User Manual

H3-Pro SERIES

In order to prevent improper operation before use, please carefully read this manual.

Table of Contents

1. Notes on This Manual

1.1 Scope of Validity

This manual describes the assembly, installation, commissioning, maintenance and troubleshooting of the following model (s) of products:

H3-Pro-15.0 H3-Pro-20.0 H3-Pro-25.0 H3-Pro-29.9 H3-Pro-30.0

Note: Please keep this manual where it will be accessible at all times.

1.2 Target Group

This manual is for qualified electricians. The tasks described in this manual only can be performed by qualified electricians.

1.3 Symbols Used

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

⚠ DANGER
Danger! “Danger” indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING
Warning! “Warning” indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION
Caution! “Caution” indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTE
Note! “Note” provides important tips and guidance.

This section explains the symbols shown on the inverter and on the type label:

Symbols	Explanation
	Symbol Explanation CE mark. The inverter complies with the requirements of the applicable CE guidelines.
	Beware of hot surface. The inverter can become hot during operation. Avoid contact during operation.
	Danger of high voltages. Danger to life due to high voltages in the inverter!
	Danger. Risk of electric shock!
	Danger to life due to high voltage. There is residual voltage in the inverter which needs 5 min to discharge. Wait 5 min before you open the upper lid or the DC lid.
	Read the manual.
	Product should not be disposed as household waste.
	PE conductor terminal.

2. Safety

2.1 Appropriate Usage

H3 Pro series inverters are designed and tested in accordance with international safety requirements. However, certain safety precautions must be taken when installing and operating this inverter. The installer must read and follow all instructions, cautions and warnings in this installation manual.

- All operations including transport, installation, start-up and maintenance, must be carried out by qualified, trained personnel.
- The electrical installation & maintenance of the inverter shall be conducted by a licensed electrician and shall comply with local wiring rules and regulations.
- Before installation, check the unit to ensure it is free of any transport or handling damage, which could affect insulation integrity or safety clearances. Choose the installation location carefully and adhere to specified cooling requirements. Unauthorized removal of necessary protections, improper use, incorrect installation and operation may lead to serious safety and shock hazards or equipment damage.
- Before connecting the inverter to the power distribution grid, contact the local power distribution

grid company to get appropriate approvals. This connection must be made only by qualified technical personnel.

- Do not install the equipment in adverse environmental conditions such as in close proximity to flammable or explosive substances; in a corrosive or desert environment; where there is exposure to extreme high or low temperatures; or where humidity is high.
- Do not use the equipment when the safety devices do not work or are disabled.
- Use personal protective equipment, including gloves and eye protection during the installation.
- Inform the manufacturer about non-standard installation conditions.
- Do not use the equipment if any operating anomalies are found. Avoid temporary repairs.
- All repairs should be carried out using only approved spare parts, which must be installed in accordance with their intended use and by a licensed contractor or authorized service representative.
- Liabilities arising from commercial components are delegated to their respective manufacturers.
- Any time the inverter has been disconnected from the public network, please be extremely cautious as some components can retain charge sufficient to create a shock hazard. Prior to touching any part of the inverter please ensure surfaces and equipment are under touch safe temperatures and voltage potentials before proceeding.

2.2 PE Connection and Leakage Current

PV System Residual Current Factors

- In every PV installation, several elements contribute to the current leakage to protective earth (PE). these elements can be divided into two main types.
- Capacitive discharge current - Discharge current is generated mainly by the parasitic capacitance of the PV modules to PE. The module type, the environmental conditions (rain, humidity) and even the distance of the modules from the roof can effect the discharge current. Other factors that may contribute to the parasitic capacitance are the inverter's internal capacitance to PE and external protection elements such as lighting protection.
- During operation, the DC bus is connected to the alternating current grid via the inverter. Thus, a portion of the alternating voltage amplitude arrives at the DC bus. The fluctuating voltage constantly changes the charge state of the parasitic PV capacitor (i.e capacitance to PE). This is associated with a displacement current, which is proportional to the capacitance and the applied voltage amplitude.
- Residual current - if there is a fault, such as defective insulation, where an energized cable comes into contact with a grounded person, an additional current flows, known as a residual current.

Residual Current Device (RCMU)

- All inverters incorporate a certified internal RCMU (Residual current monitoring unit) to protect against possible electrocution in case of a malfunction of the PV array, cables or inverter (DC). The RCMU in the inverter can detect leakage on the DC side. There are 2 trip thresholds for the RCMU as required by the DIN VDE 0126-1-1 standard. A low threshold is used to protect against rapid changes in leakage typical of direct contact by people. A higher threshold is used for slowly rising leakage currents, to limit the current in grounding conductors for the safety. The default value for higher speed personal protection is 30mA, and 300mA per unit for lower speed fire safety.

Installation and Selection of an External RCD device

- An external RCD is required in some countries. The installer must check which type of RCD is

required by the specific local electric codes. Installation of an RCD must always be conducted in accordance with local codes and standards. recommends the use of a type-A RCD. Unless a lower value is required by the specific local electric codes, suggest choosing a 300mA RCD.

- In installations where the local electric code requires an RCD with a lower leakage setting, the discharge current might result in nuisance tripping of the external RCD. The following steps are recommended to avoid nuisance tripping of the external RCD:
- Selecting the appropriate RCD is important for correct operation of the installation. An RCD with a rating of 30mA may trip at a leakage as 15mA (according to IEC 61008). High quality RCDs will typically trip at a value closer to their rating.
- Similarly, the EPS side also requires the installation of an RCD. Recommend a 30mA Type A RCD.

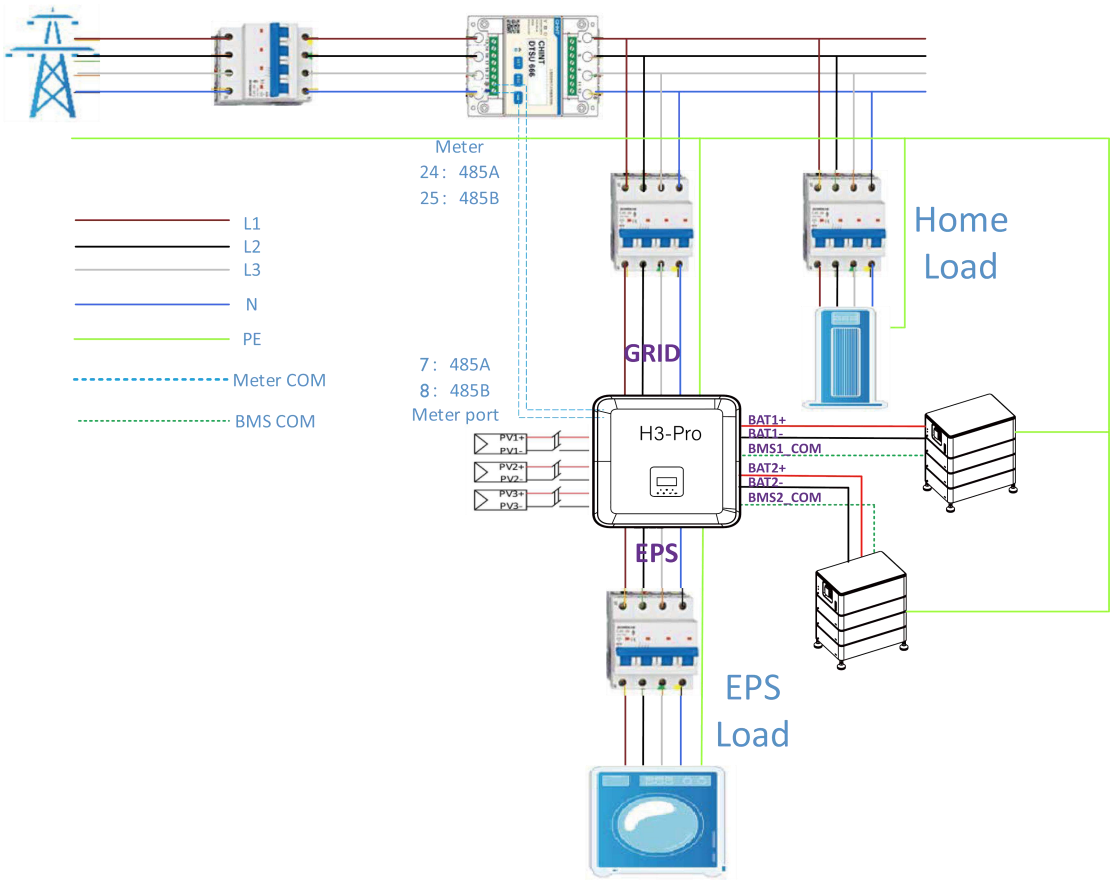
3. Introduction

3.1 Basic Features

H3 Pro series are high-quality inverters which can convert solar energy to AC energy and store energy into battery. The inverter can be used to optimize self-consumption, store in the battery for future use or feed-in to public grid. Work mode depends on PV energy and user's preference.

- System advantages:
- Advanced DSP control technology.
- Utilizes the latest high-efficiency power component.
- Advanced anti-islanding solutions.
- IP65 protection level.
- Max. Efficiency up to 97.2%. EU efficiency up to 96.6%. THD<3%.
- Safety & Reliability: Transformerless design with software and hardware protection.
- Export limitation (Meter/DRM0/ESTOP).
- Power factor regulation. Friendly HMI.
- LED status indications.
- LCD display technical data, human-machine interaction through four touch keys.
- PC remote control.

H3-Pro system diagram for household use



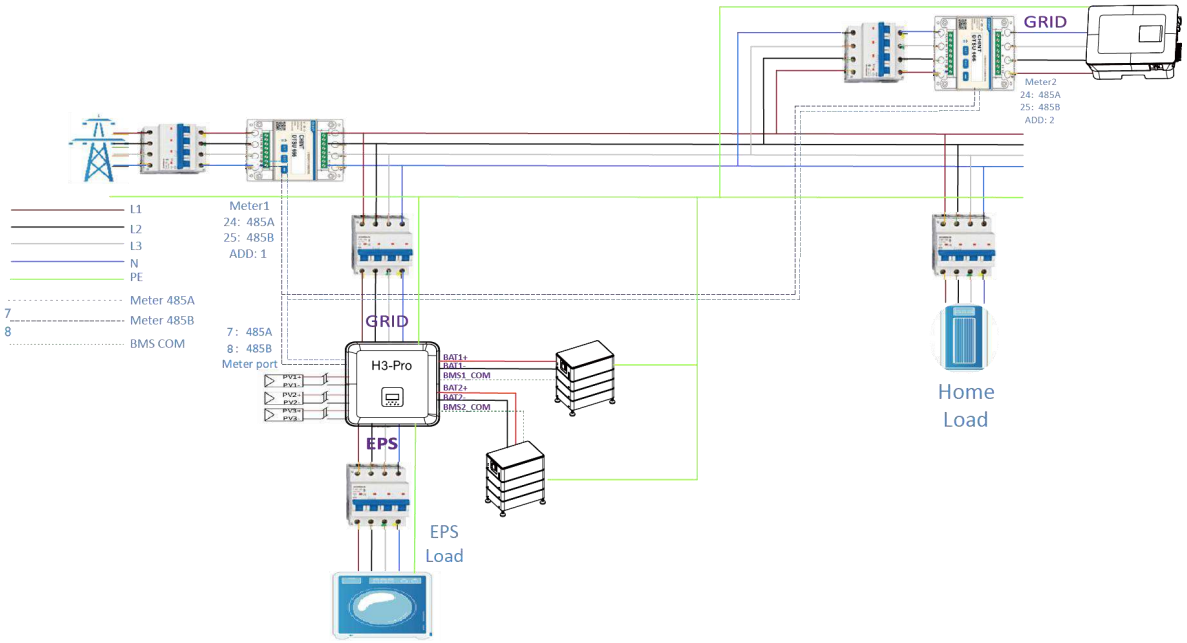
Important: H3-Pro needs to be connected to the 3-phase 5-wire power grid system, and ensure that the GRID is connected to the N line, otherwise the machine will report the SW BUS VOLT fault.

Before installation, use a multimeter to confirm that the positive and negative terminals and voltage are correct. The positive and negative terminals and voltage of the battery are correct. When the battery voltage is between 150V-800V, it can enter the pure off-grid state.When the battery voltage is between 120V-800V, it can enter the grid-connected state.

After installation, you can check the battery voltage of the system through the screen, if the battery voltage is lower than 120V, the battery will not work, and will not be responsible for the damage to the system.

H3 Pro Hybrid Inverters can be used in combination with other generation sources that are synchronized to the utility grid. A second energy meter can be connected to enable the H3-Pro to specifically monitor other generation sources.

Wiring diagram of H3-Pro double ammeter



Important: Supports the function of the second electricity meter, which is used to measure the power generation of other power generation equipment and to summarize the monitoring data on the website. only provides one electricity meter. The address of one of the meter is 1, which is used to measure the power consumption in the home to achieve spontaneous self-use. The address of the other meter is 2, which is used to measure the power generated by another power generation device in the home.
The addresses of the above two meters need to be corresponding, otherwise the flow diagram will be affected. The addresses of the above two meters cannot be the same otherwise the functions will be affected.

- Work modes:

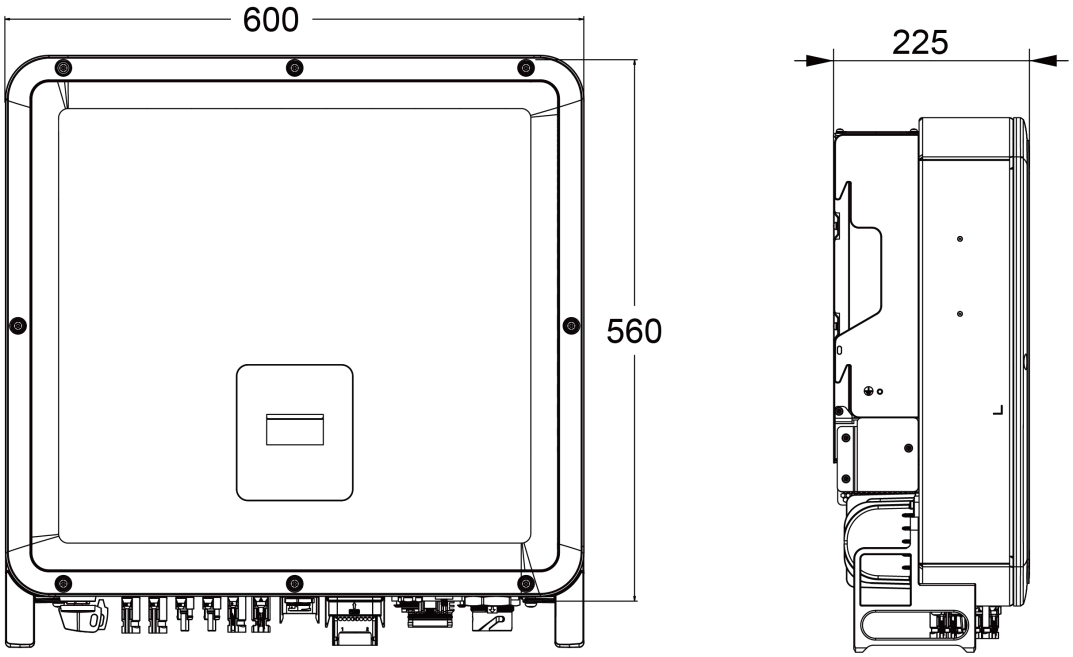
Work modes	Description
Self-use (with PV Power)	Priority: load>battery>grid The energy produced by the PV system is used to optimize self-consumption. The excess energy is used to charge the batteries, then exported to gird.
Self-use (without PV Power)	When no PV is supplied, the battery will discharge for local loads first. Battery will charge when excess generation from other generation sources is detected.
Feed in priority	Priority: load>grid>battery In the case of the external generator, the power generated will be used to supply the local loads firstly, then export to the public grid. The redundant power will charge the battery.
Back up mode	When the grid is off, system will supply emergency power from PV or battery to supply the home loads (Battery is necessary in EPS mode).

PeakShaving	The system can be set to provide a peak shaving function. A Peak Shaving limit must be set by adjusting “Import Limit” to the desired value. We can increase the peak shaving support uptime by setting the “Threshold SOC”. When the battery is above the “Threshold SOC” the system will work in “Self-Use mode. When the battery is below the “Threshold SOC” the peak shaving function will be the priority and the system will only provide power from the battery when the “Import Limit” is exceeded. When below the “Threshold SOC” the system will charge from the grid when there is available power without exceeding the “Import Limit”. This is to ensure prolonged Peak Shaving support for extended periods. If the “Import Limit” is exceeded constantly for an extended period of time, the peak shaving function can only guarantee successful operation while energy remains within the battery. If the battery designated “low level” is reached, the peak shaving function will cease.

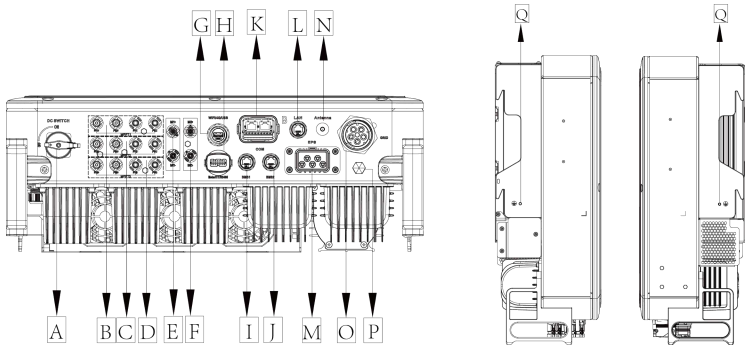
NOTICE

Charging time is when the battery is charged within the set time range. The setting of charging time can be used in the above work modes. The charging period is mainly used to set the charging time from the power grid to the battery. The PV can also charge the battery when there is sufficient PV outside of charging time.

