed, this interface on each inverter will display: Master/slave status, registration status, local operation address, registration number. Users can control the operation of the Slave by using the local operation address.

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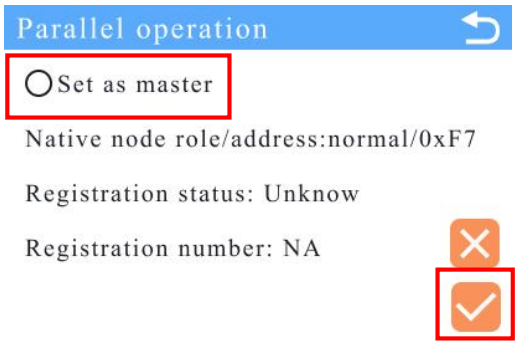
Step1



Step2

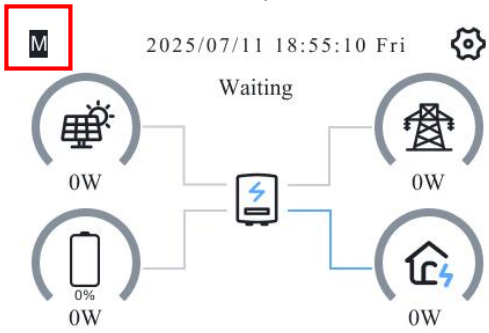


Step3



1. Set Master
2. Click “√”

Step4

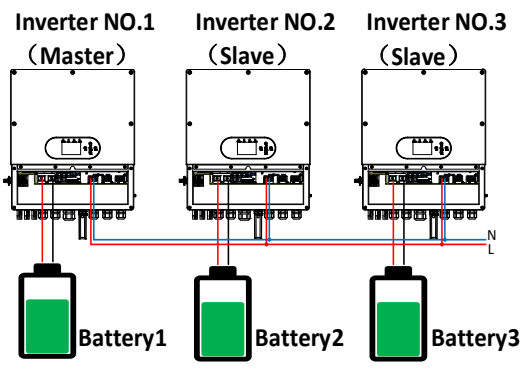


N：Indicate Single
M：Indicate Master
S：Indicate Slave

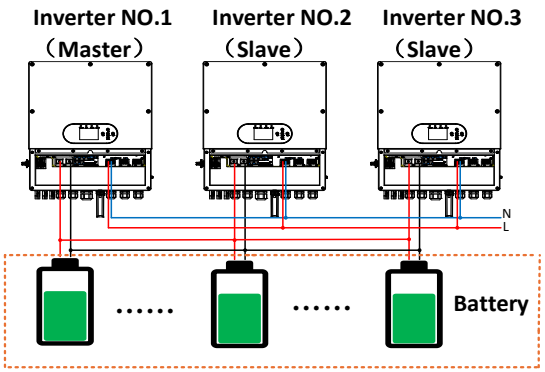
- **Parallel System wiring diagram**

1. The communication interface is described in Section 5.6.
2. Please select the specifications according to the model：
   ①②③：DC Breaker for battery
   ④⑤⑥：AC Breaker for BACK-UP
   ⑦⑧⑨：AC Breaker for ON-GRID
   ⑩：Home load breaker，the size choose depend on the load
3. In the parallel system, each inverter is connected to its own battery, or the batteries can be connected in parallel. The schematic diagram is as follows:

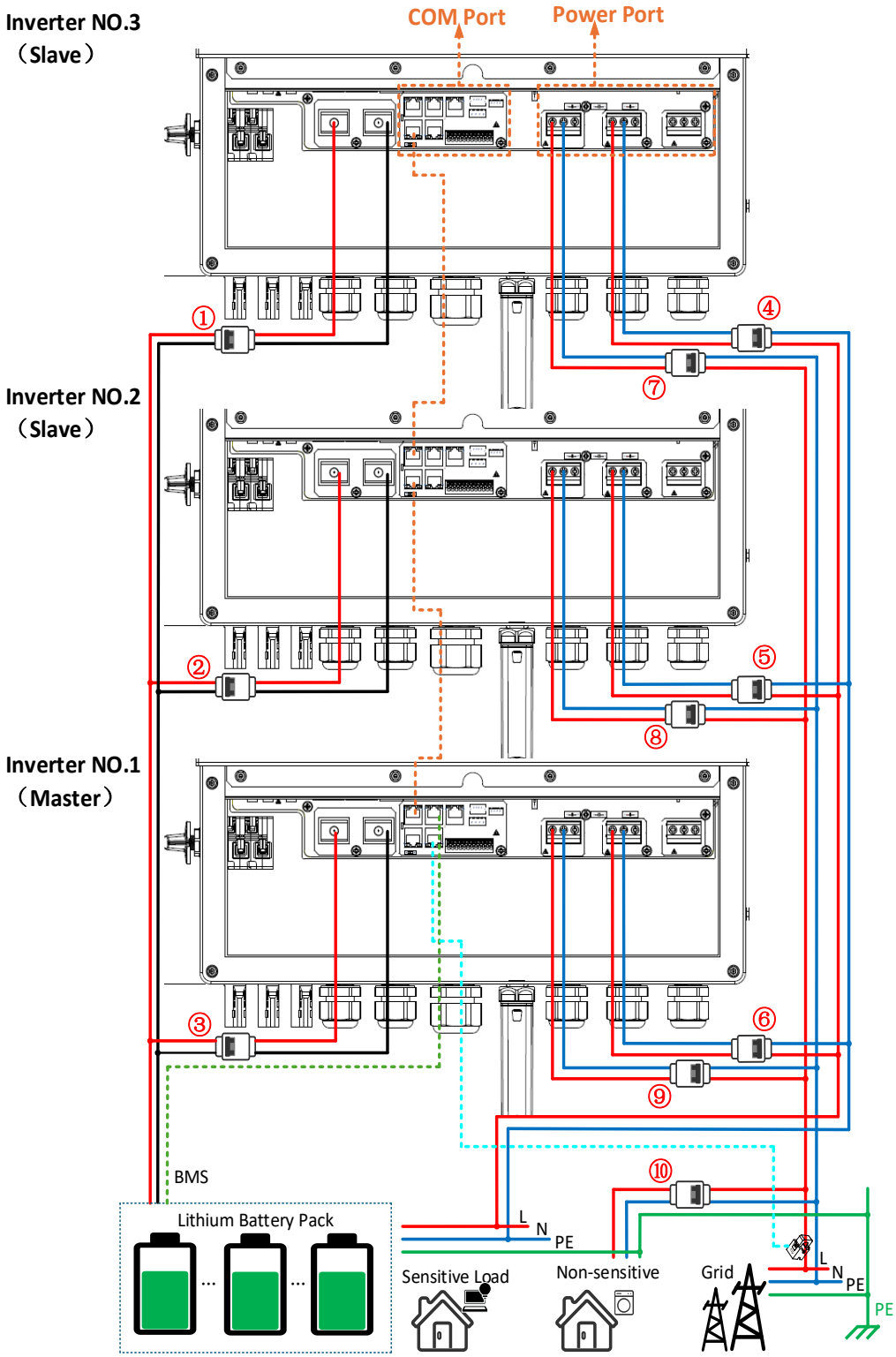
Independent Battery



Parallel Batteries



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Note:

1. The battery BMS is only connected to the Master, not the Slave.

2. The CT or Meter is only connected to the Master, not the Slave.

3. Each WiFi device needs to be configured separately to connect to the network.

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6. Commissioning

6.1 Commissioning Steps

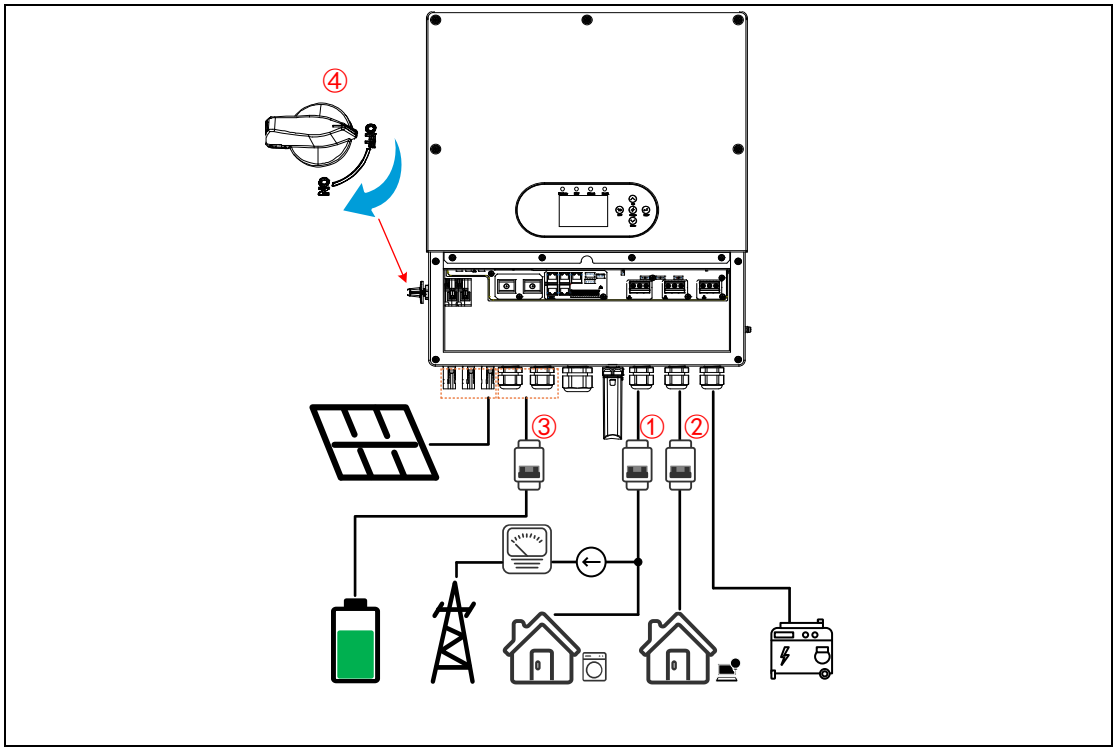
- **Pre-check before turning on**

⚠	1. Ensure that the grounding cable is reliably grounded. 2. Ensure that the inverter is installed reliably and firmly. 3. Make sure all circuit breakers are in OFF state. 4. Ensure that the PV, battery, AC and communication cables are connected reliably and securely with correct polarity.

- **If the check is complete, follow the steps below to start the inverter for the first time**

1. Close the ON-GRID side circuit breaker.
2. Close the BACK-UP side circuit breaker.
3. Close the Battery side circuit breaker.
4. Turn PV Switch to ON

Note: See section 3.3 for **indicator status** after startup

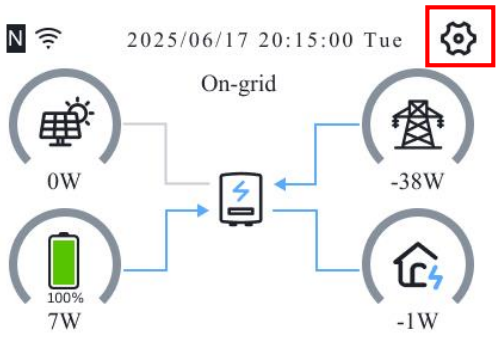


- **The inverter supports installation self-test, which is convenient for installers**

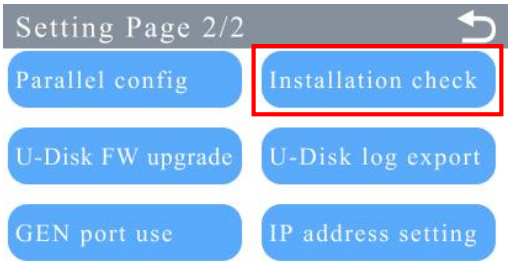
1. LCD setting interface→Setting Page2→Installation check→Start→Display self-test results(Total 4 pages)
2. Before starting the installation self-test, the LCD will display a message prompting the installer to confirm the installation and connection of PV, battery, AC, communication, CT, and WiFi modules.
3. After the self-test is completed, the LCD will display the **test results, abnormal events, and events that need to be confirmed**, and display them one by one to the installer on the subsequent page.

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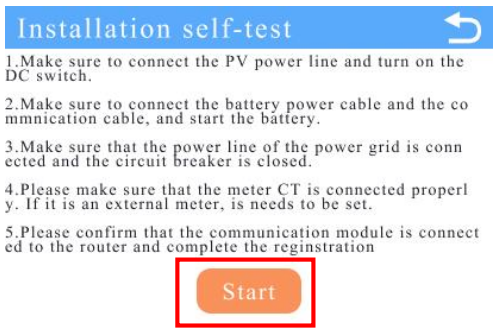
Step1