3.2 Dimensions



3.3 Terminals of inverter



Item	Description	Item	Description
A	DC Switch	J	BMS2
B	MPPT1	K	COM
C	MPPT2	L	LAN
D	MPPT3	M	EPS
E	BAT1	N	Antenna
F	BAT2	O	GRID
G	USB/WIFI/4G	P	Waterproof Lock Valve
H	METER/CT/RS485	Q	Grounding Screw
I	BMS1		

Note: Only authorized personnel are permitted to set the connection.

4. Technical Data

4.1 PV Input

Model	H3-Pro -15.0	H3-Pro -20.0	H3-Pro -25.0	H3-Pro -29.9	H3-Pro -30.0
PV					
Max. Array Power [Wp]	30000	40000	50000	60000	60000
Max. DC input power [W] [1]	22500	30000	37500	45000	45000
Max. DC voltage [V] [2]	1000	1000	1000	1000	1000
Nominal DC operating voltage [V]	750	750	750	750	750
Max. input current [A]	32	32	32	32	32
Max. short circuit current [A]	40	40	40	40	40
MPPT voltage range [V]	150-850	150-850	150-850	150-850	150-850
MPPT voltage range (full load) [V]	170-850	230-850	280-850	340-850	340-850
Start-up voltage [V]	160	160	160	160	160
No. of MPP trackers	3	3	3	3	3
Strings per MPP tracker	2/2/2	2/2/2	2/2/2	2/2/2	2/2/2
Max. Inverter Backfeed Current to the Array	0	0	0	0	0

* More technical characteristics are available on demand and customized.

[1] Per MPP max. PV input power 15kW.

[2] For 1000V system, Maximum operating voltage is 950V. PV input voltage greater than 955V, PV over-voltage error will be reported.

4.2 Battery

Model	H3-Pro -15.0	H3-Pro -20.0	H3-Pro -25.0	H3-Pro -29.9	H3-Pro -30.0
Battery Type	Lithium battery				
Battery voltage [V]	150-800				
Full AC load Battery voltage [V]	160-790	220-790	270-790	330-790	330-790
Max. Charge/ discharge current [A]	50+50	50+50	50+50	50+50	50+50
Number of battery input	2	2	2	2	2
Communication interface	CAN				

4.3 AC Output/Input

Model	H3-Pro -15.0	H3-Pro -20.0	H3-Pro -25.0	H3-Pro -29.9	H3-Pro -30.0
AC OUTPUT					
Nominal AC power [VA]	15000	20000	25000	29900	30000
Max. apparent AC power [VA]	16500	22000	27500	29900	33000
Max. output fault current [A]	25.0	33.3	41.7	45.3	50.0
Rated grid voltage (AC voltage range) [V]	400V/230VAC;380V/220VAC,3L/N/PE				
Rated grid frequency [Hz]	50/60Hz				
Rated AC current [A] (Per Phase)	22.7	30	37.9	45.3	45.5
Max. AC current [A] (Per phase)	25.0	33.3	41.7	45.3	50.0
Power Factor	1(Adjustable from 0.8 leading to 0.8 lagging)				
Export Control	YES				
THDI	<3%@rated power				
AC inrush current [A]	50.3A@0.5ms				
AC INPUT					
Max. AC power [VA]	22500	30000	35000	35000	35000
Rated grid voltage (AC voltage range) [V]	400V/230VAC;380V/220VAC,3L/N/PE				
Rated grid frequency [Hz]	50/60Hz				
Max. AC current [A] (Per phase)	34.1	45.5	53.0	53.0	53.0
AC inrush current [A]	50.3A@0.5ms				
Power Factor	1(Adjustable from 0.8 leading to 0.8 lagging)				

4.4 EPS Output

Model	H3-Pro -15.0	H3-Pro -20.0	H3-Pro -25.0	H3-Pro -29.9	H3-Pro -30.0
EPS OUTPUT (WITH BATTERY)					
Nominal AC Power [VA]	15000	20000	25000	30000	30000
Max. apparent AC Power [VA]	15000	20000	25000	30000	30000
Peak apparent AC Power [VA] (60s)	18000	24000	30000	36000	36000
Rated output voltage [V]	400V/230VAC;380V/220VAC,3L/N/PE				
Rated grid Frequency [Hz]	50/60				
Rated current [A] (Per phase)	22.7	30.3	37.9	45.5	45.5
Max current [A] (Per phase)	22.7	30.3	37.9	45.5	45.5
Power Factor	1(Adjustable from 0.8 leading to 0.8 lagging)				
Parallel operation	Yes@max10 Pcs				
Switch time	<10ms				
THDV	<3%@rated power				

4.5 Efficiency and Protection

Model	H3-Pro -15.0	H3-Pro -20.0	H3-Pro -25.0	H3-Pro -29.9	H3-Pro -30.0
MPPT efficiency	99.90%	99.90%	99.90%	99.90%	99.90%
Max. Efficiency	97.20%	97.20%	97.10%	97.10%	97.10%
Euro-efficiency	96.30%	96.30%	96.60%	96.60%	96.60%
PROTECTION					
PV Reverse Polarity Protection	YES				
Battery Reverse Protection	YES				
Anti-islanding protection	Active Frequency Drift with Positive Feedback				
Output Short Protection	YES				
Leakage current protection	YES				
Insulation Resistor Detection	YES				
Over Voltage category	III (AC side), II (DC side)				
Reverse connect protection	YES				
Over-current protection /Over-temperature protection	YES				
AC/DC surge protection	Type II/Type II				
AFCI protection	optional				
DC SWITCH	PEDS150H-HM63R-6F				
String monitoring function	YES				

4.6 General Data

DIMENSION AND WEIGHT	
Dimensions (W*H*D) [mm]	600*560*225
Dimensions of packing (W*H*D) [mm]	720*680*370
Net Weight [kg]	52.5
Cooling	Smart FAN cooling
Inverter topology	Non-isolated
Communication interface	Meter, WIFI, 4G(optional), DRM, USB, BMS(CAN), RS485, Ethernet, SG ready
LCD display	Backlight 16*4 character
ENVIRONMENT LIMIT	
Installation	wall-mounted
Ingress protection	IP65 (for outdoor use)
Operating temperature range [°C]	-25…+60 (derating at +45°C)
Storage/Operation relative humidity	0%-95% (without condensation)
Altitude [m]	<4000
Protective class	I
Storage temperature [°C]	-40…+70
Standby consumption [W]	200W for hot standby, 20W for cold standby
Idle mode	YES
Button	Capacitive touch sensor *4
Buzzer	1, inside (EPS & Earth fault)

5. Installation

5.1 Check for Physical Damage

Make sure the inverter is intact during transportation. If there is any visible damage, such as cracks, please contact your dealer immediately.

5.2 Packing List

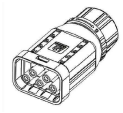
Open the package and take out the product, please check the accessories first. The packing list shown as below.

A

B

C

D



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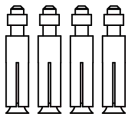

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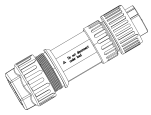

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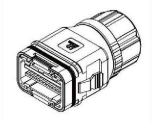

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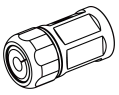

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Object	Quantity	Description	Object	Quantity	Description
A	1	Inverter	L	1	Hexagonal screw M4*16
B	1	Bracket	M	4	Battery connectors (2*positive, 2*negative)
C	12	PV connectors (6*positive, 6*negative)	N	4	Battery pin contacts (2*positive, 2*negative)
D	12	PV pin contacts (6*positive, 6*negative)	O	1	Hexagonal screw M5*10 grounding screw
E	1	AC connectors-EPS	P	1	COM1-12PIN
F	4	Expansion tubes & Expansion screws	Q	1	COM2-24PIN
G	1	Earth terminal	R	1	GRID Outer Snap Mechanical Lock
H	1	AC connectors-Grid	S	3	RJ45 connector
I	1	Quick installation guide	T	1	Antenna
J	1	WiFi/GPRS/LAN (Optional)	U	1	PV & Battery Connector Release Tool
K	1	6CT Meter			

5.3 Mounting

- Installation Precaution

Make sure the installation site meets the following conditions:

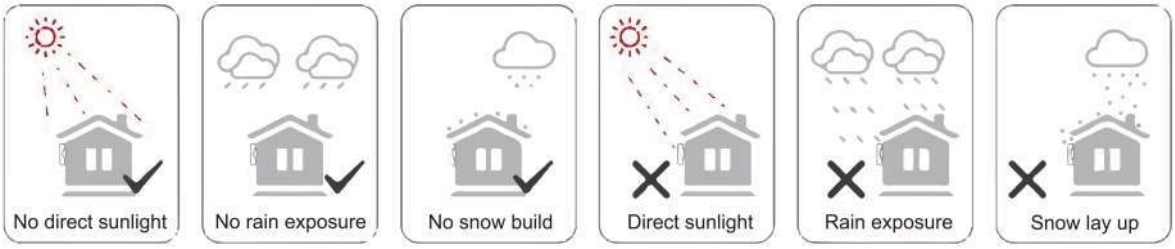
- Not in direct sunlight.
- Not in areas where highly flammable materials are stored.
- Not in potential explosive areas.
- Not in the cool air directly.
- Not near the television antenna or antenna cable.
- Not higher than altitude of about 4000m above sea level.
- Not in environment of precipitation or humidity (> 95%).
- Under good ventilation condition.
- The ambient temperature in the range of -25°C to +60°C.
- The slope of the wall should be within +5*.

The wall hanging the inverter should meet conditions below:

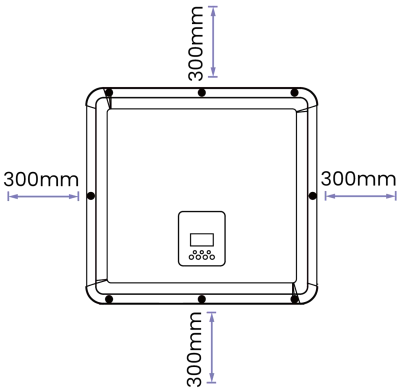
A. Solid brick/concrete, or strength equivalent mounting surface;

B. Inverter must be supported or strengthened if the wall's strength isn't enough (such as wooden wall, the wall covered by thick layer of decoration).

Please avoid direct sunlight, rain exposure, snow laying up during installation and operation.



- Space Requirement



Position	Min Distance
Left	300mm
Right	300mm
Top	300mm
Bottom	300mm

• Mounting Steps

Tools required for installation:

- Manual wrench;
- Electric drill (drill bit set 8mm);
- Crimping pliers;
- Stripping pliers;
- Screwdriver.




- Installation angle requirements: ● Do not tilt the energy storage forward, horizontally, upside down, backward and sideways.
- Installation space requirements:
- When installing energy storage, ensure that there are no other equipment and flammable and explosive materials around, and reserve enough space to ensure the installation heat dissipation and safety isolation requirements. ● During wall-mounted installation, no items are allowed to be placed under the energy storage.

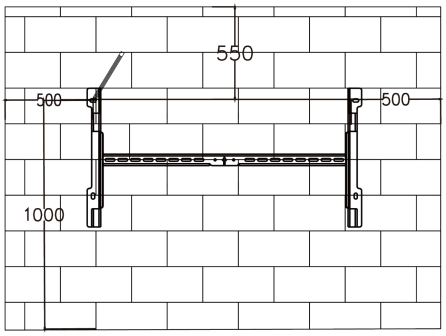
1. Fix the bracket on the wall

- Choose the place you want to install the inverter. Place the bracket on the wall and mark the position of the 6 holes from bracket.

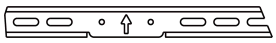
⚠ DANGER

Before drilling, please make sure to avoid the water and electricity lines embedded in the wall to avoid danger.

- Installation position recommendation. Use a spirit level to adjust the installation position.



Arrow pointing up.



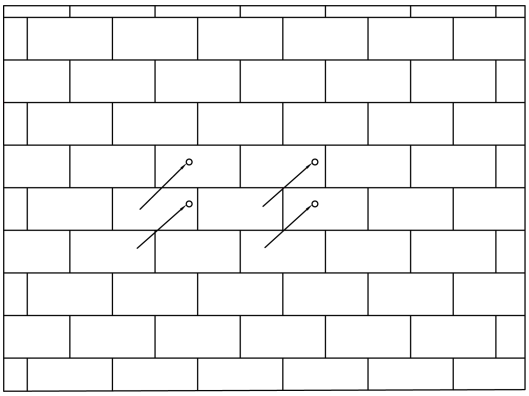
- Drill holes with electric drill, make sure the holes are at least 40mm deep and 10mm wide, and then tighten the expansion tubes.

⚠ CAUTION

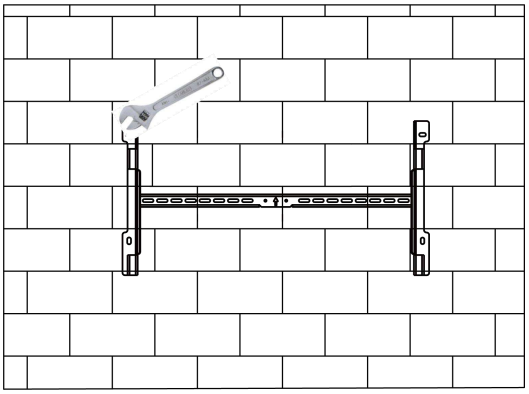
Please pay attention to safety when using the tools. Unsafe use of the drilling tools may cause damage to the body.

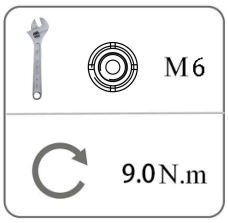
The inverter is heavy. Installer shall take precautions when lifting the inverter onto the bracket. It is recommended that at least two people operate togethel

- Please select solid brick-concrete structure and concrete wall for installation location. If other types of wall are selected, the wall must be made of fire-retardant materials and meet the load bearing requirements of the equipment.



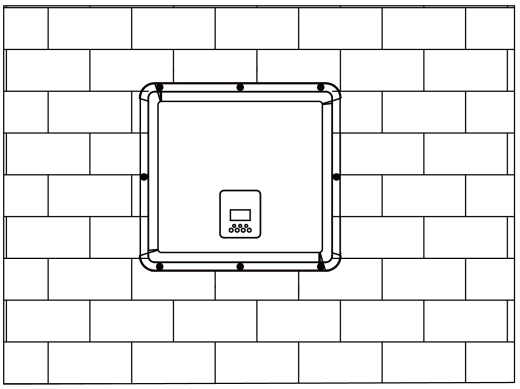
- Insert the M6 expansion bolt into the installation hole and then tighten the mounting bracket with nuts.

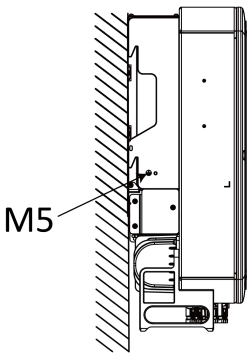


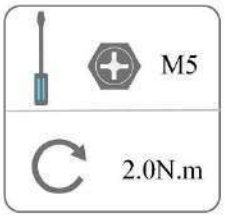


2. Match the inverter with wall bracket

- Mount the inverter to the bracket. Secure the inverter with the M5 screw and washer.

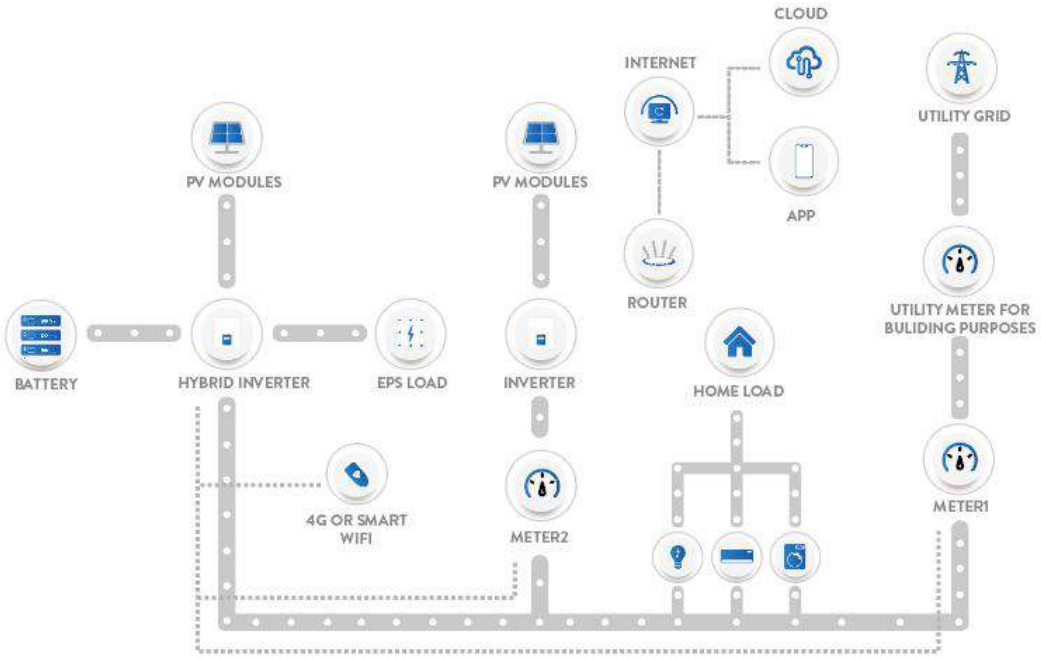




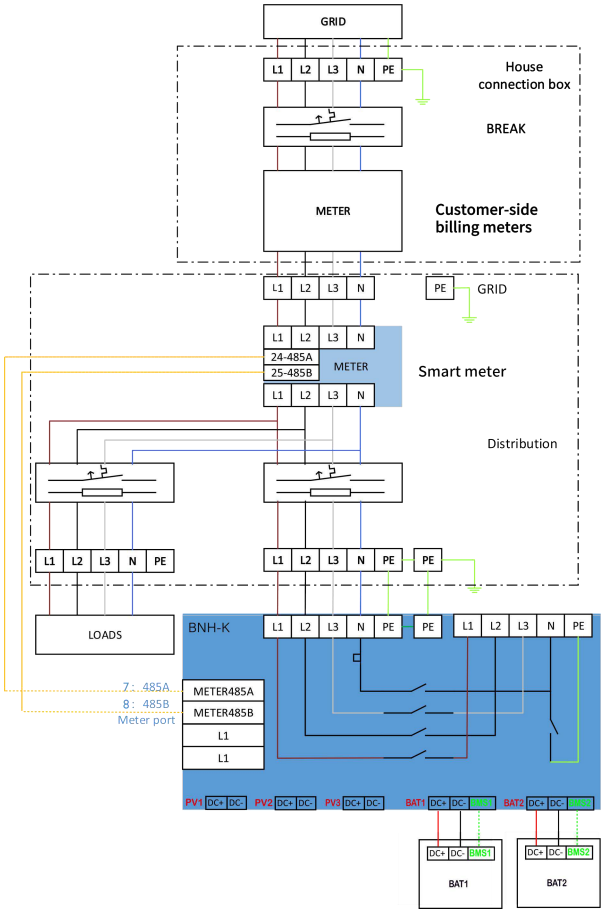


6. Electrical Connection

6.1 circuit overview



system overview



6.2 PV Connection

Step 1: PV String Connection

For H3-Pro-15.0，H3-Pro-20.0，H3-Pro-25.0，H3-Pro-29.9，H3-Pro-30.0

each MPPT can be connected to 2 strings of PV modules. PV input PV1 and PV2 connect to MPPT1, PV3 and PV4 connect to MPPT2, PV5 and PV6 connect to MPPT3, For the best use of PV power, Two strings connected to the same MPPT should be the same in PV string structure, including the type, number, tilt, and orientation of the PV modules.

NOTE

Note!

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

⚠ WARNING

Warning!

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

The voltage difference between two strings connected to the same MPPT is too large, which may cause current to flow into the photovoltaic panel and damage it, this connection method, Fox ESS does not as sume any responsibility.

⚠ WARNING

Warning!

Please do not make PV positive or negative to ground!

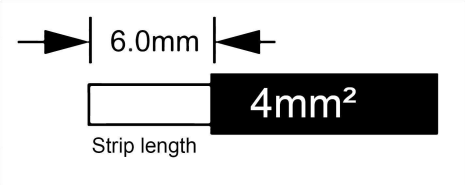
NOTE

Note!

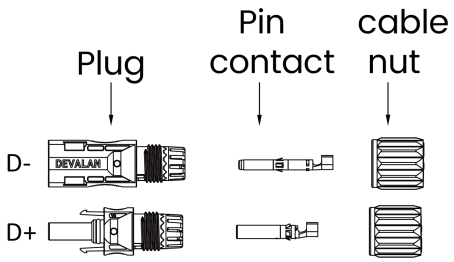
PV modules: Please ensure they are the same type, have the same output and specifications, are aligned identically, and are tilted to the same angle. In order to save cable and reduce DC loss, we recommend installing the inverter as near to the PV modules as possible.

Step 2: PV Wiring

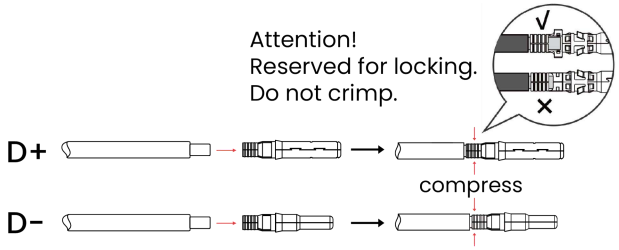
- Turn off the DC switch.
- Choose 4mm² wire to connect the PV module.
- Trim 6mm of insulation from the wire end.



- Separate the DC connector (PV) as below.



- Insert striped cable into pin contact and ensure all conductor strands are captured in the pin contact.
- Crimp pin contact by using a crimping plier. Put the pin contact with striped cable into the corresponding crimping pliers and crimp the contact.

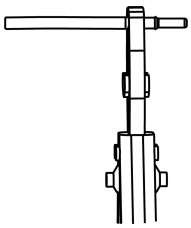


NOTICE

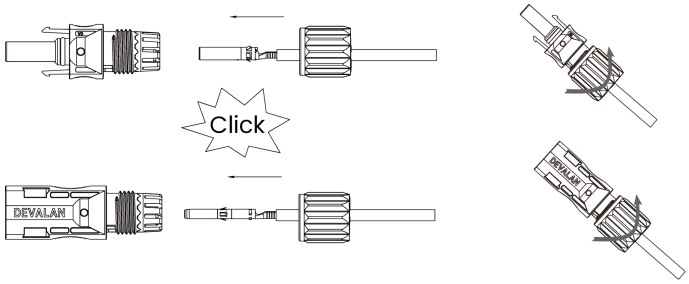
When making PV terminals, please make sure that the copper cores of PV positive and PV negative terminals and the copper cores on the inverter can be inserted, and use a multimeter to measure whether the positive and negative terminals are correct, otherwise the machine may not work normally or individual strings may not work.

The maximum open-circuit voltage of PV should be less than 950V, otherwise an error may be reported when mppt cannot be traced.

- Insert striped cable into pin contact and ensure all conductor strands are captured in the pin contact.
- Crimp pin contact by using a crimping plier. Put the pin contact with striped cable into the corresponding crimping pliers and crimp the contact.



- Insert pin contact through the cable nut to assemble into back of the male or female plug. When you feel or hear a “click” the pin contact assembly is seated correctly.



- Unlock the DC connector

⚠ DANGER

Before separating the DC connector, make sure that there is no current on the DC connector. You can measure it with current clamp or disconnect the DC switch, otherwise serious safety accidents may occur.

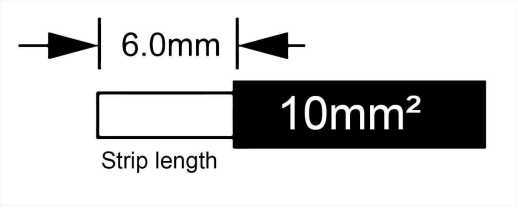
Make sure that the power cable connected to the inverter is connected vertically and that the vertical length is greater than 30 cm. If the cable is bent close to the terminals, it may cause poor line contact and result in burnt terminals.

When disconnecting the DC eonnector, use the release tool from the accessory kit. Align it with the buckle slot and press down, then pull the connector outward.

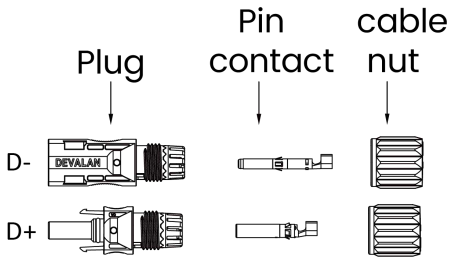
- Use the specified wrench tool.
- When separating the DC + connector, push the tool down from the top.
- When separating the DC - connector, push the tool down from the bottom.
- Separate the connectors by hand.

6.3 Battery Connection

- Turn off the DC switch.
- Choose 10mm^2 wire to connect the battery.
- Trim 6mm of insulation from the wire end.



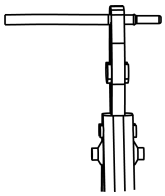
- Separate the DC connector (battery) as below.



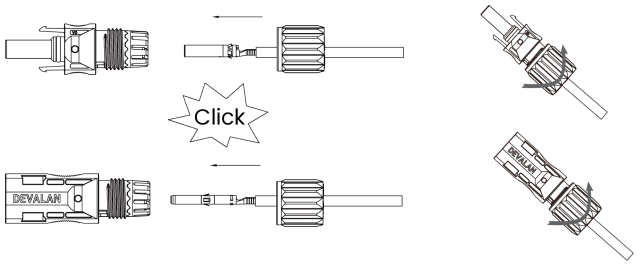
NOTICE

We offer provides matching battery power harness and communication harness. Please use matching harness. The matched battery power harness and communication harness are in the battery packaging box.

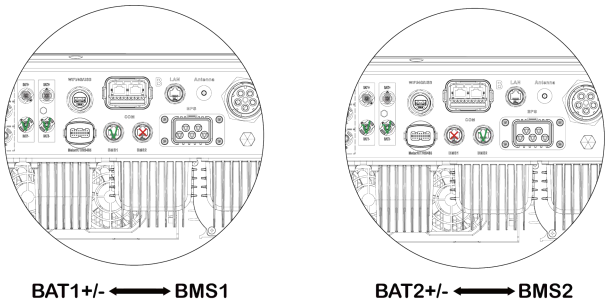
- Insert striped cable into pin contact and ensure all conductor strands are captured in the pin contact.
- Crimp pin contact by using a crimping plier. Put the pin contact with striped cable into the corresponding crimping pliers and crimp the contact.



- Insert pin contact through the cable nut to assemble into back of the male or female plug. When you feel or hear a “click” the pin contact assembly is seated correctly.



Note:



- Unlock the DC connector

⚠ DANGER

Before disconnecting the DC connector, make sure that there is no current on the DC connector. You can use the current clamp to measure or disconnect the battery switch, otherwise serious safety accidents may occur. At the same time, the harness on the battery cannot be reversed or shorted, which will cause irreparable damage to the battery or inverter.

- Use the specified wrench tool.
- When separating the DC + connector, push the tool down from the top.
- When separating the DC - connector, push the tool down from the bottom.
- Separate the connectors by hand.

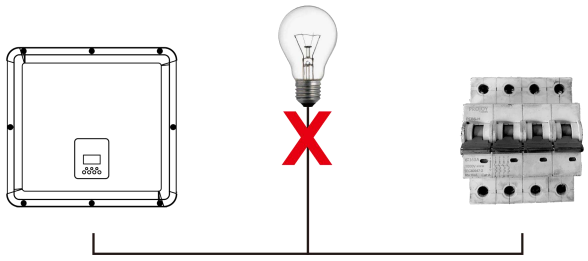
Note:
The battery connection shall follow the local installation regulations and standards. An external DC breaker may be required between inverter and battery. The selection of DC breaker shall also follow the installation regulation and standards.

6.4 Grid Connection

Step 1: Grid String Connection

H3-Pro series inverters are designed for three-phase grid. Per voltage range is 220/230/240V; frequency is 50/60Hz. Other technical requests should comply with the requirement of the local public grid.

Model (kW)	15.0	20.0	25.0	29.9-30.0
Cable (ON-GRID)	6.0-10.0mm²	10.0-16.0mm²	10.0-16.0mm²	10.0-16.0mm²
Micro-Breaker	50A	63A	63A	63A
Model (kW)	**15.0**	**20.0**	**25.0**	**29.9-30.0**
Cable (EPS)	6.0-10.0mm²	10.0mm²	10.0mm²	10.0mm²
Micro-Breaker	50A	63A	63A	63A



⚠ WARNING

WARNING!

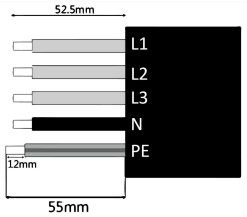
A micro-breaker for max output overcurrent protection device shall be installed between inverter and grid, and the current of the protection device is referred to the table above, any load SHOULD NOT be connected with the inverter directly.

Step 2: Grid Wiring

- Check the grid voltage and compare with the permitted voltage range (refer to technical data).
- Disconnect the circuit-breaker from all the phases and secure against re-connection.

Trim the wires:

- Trim all the wires to 52.5mm and the PE wire to 55mm.
- Use the crimping pliers to trim 12mm of insulation from all wire ends as below.



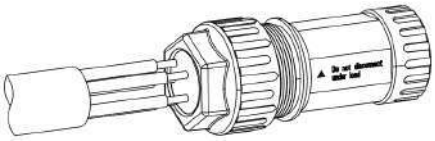
L1/L2/L3: Red/White/Blue Wire

N: Black Wire

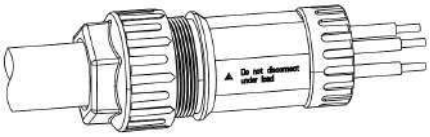
PE: Yellow & Green Wire

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

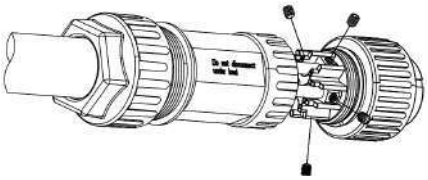
- Strip the wires.



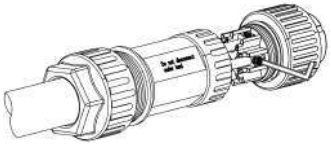
- Thread the wires through the sleeve.



- Install the copper wires into the plug terminals and tighten the screws.

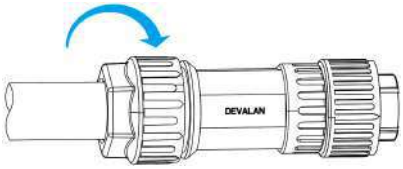


- Tighten the screws (torque: 4-5 N·m) using a 4.0 wrench.

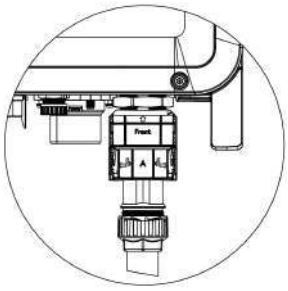


- Secure the sleeve and plug (torque: 3-4.0 N·m).

- Tighten the nut (torque: 3-5.0 N·m).

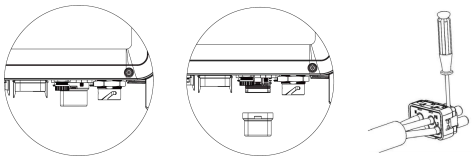


- Push the threaded sleeve to connection terminal until both are locked tightly on the inverter.

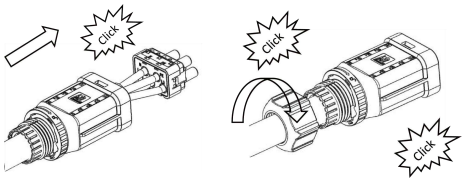


A. EPS Wiring

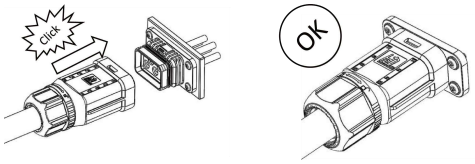
- Tighten the wire with a screwdriver, The torque of the crimp screw is 2.0±0.1N·m.



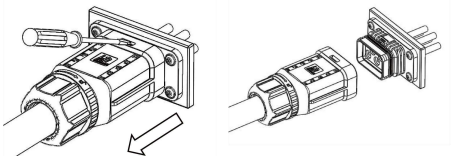
- Put the sealing body and yarn trapper into the main body, screw the lock nut into the main body, and the torque is (2.5 + / - 0.5N·m).



- The female end of the wire is inserted into the male end of the line and accompanied by a click sound, and the installation is complete.



- Use a screwdriver to align the unlock position and press and Hold the thread and pull it back to complete the separation of the male and female.

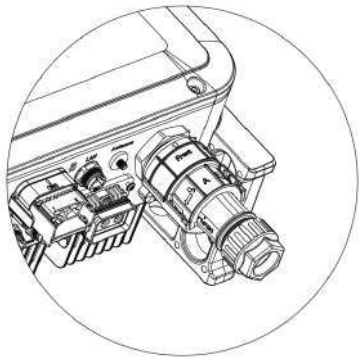


B. GRID Wiring

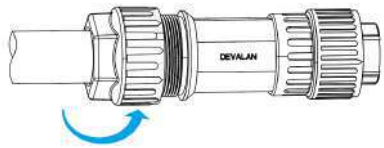
NOTICE
The wiring of the power grid must be connected to the N line, otherwise the machine will report an error and cannot work normally. The SW BUS Volt fault will appear. The method to detect whether the N line is connected is to measure whether the voltage of each phase is within the normal working voltage range separately. Then disconnect one of the live wires and check whether the voltage of the other two phases is within the range. If it is within the range, it means that the N wire is connected. If, after disconnecting the live wire, the voltage of the other two phases changes, it means that the N wire is not connected.

NOTE: Maximum accepted value between N and PE is 10 Volts. Otherwise, if higher this can lead to ground faults.

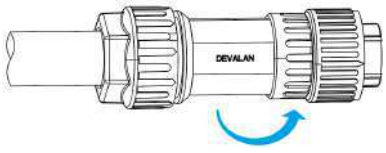
- Removal of GRID connector
  - Remove the GRID connector: Using the matching U-shaped unlocking tool, remove the external mechanical latch, swirl the swirl, and then pull it out. Unscrew the threaded bushing and pull it out.



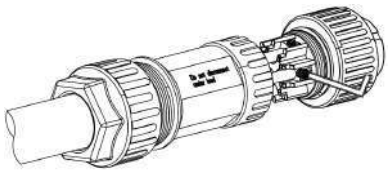
- Loosen the nut.



- Loosen the sleeve.

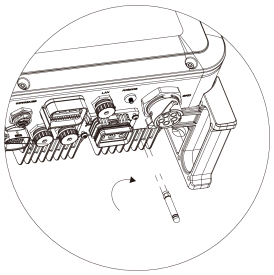


- Loosen the screw.