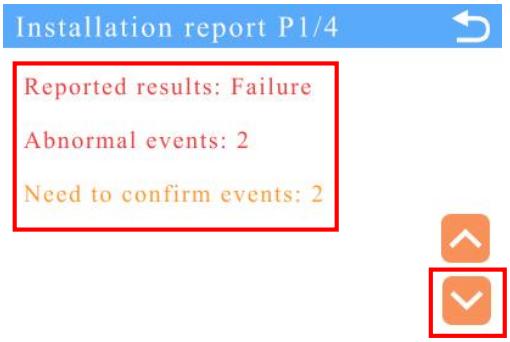
Step2



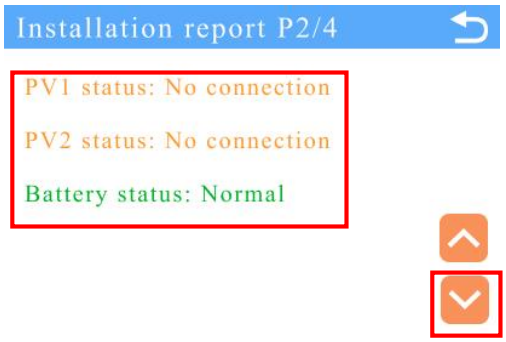
Step3



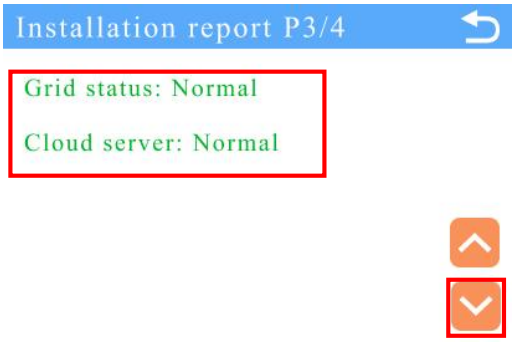
Step4



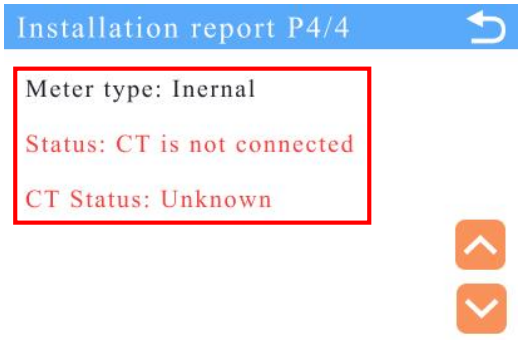
Step5



Step6



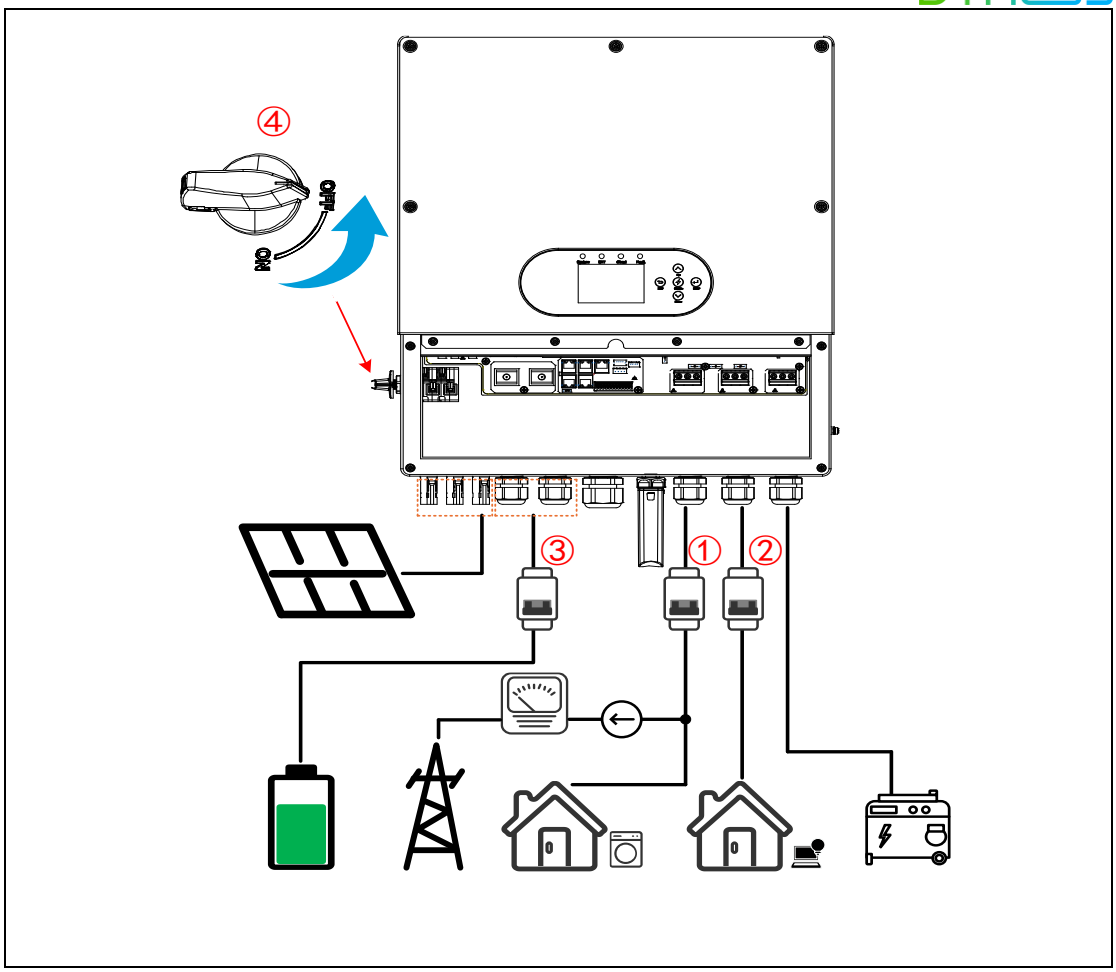
Step7



- **If the inverter needs to be powered down, follow these steps：**

1. Disconnect the ON-GRID side circuit breaker.
2. Disconnect the BACK-UP side circuit breaker.
3. Disconnect the battery side circuit breaker
4. Turn PV Switch to OFF

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6.2 Firmware upgrade and data export

- **Local USB flash drive upgrade steps**

1. Contact the after-sales service to get the software upgrade package.
2. A USB drive needs to be prepared and it should meet the following requirements:

(1) The file system of the USB drive should be formatted as FAT32, and the recommended sector size is 4K bytes;

(2) Create a folder named "DYNLSBin" in the root directory of the USB drive;

(3) Copy the target firmware to the "DYNLSBin" folder. Multiple firmware files can be placed in this folder simultaneously, and they can be selected on the LCD screen;

3. Adjust the inverter status to standby waiting mode (grid only or battery only or PV only).
4. Insert the USB flash disk into the interface.
5. LCD main interface displays the icon of USB flash disk, which means it is recognized successfully, and vice versa means it is not recognized.

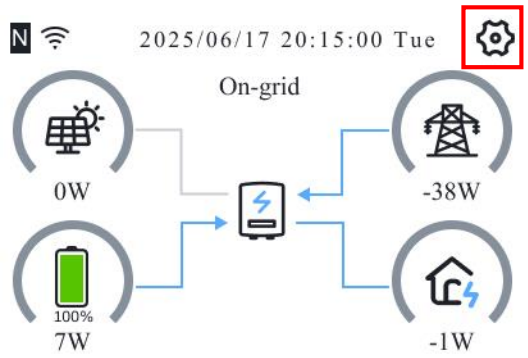
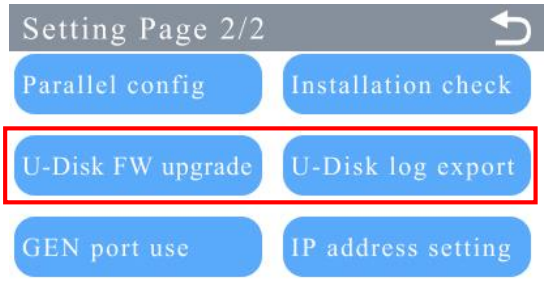
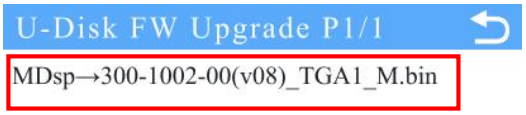
Note: If you are not sure how to do it, you can contact the after-sales service to get the SOP for USB flash disk upgrade.