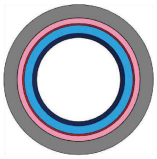


Mounting the External Antenna

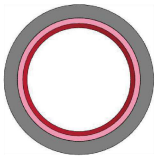
Hand Tight



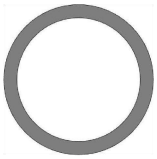
Description of the wiring wire diameter



6mm² Wire Harness



10mm² Wire Harness



16mm² Wire Harness

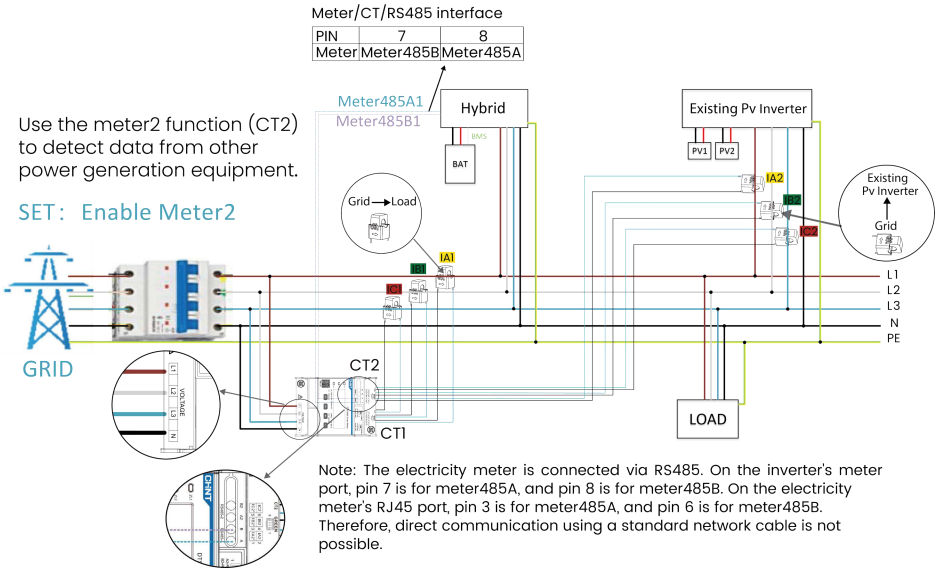
The types of 6CT energy meters

6CT meter enables dual-meter functionality

Step 1:

A 6CT meter can be used to monitor the power output of an additional inverter or generation device.

Step 2:



Note:

For the three-phase wiring of the Current Transformer (CT), it must be in phase with the corresponding voltage detection. Specifically, the CT corresponding to the L1 phase is IA, the CT corresponding to the L2 phase is IB, and the CT corresponding to the L3 phase is IC.

Note:

The red power line is connected: the meter terminals L1, IA1 and IA2 should be clamped to the red wire.

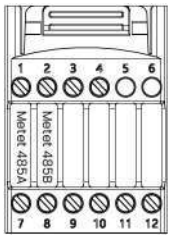
The white power line is connected: the meter terminals L2, IB1 and IB2 should be clamped to the white wire.

The blue power line is connected: the meter terminals L3, IC1 and IC2 should be clamped to the blue wire.

Note:

Need to enable meter2

Comm Port Definition For H3-Pro Series



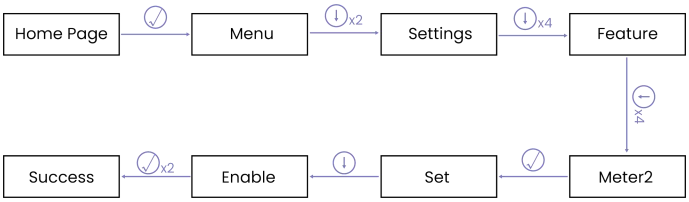
7: Meter 485A 8: Meter 485B

*For both Meter1 and Meter2, 485A cables go to pin 7, 485B cables go to pin 8.

Enable Meter2 from Display

*H3 Pro

HMI Ver. ≥1.39



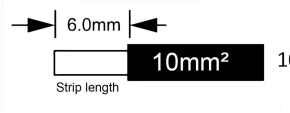
CT wiring to each phase:

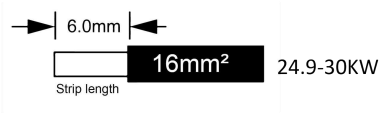
L1-Yellow; L2-Green; L3-Red

CT points to inverter

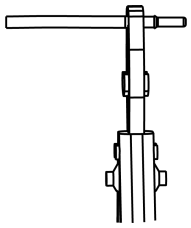
6.5 Earth Connection

Trim 6mm of insulation from the wire end.

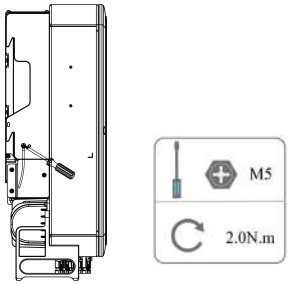




- Insert striped cable into earth terminal and ensure all conductor strands are captured in the earth terminal.
- Crimp earth terminal by using a crimping plier. Put the earth terminal with striped cable into the corresponding crimping pliers and crimp the contact.



Use the crimping pliers to press the ground cable into the ground terminal, screw the ground screw with screwdriver as shown below:



6.6 Communication Connection

Communication Device Installation (Optional)

H3-Pro series inverters are available with multiple communication options such as WiFi-, GPRS-, LAN- or 4G-Dongle, RS485 and Smart meter with an external device.

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

- **WiFi/ GPRS/ LAN (Optional)**

The inverter has an interface for WiFi/GPRS/LAN/4G-Dongle that allow this device to collect information from inverter; including inverter working status, performance etc., and update that information to monitoring platform (the WiFi/GPRS/LAN4G-Dongle is available to purchase from your local supplier).

Connection steps:

1. For GPRS device: Please insert the SIM Card (please refer to the GPRS product manual for more details).
2. Plug the WiFi/ GPRS/ LAN 4G-Dongle into “WiFi/GPRS/LAN 4G-Dongle” port at the bottom of the inverter.
3. For WiFi device: Connect the WiFi with the local router, and complete the WiFi configuration (please refer to the WiFi product manual for more details).
4. Set-up the site account on the monitoring platform (please refer to the monitoring user manual for more details).

- **WiFi configuration for smart WiFi**

WiFi Stick Installation

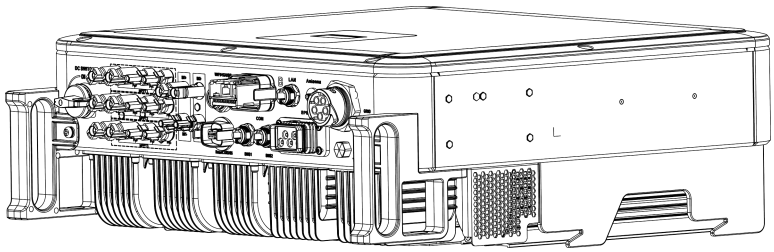
Alarm: The collector can only be plugged into the inverter, not any other device.

Step 1: For USB

Rotate the lock, make sure the triangle mark is on the front and centered. Plug the Smart WiFi into WiFi/GPRS port under the bottom (underside) of the inverter. Tighten the nut clockwise as following.

Step 2:

Power on the inverter (in accordance with the start-up procedure detailed in the inverter installation manual).



APP Installation：

Scan the QR Code below to download and install the Cloud APP on your smartphone.

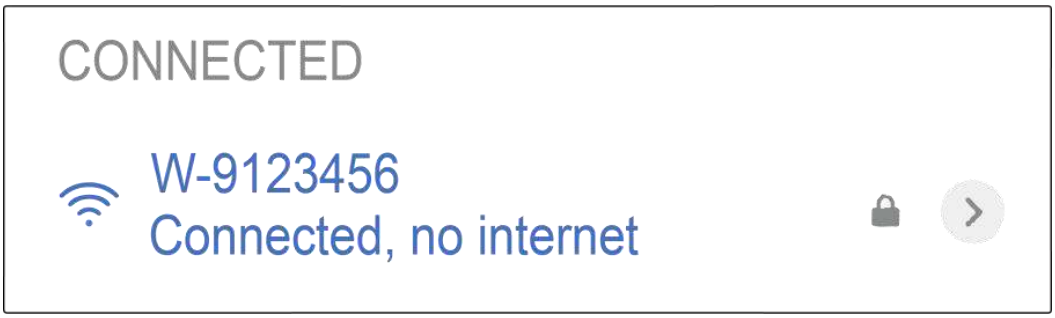
Configuration：

Note: The module is powered on and started, please wait for one minute to start the WiFi Config.

Web Configuration.

Step 1:

Connect your mobile device with Smart WiFi. The SSID of the Smart WiFi is ‘W-xxxxxxx’ and the password is ‘mtmt2020’.

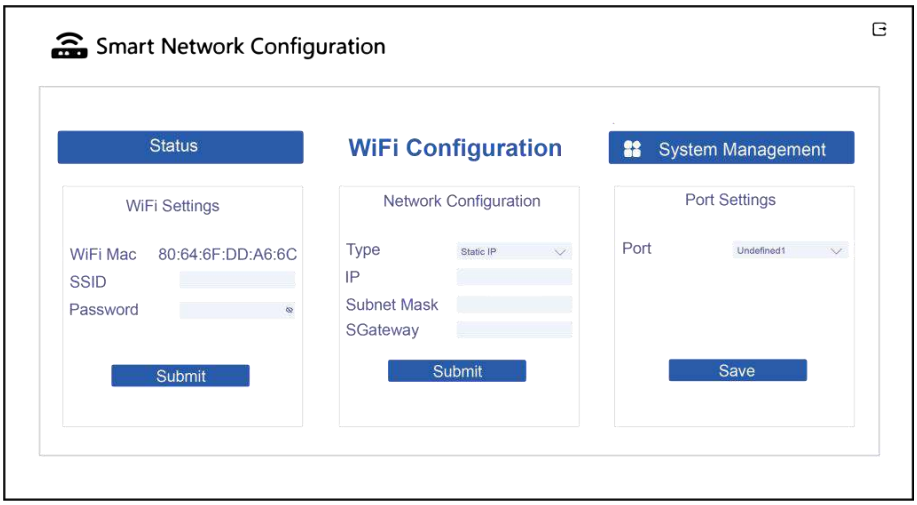


Step 2:

After connecting successfully. Open browser and enter ‘https://192.168.1.1’ on the address bar on top.

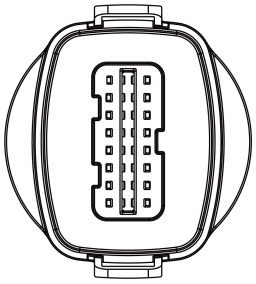
Step 3:

Drop down the WiFi SSID menu to find house router and input the house router’s password. Click ‘Save’.



- **Meter/RS485**

The PIN definitions of Meter/485 interface are as below.



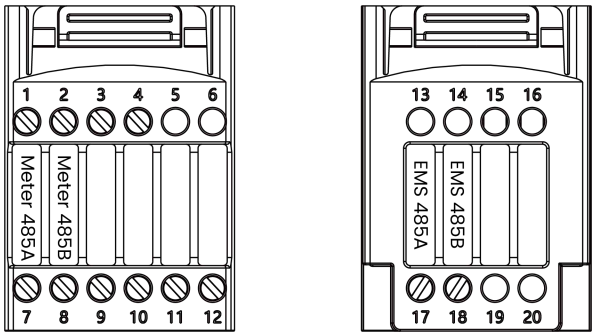
METER/CT/RS485 interface（20pin terminals）

1	2	3	4	5	6	7	8
DRY RLY2-	DRY RLY2+	DRY RLY1-	DRY RLY1+	/	/	Meter 485A	Meter 485B
9	**10**	**11**	**12**	**13**	**14**	**15**	**16**
GND TVS	GND COM	+12V SELV	RY Ctrl	/	/	/	/
17	**18**	**19**	**20**				
EMS 485A	EMS 485B	/	/				

Note: 1) GND TVS, RY Ctrl, these wiring terminals are tested in the factory, please do not connect them.

2) PIN1-PIN4（DRY_RLY1+/-, DRY_RLY2+/-）is Implement SG ready function, please refer to user manual for details.

3) Installing communication terminals, it is necessary to ensure that the terminal cover and sealing plug are reliably sealed and connected.



Note：1）Pin11 is the power supply+12V, and Pin10 is the corresponding GND used;

2）The maximum load of the 12V power supply port cannot exceed 10W (instantaneous current cannot exceed 1A); Otherwise, it will damage the inverter.

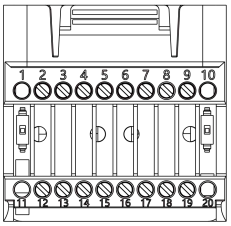
3）Installing communication terminals, it is necessary to ensure that the terminal cover and sealing plug are reliably sealed and connected.

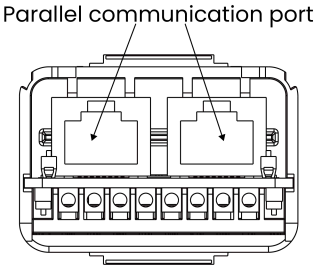
COM interface（24pin terminals）

1	2	3	4	5	6	7	8
/	RLY L-	RLY L+	RLY G-	RLY G+	ARM 485B	ARM 485A	GND COM
9	10	11	12	13	14	15	16
E STOP	/	/	VCC	DRM1	DRM2	DRM3	DRM4
17	18	19	20				
DRM0	GND COM	GND COM	/				

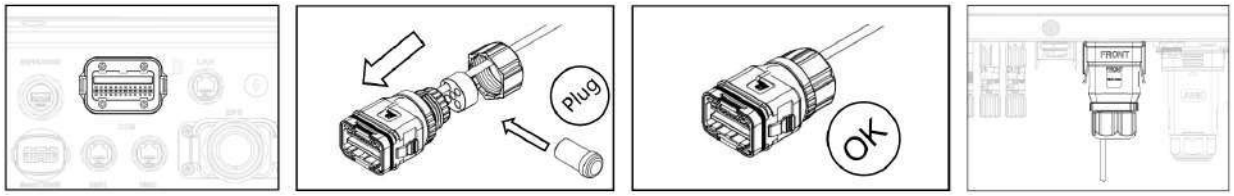
Note: 1) ARM 485A, ARM 485B, RLY L-, RLY L+, RLY G-, RLY G+ these wiring terminals are tested in the factory. please do not connect them.

2) PIN12-18（VCC, DRM0-DRM4）is Implement RCR or DRM function, please refer to user manual for details.





The installation of COM port is shown in the following figure:



Note:

- Compatible Meter type: DTSU666 (CHINT).

Please check and configure the meter before use:

Addr: 1;

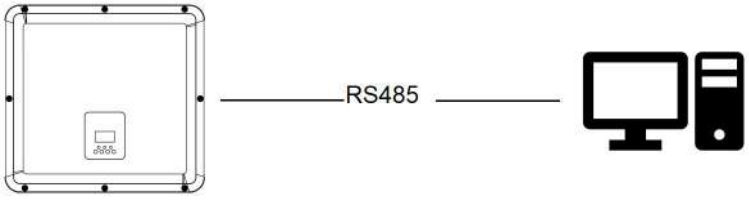
Baud: 9600

Protocol：n.1

Please refer to the user manual of electricity meter for detailed setting steps.

- RS485

RS485 is a standard communication interface which can transmit the real time data from inverter to PC or other monitoring devices.

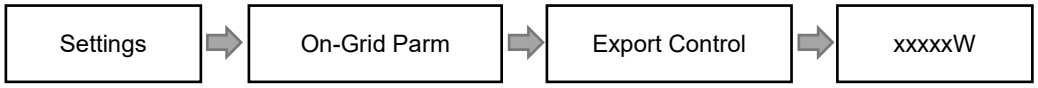


- Meter

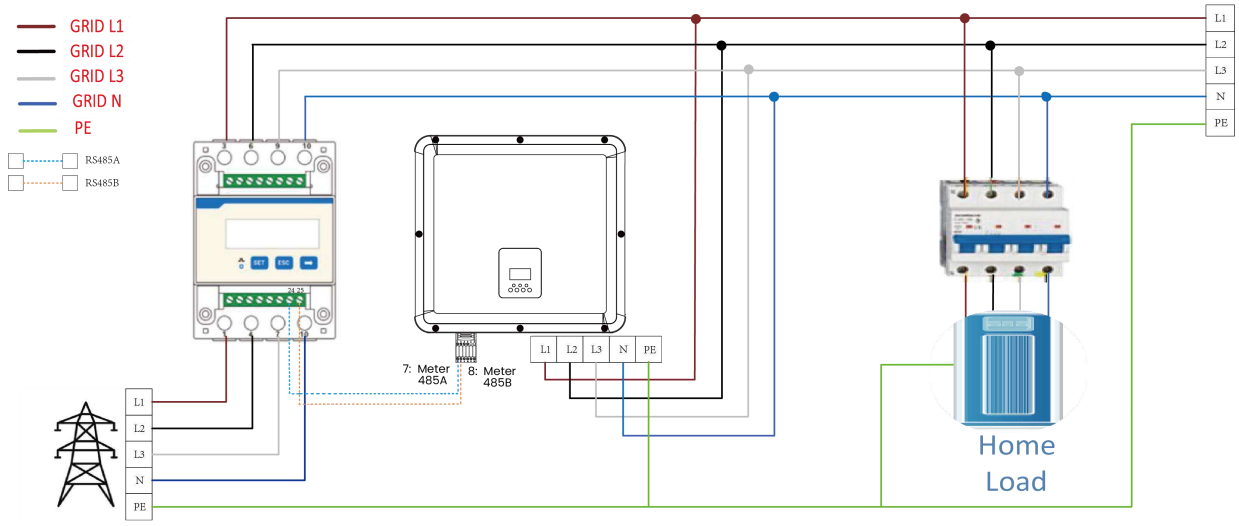
The inverter has integrated export limitation functionality. To use this function, a power meter must be installed. For Meter installation, please install it on the grid side.

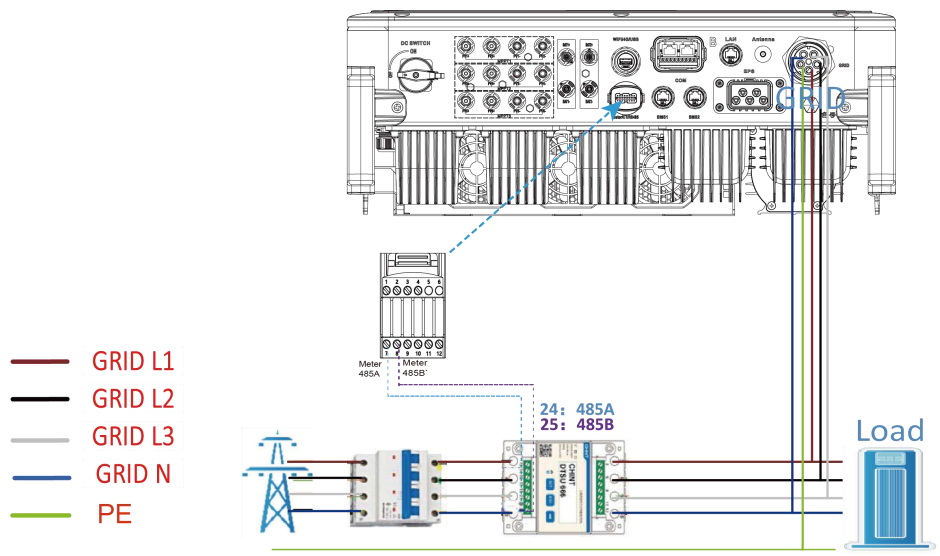
NOTICE
When connecting the electricity meter, please make sure that the way of the electricity meter is correct, otherwise it will affect the size of the load obtained by the inverter and affect the normal operation of the inverter. When the battery is available and can work normally, the machine provides the self-test function in the direction of the meter, which can be set in the meter interface.

Export control setting:



The electricity meter is connected as follows:



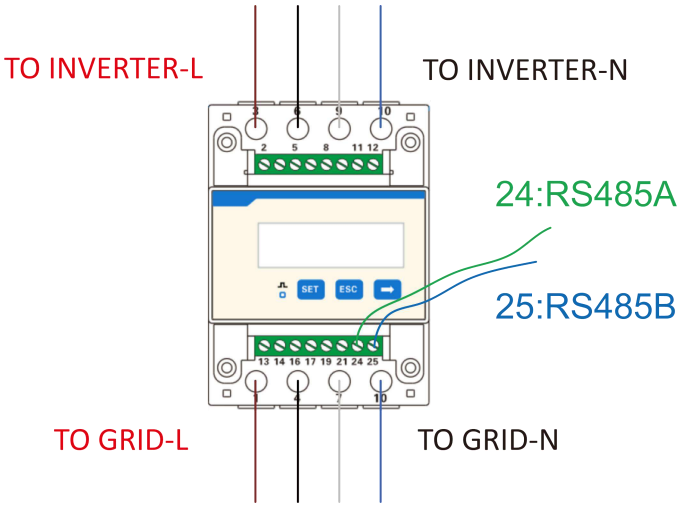


Note:

Standard meter is CHJNT DTSU 666 it can be used Max current of 80A; if higher Amps required, customers can choose same model + CTs.

Meter connection：

Meter Connection Diagram

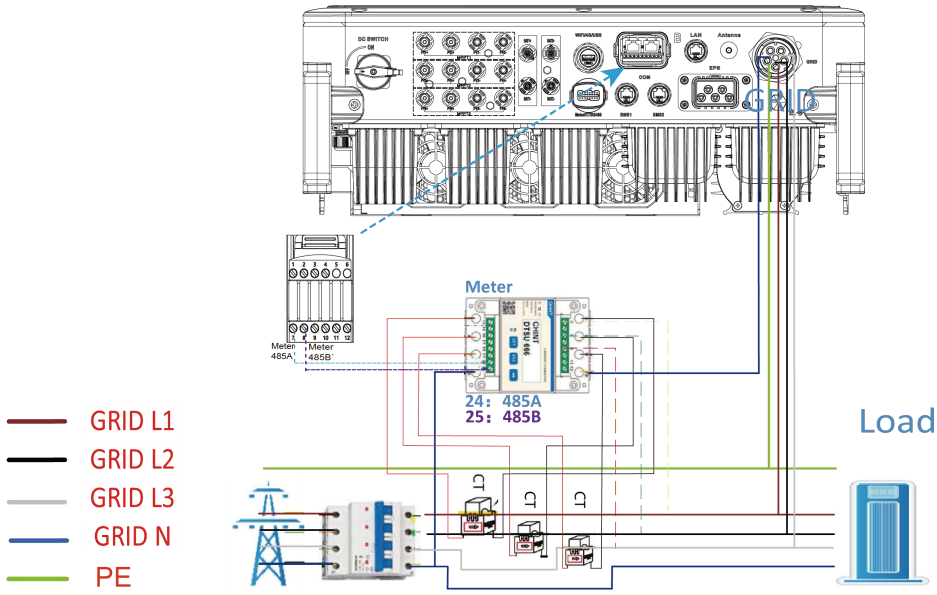


Insert L1/L2/L3/N wires and RS485A/B cable into the meter. Please refer to the meter wiring diagram on side of meter itself.

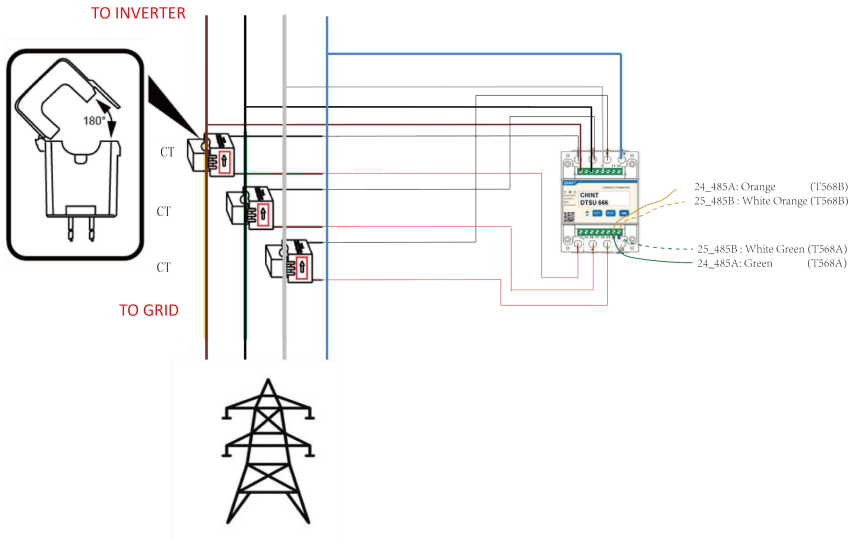
Connect RS485A to the 24 pins of the meter port and RS485B to the 25 pins of the meter port. Please use twisted pair cable.

The definition of the meter port refers to the METER/CT/RS485 interface(20pin terminals)in page 32.

The built-in meter is a regular meter, and if a CT meter is required, additional purchase is required.
CT Meter Connection Diagram:



Insert L1/L2/L3/N wires, CT and RS485A/B cable into the meter. Please refer to the meter wiring diagram on side of meter itself.



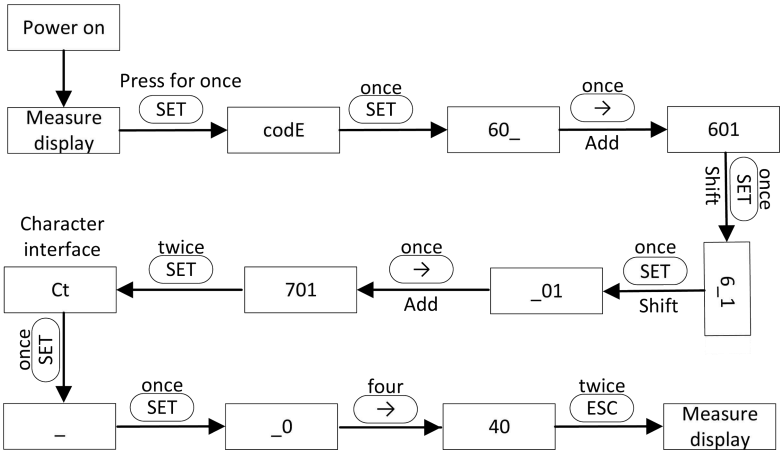
Notes: The 2,5,8 of the CT meter are connected to the three live wires L1, L2, and L3 respectively.

Connect RS485A to the 24 pins of the meter port and RS485B to the 25 pins of the meter port. Please use twisted pair cable.

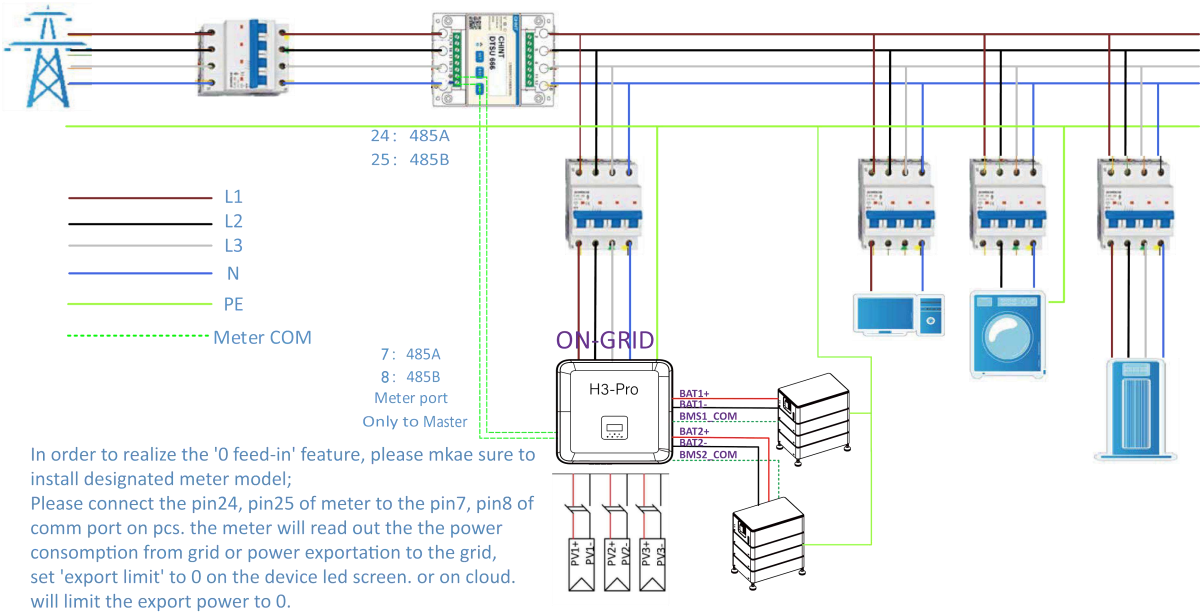
The definition of the meter port refers to the METER/CT/RS485 interface(20pin terminals)in page 32.

The transformation ratio setting of a CT meter needs to be consistent with the transformation ratio of a CT meter. The transformation ratio setting method.

for a CT meter is as follows:



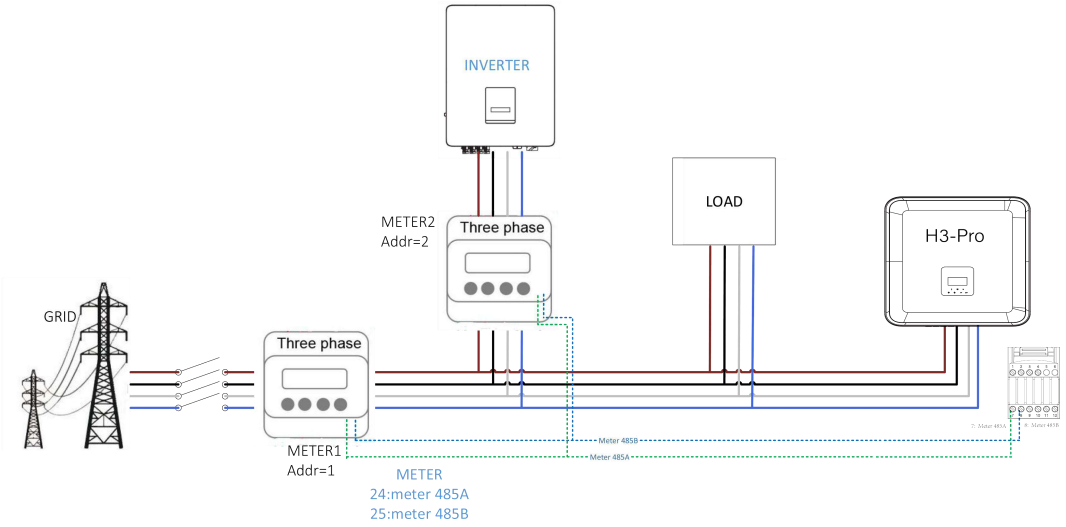
Schematic diagram of H3-Pro system 0 grid connection:



The inverter can also provide the use of two meters, using the second meter to read the power generated by another machine, where the address of the second meter is 2. When using the second meter function, you need to turn on the second meter function.

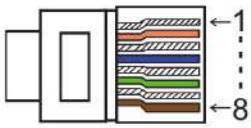
NOTICE
Only one meter is provided. If you need a second meter, consult your local installer or dealer.

The address of the second meter is 2. Please ensure that the address is 2, otherwise the communication of the first meter will be affected, and the output and monitoring data of the inverter will be affected.



- **BMS**

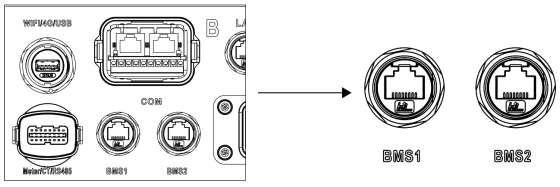
BMS-CANL: It is used for communication between the inverter and BMS. If this wire is poor, the communication between the inverter and BMS will not work properly. The stable SOC value displayed on the inverter home page is a good performance of communication. This line is very important for the energy storage system. Please ensure that it is not too long or in a complex environment.



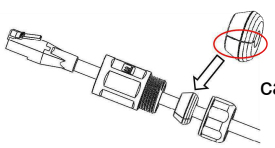
PIN	1	2	3	4	5	6	7	8
Definition	BAT-AWAKEN	GND COM	/	BMS CANL	BMS CANH	BMS CANH	BMS CANL	/

Connection steps:

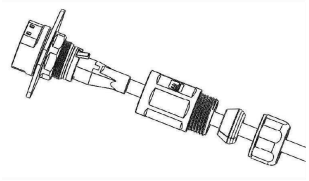
Step 1: Open the lid cover.



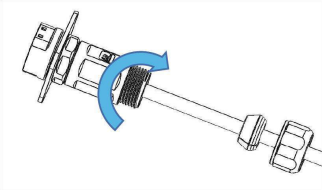
Step 2: Pass the network cable through the locking nut, sealing plug and main body in turn. Snap-in the sealing plug at the side slit.



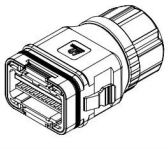
cable plug into the RJ45 board end connector;



Step 4: Lock the main body on the RJ45 board end connector with an open-ended wrench; torque 1.2 ± 0.2 N · m.



Step 5: Insert the cable connector into COM port at the bottom of inverter and screw it tightly. Then insert other side of the network cable into PC or another device.



6.7 EPS Connection (Non-parallel State)

Common loads description

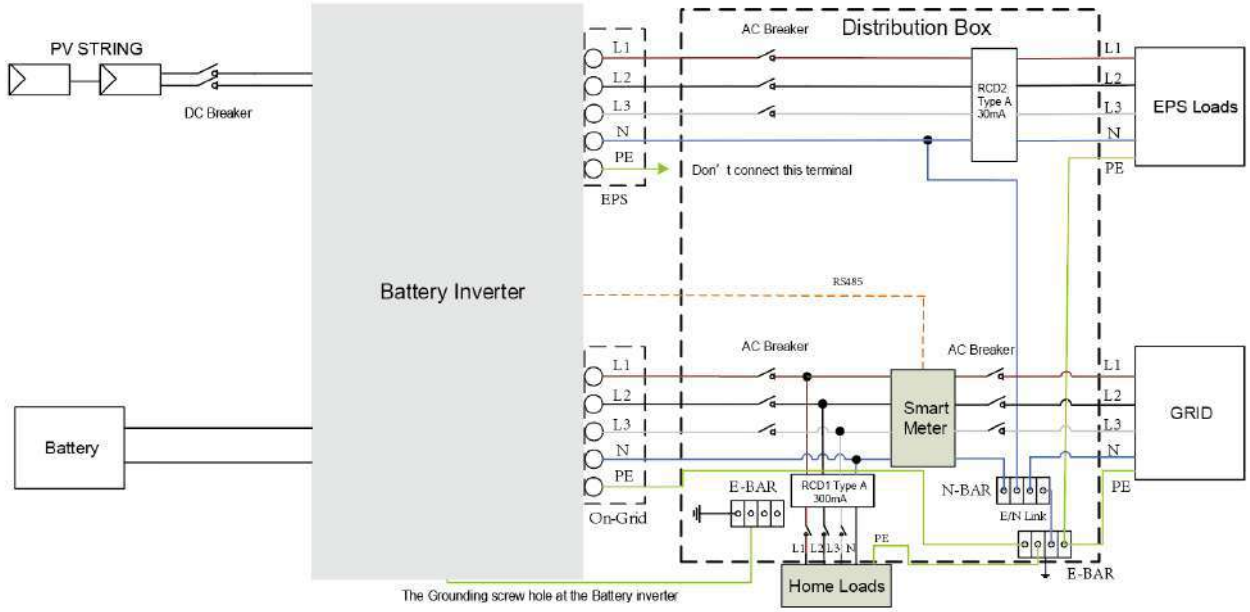
Under EPS mode, if need to connect the inductive load on EPS port, please ensure that the instantaneous power of the load at startup is lower than the maximum power of the EPS mode. Below table shows some conventional and reasonable loads for you reference. Please refer to your loads' manual for the actual specs.