- **Support the function of exporting running logs from U disk, and you can choose to export different time periods.**

Operation is as follows：

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1. LCD setting interface→Setting Page2→U-Disk Log export→Select the time period to be exported→Export
2. LCD setting interface→Setting Page2→U-Disk FW upgrade→Select the software from U-Disk→upgrade

<table>
<tr>
<td>Step1

</td>
<td>Step2

</td>
</tr>
<tr>
<td>Step3

</td>
<td>Step4

</td>
</tr>
</table>

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7. Technical Parameters

Model Name	D3.0K-LS	D3.6K-LS	D5.0K-LS	D6.0K-LS	D8.0K-LS
Battery Input Data					
Battery Type	Lead-acid/Li-Ion				
Battery Voltage Range（V）	40-60				
Nominal Battery Voltage (V)	48	48	48	48	48
Max.Charge/Discharge Current(A)	70	90	120	140	160
Max.Charge/Discharge Power(W)	3000/3300	3600/3960	5000/5500	6000/6600	8000/8800
PV String Input Data					
Max.PV Input Power（W）	6000	7200	10000	12000	16000
Max.PV Input Voltage（V）	600				
Working Voltage Range(V)	50~550				
First Feed-in Voltage（V）	60				
MPPT Range For Nominal Power（V）	100~500	120~500	150~500	180~500	180~500
Nominal PV Input Voltage（V）	380				
Max.Input Current(A)	20/20	20/20	20/20	20/20	20/40
Max.Short Current(A)	27/27	27/27	27/27	27/27	27/54
No.of MPP Trackers	2	2	2	2	2
Strings per MPP Tracker	1	1	1	1	1+2
AC Output Data（On-grid Port）					
Nominal Power Output To Grid（VA）	3000	3600	5000	6000	8000
Max.Power Output To Grid（VA）*	3300	3960	5500	6600	8800
Max.Power From Grid (VA)	8400	8400	10000	12000	12000
Nominal Output Voltage（V）	220/230/240,L/N/PE				
Nominal Output Frequency（Hz）	50/60				
Nominal AC Current To Grid（A）	13.7/13.1/12.5	16.4/15.7/15	22.8/21.8/20.9	27.3/26.1/25	36.4/34.8/33.4

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Max.AC Current To Grid（A）	15	18	25	30	40
Max.AC Current From Grid（A）	35	35	40	50	50
Output Power Factor	Adjustable from 0.8 leading to 0.8 lagging				
Output THDi (Nominal Power)	<3%				
AC Output Data (Back-up Port)					
Max.Continuous Output Power(VA)	3300	3960	5500	6600	8800
Peak Output Power(VA)**	6000 @10s	7200 @10s	10000 @10s	12000 @10s	16000 @10s
Max.Output Current (A)	15	18	25	30	40
Nominal Output Voltage（Vac）	220/230/240,L/N/PE				
Nominal Output Frequency（Hz）	50/60				
Output THDv (@Linear Load）	<3%				
Switch time	<4ms				
AC Input Data (Generator Port/Load Control Port)					
Nominal Input Apparent Power(VA)	3000	3600	5000	6000	8000
Max. Input Apparent Power(VA)	8400	8400	10000	12000	12000
Max. AC Input Current(A）	35	35	40	50	50
Nominal Input Voltage(V)	220/230/240,L/N/PE				
Nominal AC Generator Frequency(Hz)	50/60				
Efficiency					
Max.efficiency	97.6%				
Euro.efficiency	96.5%				
Protection					
Anti-island Protection	Integrated				
PV Insulation Resistance Detection	Integrated				
PV Reverse Protection	Integrated				
Residual Current Monitoring Unit	Integrated				
AC Over Current/Voltage Protection	Integrated				

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DC Switch(PV)	Integrated	
Surge Protection	DC TypeⅢ/AC TypeⅢ	
Communication Interface		
Battery BMS	CAN	
EMS（Modbus）	RS485	
Meter(Outside)	RS485	
RCR/DRED	YES(DI)	
Remote Shut Down	YES(DI)	
Dry-Point	YES(DO)	
Cloud	Wi-Fi,LAN	
Display/User Interface	LED/LCD/APP	
General Data		
Operating Temperature Range(℃)	-30-60	
Relative Humidity(%)	0-100%	
Operating Altitude(m)	≤3000	
Cooling	Natural Convection	Intelligent Air Cooling
Noise(dB)	<30	40
Weight(kg)	17	
Size(W/H/D)(mm)	501*586*193	
Installation	Wall-Mounted	
Protection Degree	IP66	
Certifications&Standards		
Grid Regulation	IEC61727,IEC62116 ,EN50549-1, NRS097, G98, G99	
Safety Regulation	IEC/EN62109-1&2	
EMC	IEC/EN61000-6-1/2/3/4	

* According to the local grid regulation

** Can be reached only if PV and battery power is enough

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