Type	Power		Common equipment	Example		
	Start	Rated		Equipment	Start	Rated
Resistive load	X 1	X 1	Incandescent lamp, TV	100W Incandescent lamp	100VA (W)	100VA (W)
Capacitive load	X 2	X 1.5	Fluorescent lamp	40W Fluorescent lamp	80VA (W)	60VA (W)
Inductive load	X 3~5	X 2	Fan, Fridge	150W Fridge	450-750VA (W)	300VA (W)

For some motor loads, the starting current may be far more than 5 times the current, which is also not supported.

6.8 System Connection Diagrams

For countries such as **Australia, New Zealand, etc,** please follow local wiring regulations.
According to Australian safety requirements, **the N cables of the GIRD side and EPS side must be connected together.**
Otherwise, the EPS function will not work.



6.9 Inverter Start-Up

Please refer to the following steps to start up the inverter.

1. Ensure the inverter fixed well.
2. Make sure all wirings are completed.
3. Make sure the meter is connected well.
4. Make sure the battery is connected well.
5. Make sure the external EPS contactor is connected well (if needed).
6. Make sure the BMS buttons and battery switches are off.
7. Turn on the PV/DC switch, AC-GRID breaker, EPS breaker and battery breaker.
8. Set safety and system time on the screen according to the country and region where you are located.
9. If the main page shows "switch off", please long press " √ " bottom to quickly go to the START/ STOP page and set it to start. (Enter the settings page, default password is '0000').

Note:

- Add boot-up guide interface, the first boot-up need to select the safety regulations */** and set the time.
- Set the time on the inverter using the button or by using the APP.
- for Italy selftest : please scan this QR Code : (Gabriel/ HQ need to enter QR Code to jump.
- for Italy: you can choose grid code CEI -021A or CEI -021B,(CEI - 021 A must be selected if inverter is less than 11.08kW; CEI - 021 B if power is more than 11.08kW)

6.10 Inverter Switch Off

Please refer to the following steps to switch off the inverter.

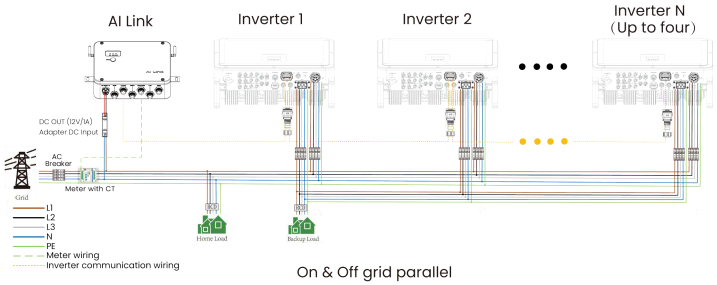
1. Enter the settings page, select START / STOP and set it to stop.
2. Turn off the PV/DC switch, AC breaker, EPS breaker and battery breaker.
3. Wait 5 min before you open the upper lid (if in need of repair).

7. Main function implementation

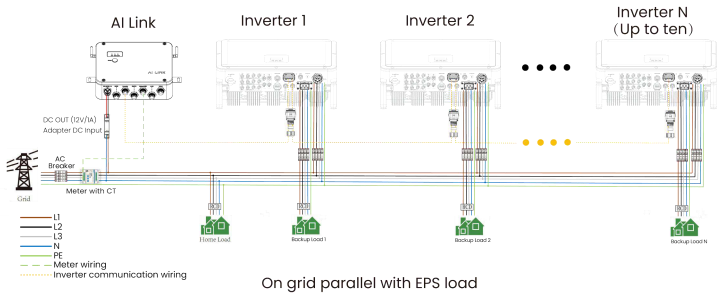
7.1 Parallel system wiring and setting

Each H3 Pro series system support Max. 10 units parallel connection for on-grid system or Max. 4 units parallel connection for off-grid system.

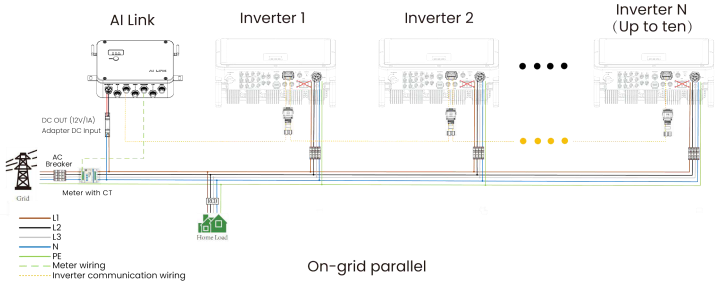
1) System Diagram



On & Off grid parallel



On grid parallel with EPS load



On-grid parallel

Note: No EPS load

NOTE

1) Parallel inverters need to be of the same type and power.
2) For "On grid parallel with EPS load" , "On&off grid parallel " scene, each inverter must be connected to the battery.
3) The cable length from each inverter's grid port to the grid connection point must be the same, and the cable length from each inverter's EPS port to the common load connection point must also be the same.
4) Please comply with the requirements of AS/NZS 4777.1 when installing.
5) For parallel On&Off Grid connection, the installer shall also maintain neutral continuity according to clause 6.8 of the user manual.

NOTE
For H3 Pro series parallel function, Fox ESS AI-Link is mandatory. Please see AI-Link user manual for connection. 1）Parallel inverters need to be of the same type and power. 2）For "On grid parallel with EPS load" , "On&off grid parallel " scene, each inverter must be connected to the Battery.
⚠ WARNING
On & off grid parallel must ensure that the EPS port and GRID port of each machine are connected one by one. That is, EPS port L1 of each inverter must correspond to L1 on the network side, L2 must correspond to L2 on the network side, L3 must correspond to L3 on the network side, and N must correspond to N on the network side. During parallel operation, the corresponding relationship between Grid ports L1/L2/L3/N and meters must be strict ly corresponding: L1-->A, L2-->B, L3-->C, N -->N. Does not assume any responsibility for machine damage or safety accidents caused by Wiring error for offline and parallel operation.

2) Wire Connection

Step1: Parallel Power wiring

Step2: Inverter communication wiring

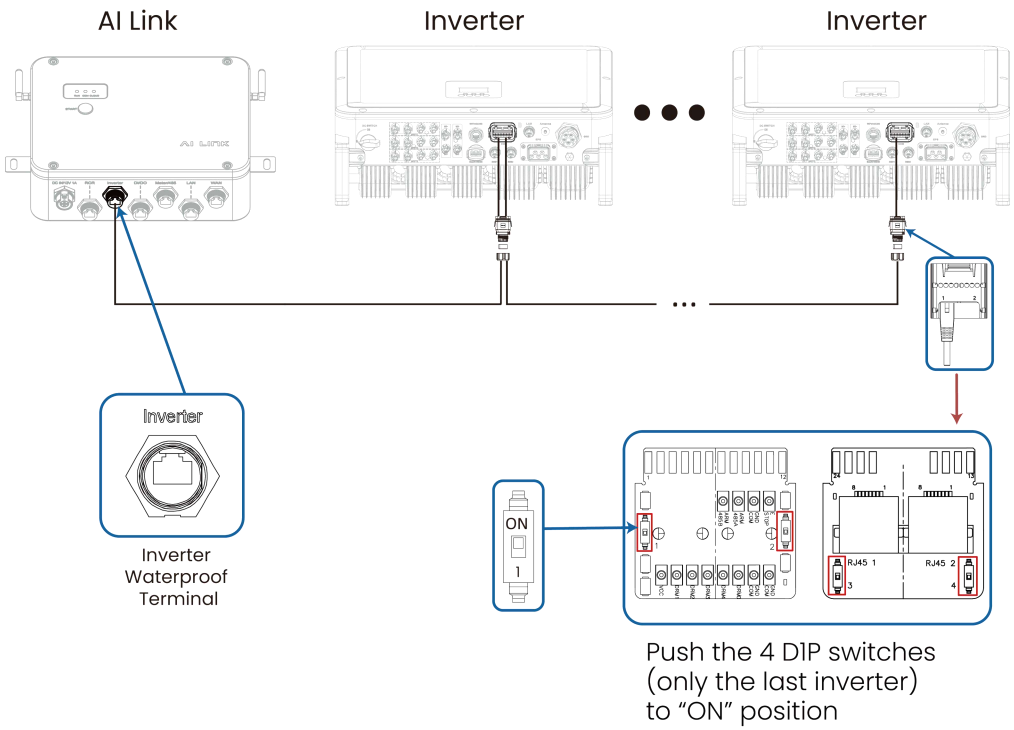
Step3: Meter wiring

Step4: Power Supply

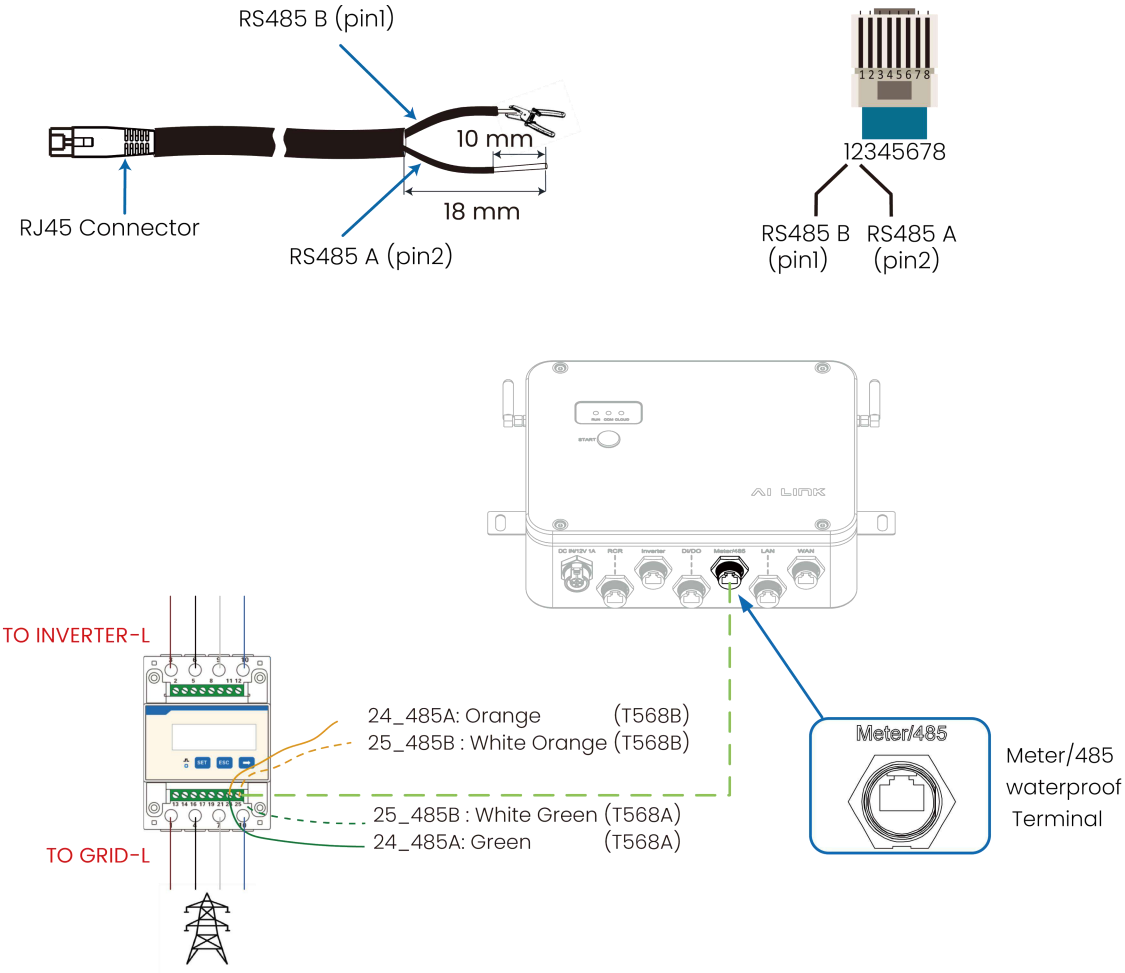
Step1 Parallel Power wiring

Please select the corresponding power wiring method according to different scenarios.

Step2 Inverter communication wiring



Step3 Meter wiring



NOTE

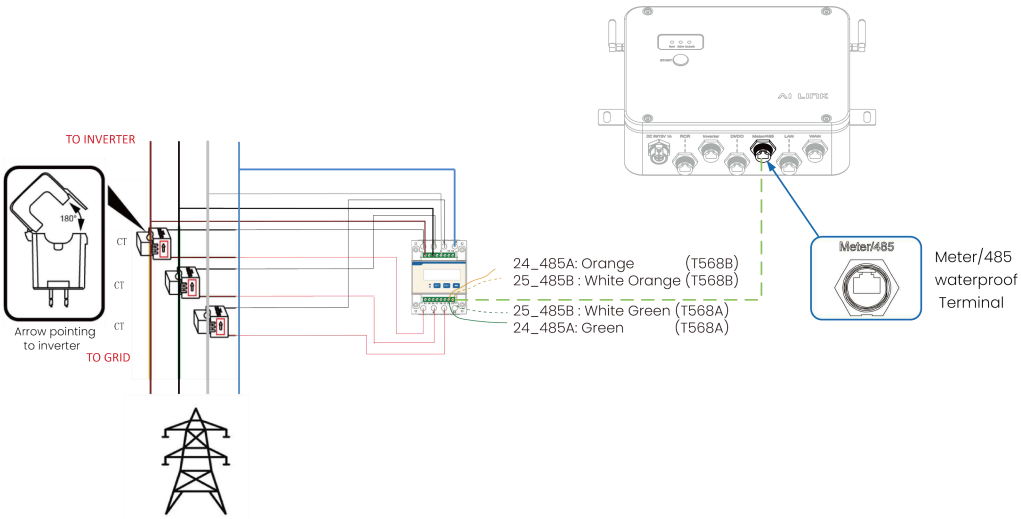
Grid-side inflow/outflow current ＜ 80A, meter can be connected directly

Wiring Table between the AI Link and the Meter.

	AI Link	Meter (CHINT DTSU666)
RS485 A	Pin2 (Meter/485, RS485- A1)	Pin24
RS485 B	Pin1 (Meter/485, RS485- B1)	Pin25

CT meter needs to be purchased separately, if required.

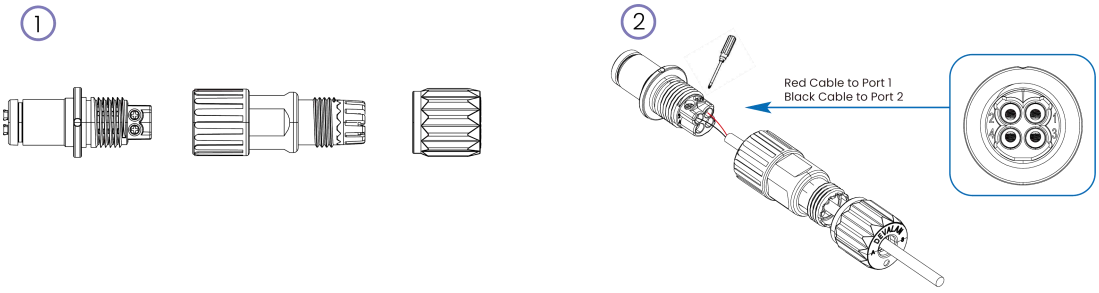
CT Meter Wiring Diagram:

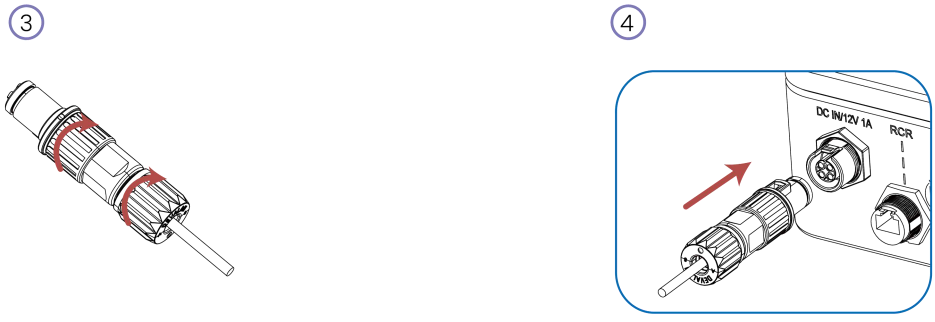


NOTE

Grid-side inflow/outflow current ＞ 80A, use Current Transformer.

Step4 Power Supply





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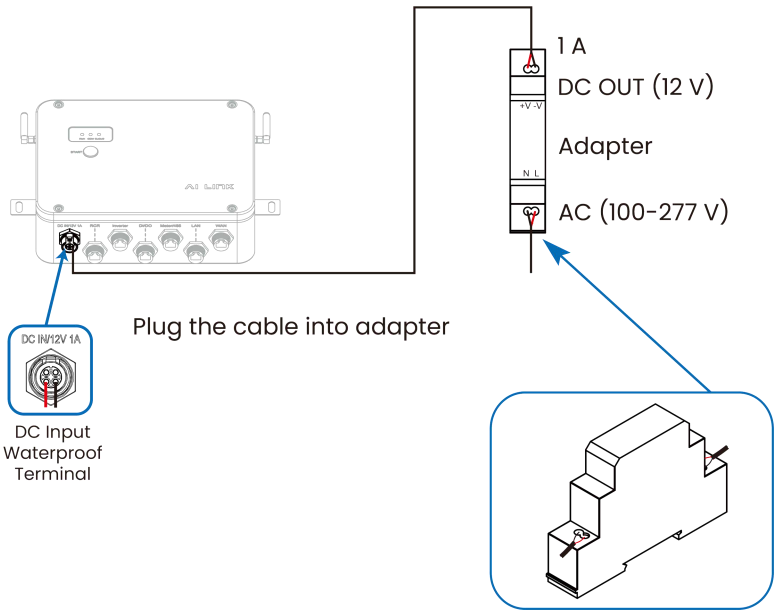
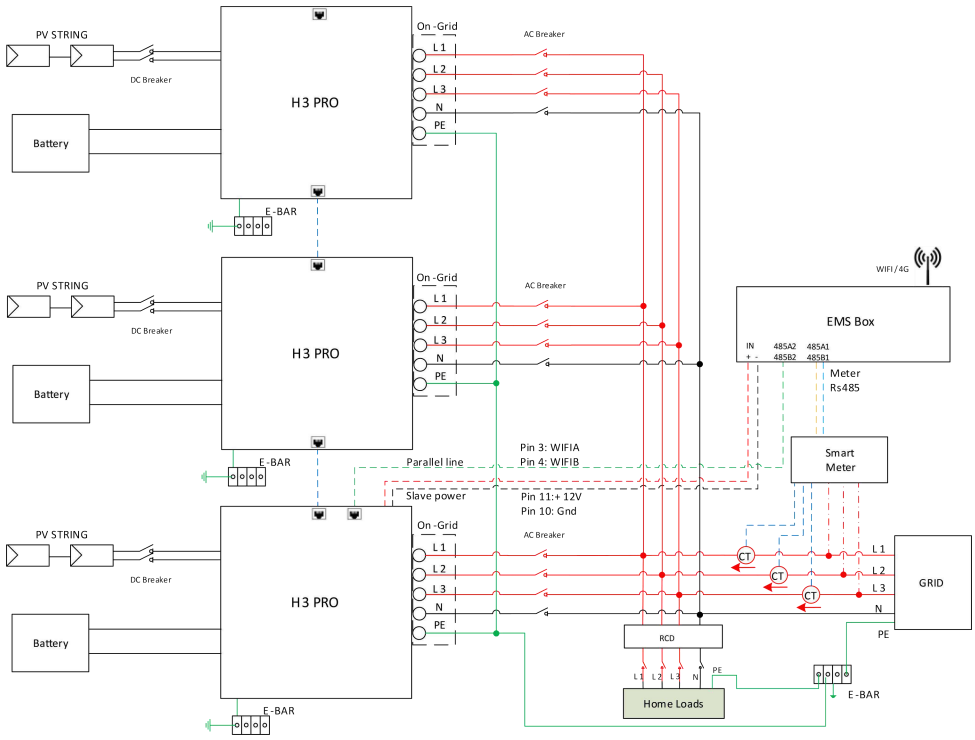
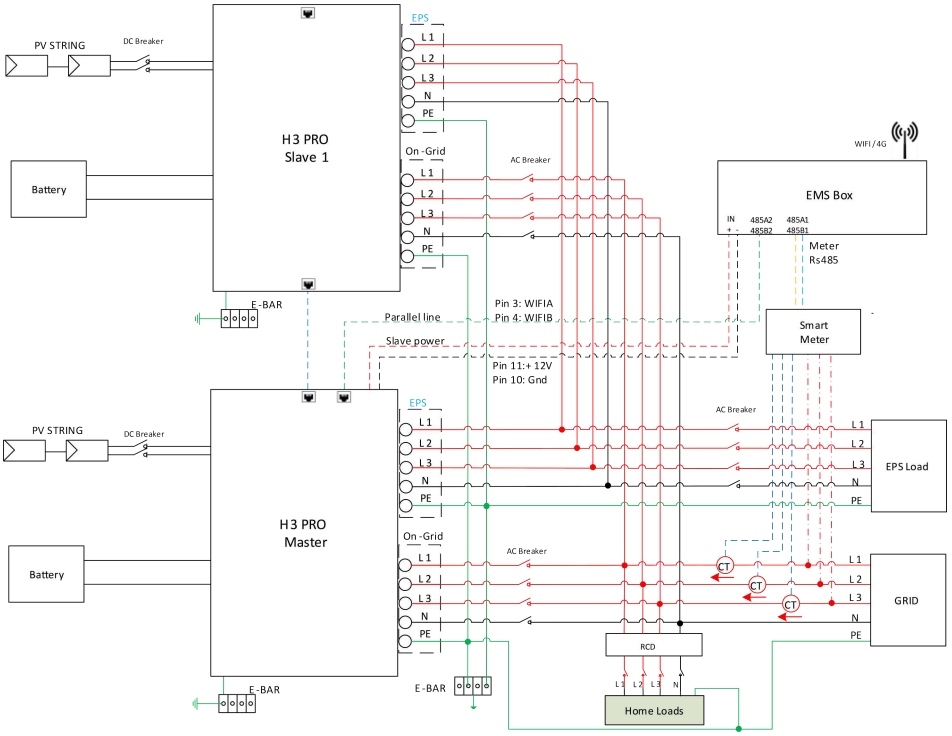


The system diagram is as follows:



pure on grid parallel



On & Off grid parallel

Work Modes in parallel system

There are two work modes in parallel system: On&OffGrid Mode and OnGridOnly Mode, and your acknowledge of different inverter's work modes will help you understand parallel system better, therefore please read it carefully before operating.

On&OffGrid Mode: After connecting all the lines according to the installation instructions, if the master-slave Mode is not set, select one of them to set the "On&OffGrid Mode", this inverter enters master mode.

OnGridOnly Mode: Once one inverter is set as a "On&OffGrid Mode", all other inverters will display "OnGridOnly Mode", then don't have to set anything up, can complete the off-grid parallel.

How to exit from parallel system

If one inverter wants to exit from this parallel system, please follow the steps below:

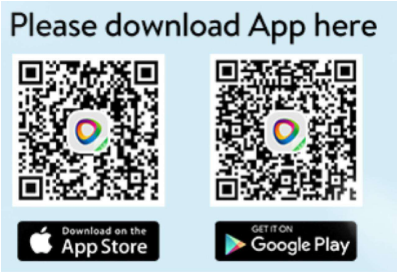
Step1: Disconnect all the network cables on the CAN port.

Step2: Enter setting page and click parallel setting, and choose "OnGridOnly Mode".

Step3: Restart inverter.

3） APP Configuration Reference

Please download the FoxCloud2.0 APP from Apple store or Google store.

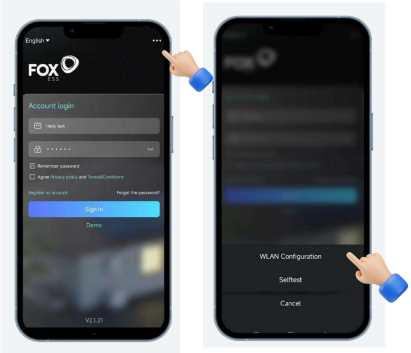


NOTE
Configure only AILink networks, no inverter setup needed.
NOTE
Make sure all communication cables between AI Link and inverters are connected. Make sure all inverters and smart logger are power on.

Step 1 Connect to network

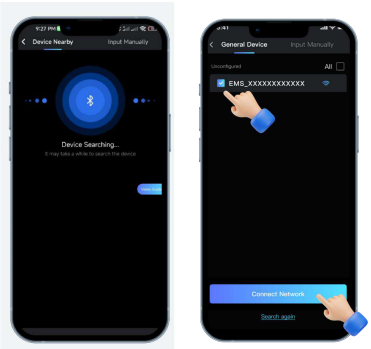
1-1

Open APP, then click three point in the top right corner of login page, and choose”WLAN Configuration”.



1-2

Keep Bluetooth on and wait for device searching. Then choose the device (EMS_XXXXXXXXXX) and click “Connecting Network”.

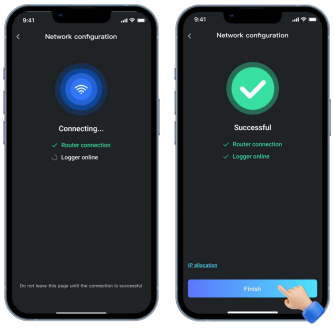


1-3

Choose SSID of home router and enter password, then click “Next”.

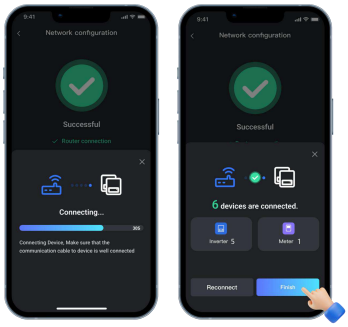
1-4

Wait for about 30s, it will complete the configuration. Then click”Finish”.



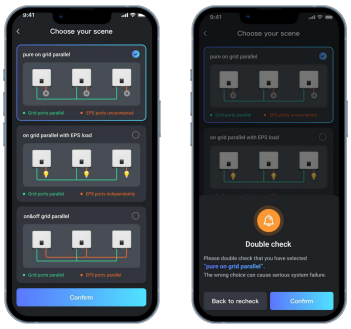
Step 2 Connect to device

Then it twill start communicate with devices automatically. Please wait for 30 seconds. Then click “Finish”. Please check whether the number of devices is consistent with the actual number. If not, please click “Reconnect” or confirm the cable connection is correct.

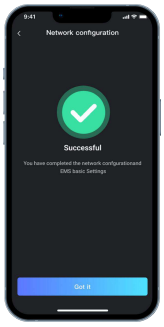


Step 3 Choose your scene

Select a scene based on the onsite cable connection. Then click “Confirm”.

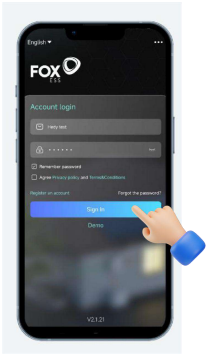


It means the network configuration and settings of AI Link are both successful. Then click “Got it”, it will turn to login page.



Step 4 Sign in

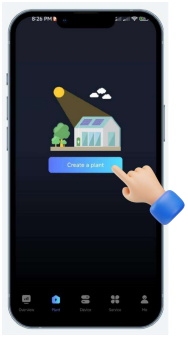
Enter your username and password, and click “sign in”.



Step 5 Create a plant

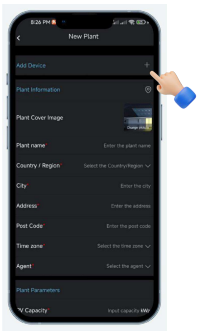
5-1

Click “Create a plant”.



5-2

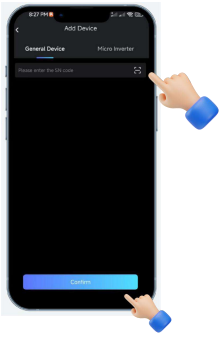
Click “Add Device “



5-3

Scan the SN of EMS logger,

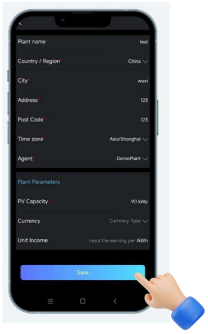
and click “Confirm”.



5-4

Enter the basic information, and click “Save”.

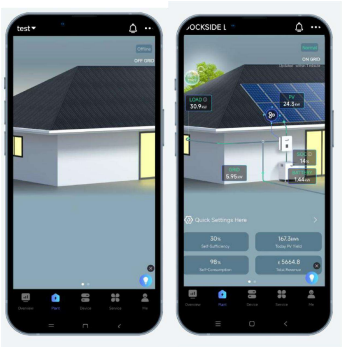
It will turn to homepage.



Step 6 Wait and refresh

It may need to wait for 3-5 minutes to upload inveters data, please be patient.

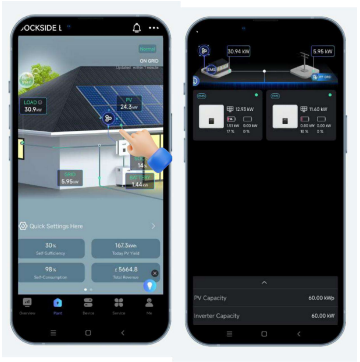
You can swipe to refresh this page.



Step 7 Check device

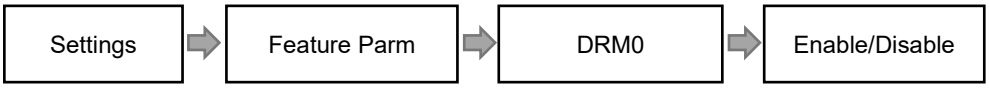
Click the rotating ring to go to the parallel page.

Check if all devices are shown well.

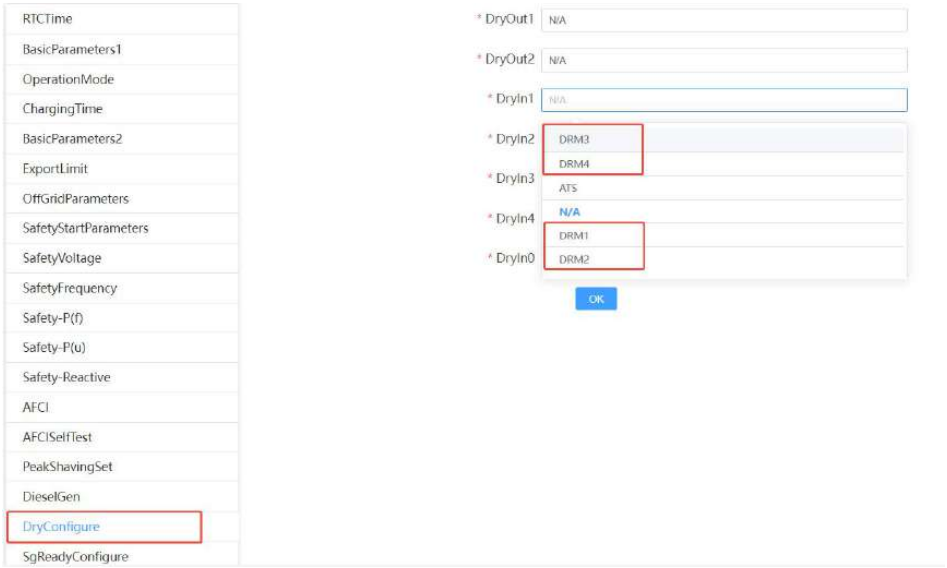


7.2 Drm wiring

DRM0 setting



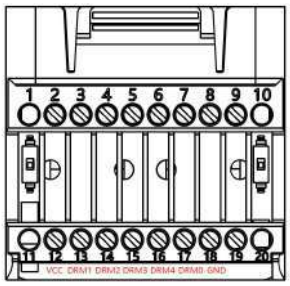
DryConfigure setting: DryConfigure Set the DryIn1 to DRM.



DRM supports several demand response modes by configuring control signals as below.

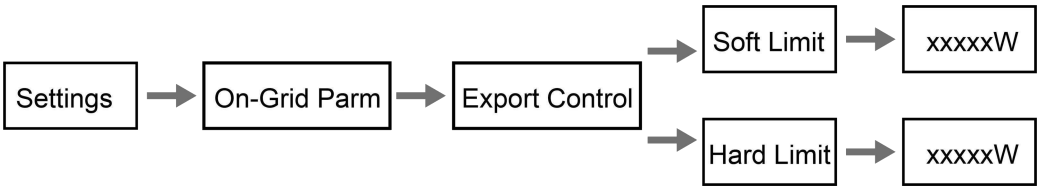
Mode	Asserted by shorting pins		Requirement
DRM0	VCC	DRM0	Operate the disconnection device.
DRM1	DRM1	DRM0	Do not consume power.
DRM2	DRM2	DRM0	Do not consume at more than 50% of rated power.
DRM3	DRM3	DRM0	Do not consume at more than 75% of rated power and source reactive power if capable.
DRM4	DRM4	DRM0	Increase power consumption (subject to constraints from other active DRMs).
DRM5	DRM1	VCC	Do not generate power.
DRM6	DRM2	VCC	Do not generate at more than 50% of rated power.
DRM7	DRM3	VCC	Do not generate at more than 75% of rated power and sink reactive power if capable.
DRM8	DRM4	VCC	Increase power generation (subject to constraints from other active DRMs).

Note: Currently only supports DRM0 function, other functions are under development.



12	13	14	15	16	17	18
VCC	DRM1	DRM2	DRM3	DRM4	DRM0	GND

Export limitation setting:



After enabling Export Control, the inverter will respond to the export power control in real time according to the CT or meter to control the active power export level. By default, the Export Control function is disabled.

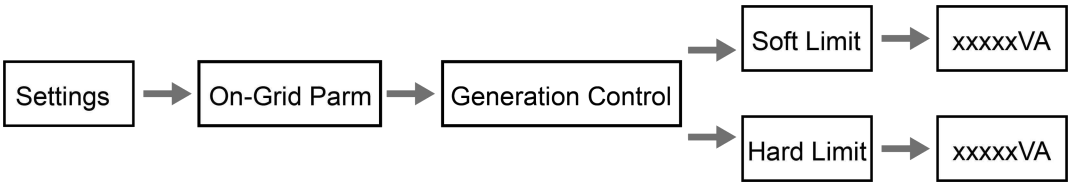
Soft Limit:

The inverter export power is limited to below the set Soft Limit value. If the CT or meter communication is lost, the inverter export power is limited to the set Soft Limit value.

Hard Limit:

After setting the Hard Limit value, if the Soft Limit time requirement is not met or if the CT or meter communication is lost, the inverter will also disconnect from the grid and shut down.

Generation limitation setting:



After enabling the Generation Control, the inverter will response to the generation power control in real time according to the CT or meter to control the apparent power level. By default, the Generation Control function is disabled.

Soft Limit:

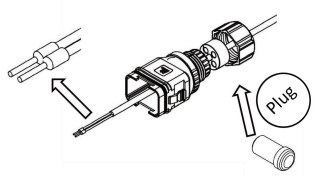
The inverter generation power is limited to the set Soft Limit value. If the CT or meter communication is lost, the inverter export power is limited to the set Soft Limit value.

DRM Connection

1	2	3	4	5
/	/	/	/	/
6	7	8	9	10
/	/	GND COM	E STOP	/
11	12	13	14	15
/	VCC	DRM1	DRM2	DRM3
16	17	18	19	20
DRM4	DRM0	GND COM	/	/

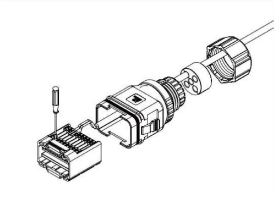
Step 1

Remove the plug inner stopper and thread the wire, as shown in the figure below.



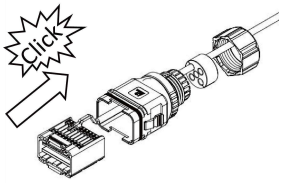
Step 2

Insert the wire into the corresponding terminal and use a flathead screwdriver to press the wire. (tightening torque for the screw: 1.2 ± 0.1 N·m).



Step 3

Arrange the core wires properly; there must be no overlapping of wire bundles in the gel core area. Insert the gel core into the main body with a 'click' sound.

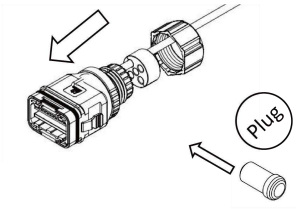


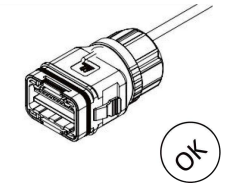
Step 4

Insert the plug into the main body and use a stopper to block the holes without wires.

Step 5

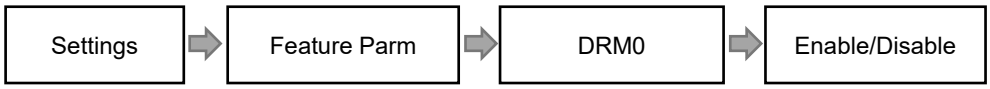
Screw the locking nut onto the main body. (the distance between the nut and the orange release button should be ≤1mm) to complete the installation.



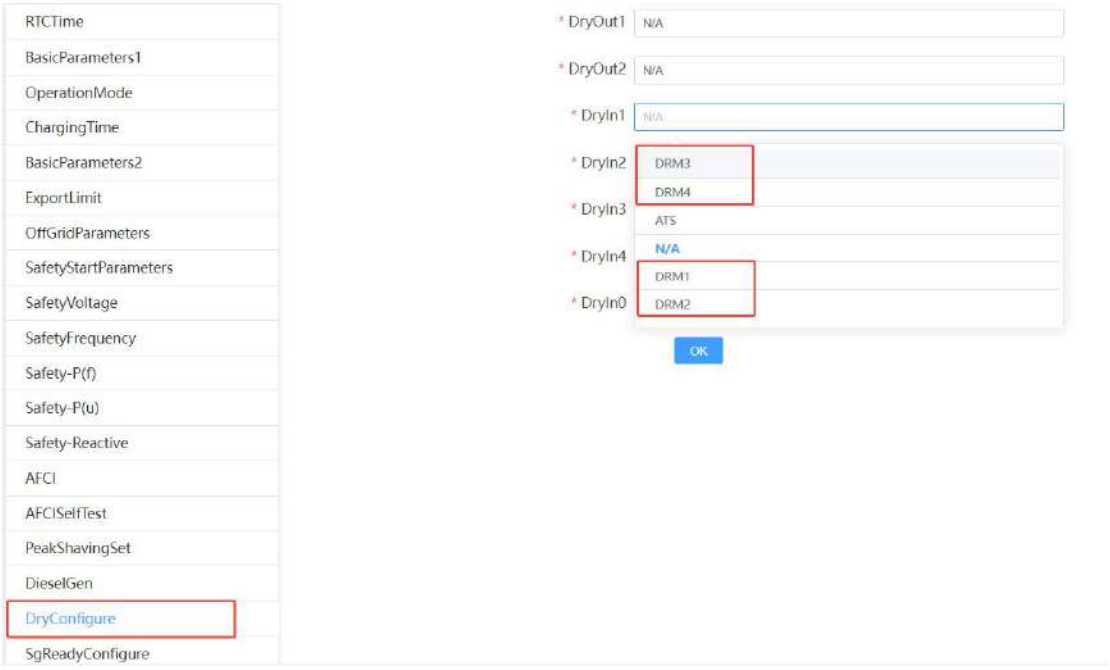


7.3 RCR wiring

DRM0 setting



DryConfigure setting: DryConfigure Set the DryIn1 to DRM, DRM and RCR correspond as follows.



The prerequisite for the use of this function is the selection of the German grid connection regulation VDE 4105 and the use of the RCR function.

The ripple control function is described below:

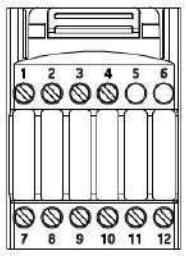
12	13	14	15	16	17	18
VCC	DRM1	DRM2	DRM3	DRM4	DRM0	GND

Mode	Asserted by shorting pins		Output active power
Normal	No contact closed		100%*Pr
Normal	Several contacts closed		100%*Pr
RCR1	DRM1	VCC	60%*Pr
RCR2	DRM2	VCC	30%*Pr
RCR3	DRM3	VCC	0%*Pr
RCR4	DRM4	VCC	Immediate OFF
Power Limit	DRM0	VCC	Max grid charge power limit to 4.2 kW

7.4 SG ready wiring and setting

- **SG Ready**

The Smart Grid Ready is controlled by the dry contact output (PIN1-PIN4) of the inverter.



	Relay-2		Relay-1	
Pin	**1**	**2**	**3**	**4**
Label	DRY_RLY2-	DRY_RLY2+	DRY_RLY1-	DRY_RLY1+
Mode 1	1		0	
Mode 2	0		0	
Mode 3	0		1	
Mode 4	1		1	

Note：0-Relay open，1-Relay closed

Mode 1-Blocked operation (1,0):

The operation for the heat pump is blocked for a maximum of two hours per day.

Mode 2-Normal operation (0,0):

The heat pump runs in energy-efficient normal mode.

Mode 3-Encouraged operation (0,1):

The operation of the heat pump is encouraged to increase electricity consumption for heating and warm water.

Mode 4-Ordered operation (1,1):

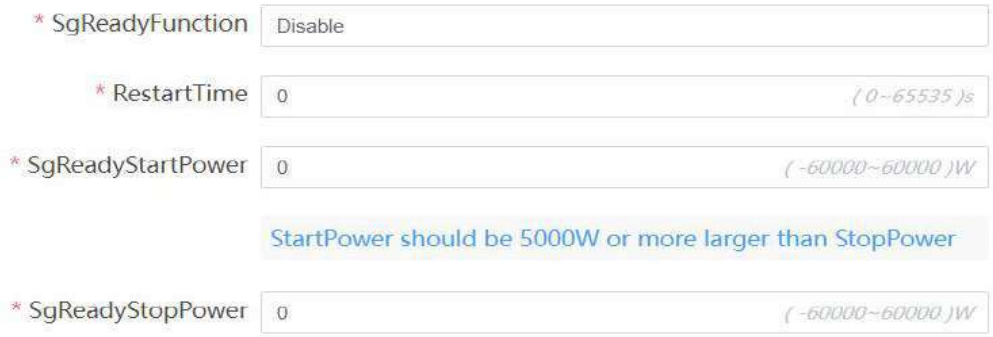
The heat pump is ordered to run, as long as this is possible, within the scope of the control settings.

The controller has 2 control models:

i) The heat pump is switched on.

ii) The heat pump is switched on AND the warm water temperature is raised.

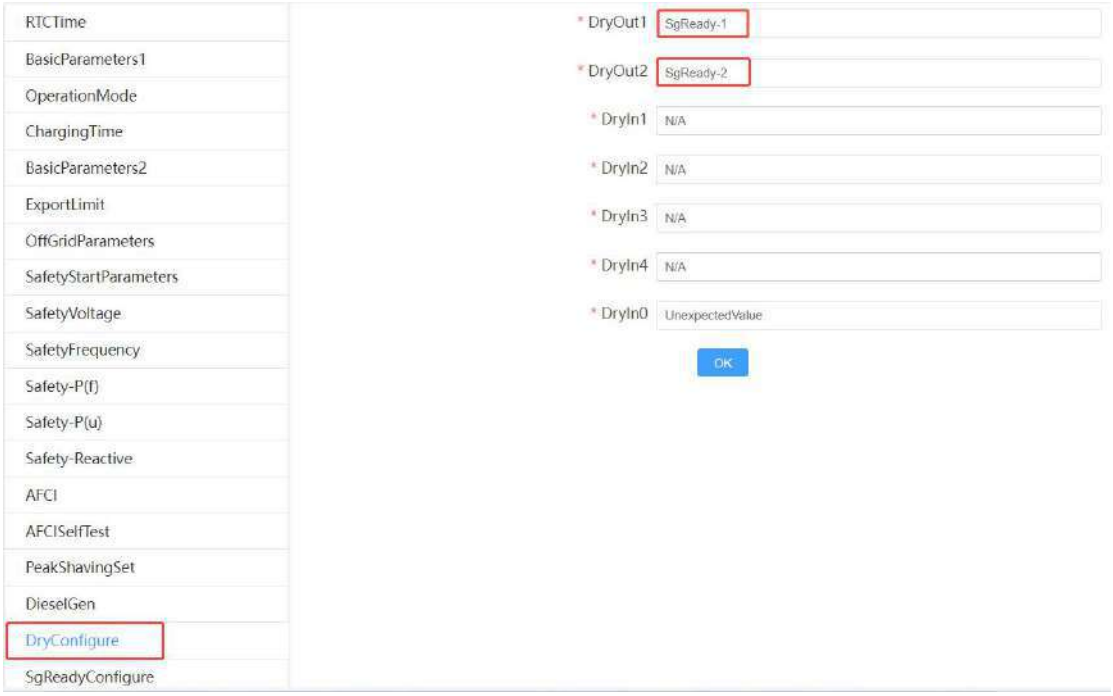
Configure SG ready power management settings



* SgReadyFunction: Disable/Enable sgready function.
* RestartTime: Interval between two launches of sgready.
* SgReadyStartPower: when the feed-in power exceeded the set value, the heat pump starts operation.
* SgReadyStopPower: When the feed-in power is less than the set value, the heat pump stops operation.

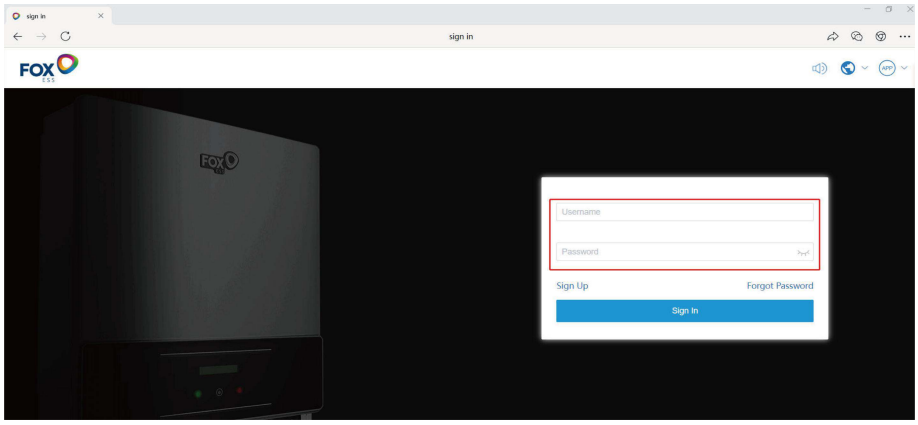
Note: Zero-feed-in system, if the pv-generation achieves a predefined value (Mode3), The heat pump will start automatically.

DryConfigure setting: DryConfigure Set the DryOut1 to SgReady-1, DryOut2 to SgReady-2.

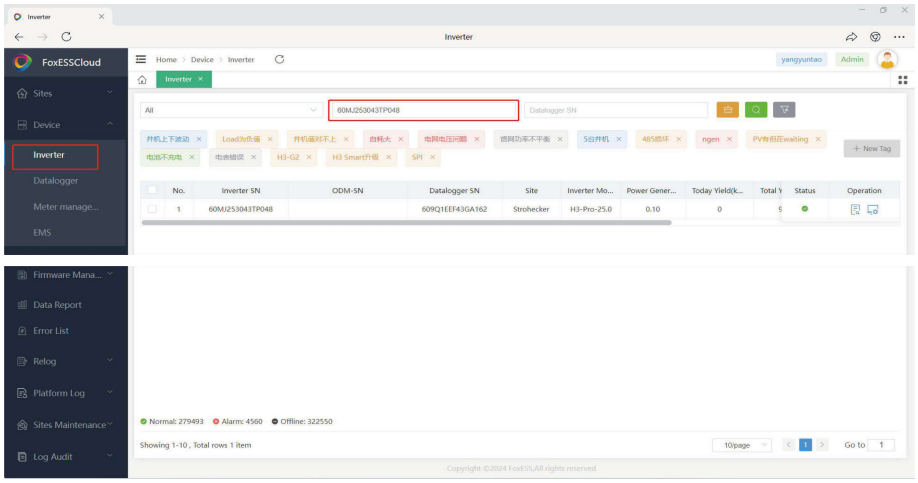


7.5 Reactive Function Setting

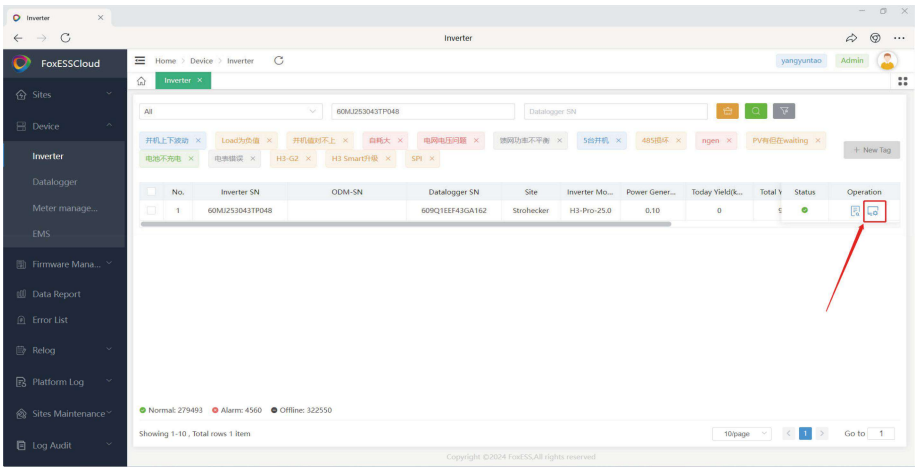
Step1: Login fox Cloud



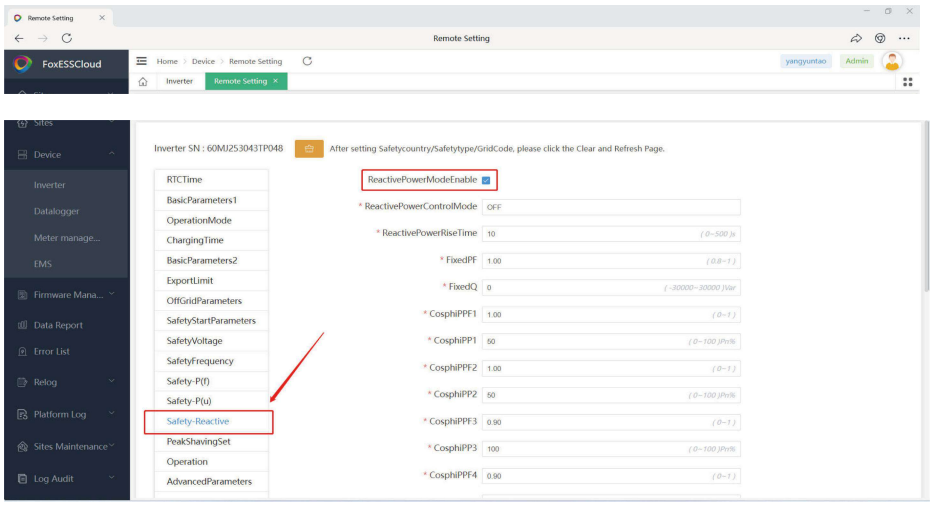
Step2: Enter SN of Inverter



Step3: Click Here



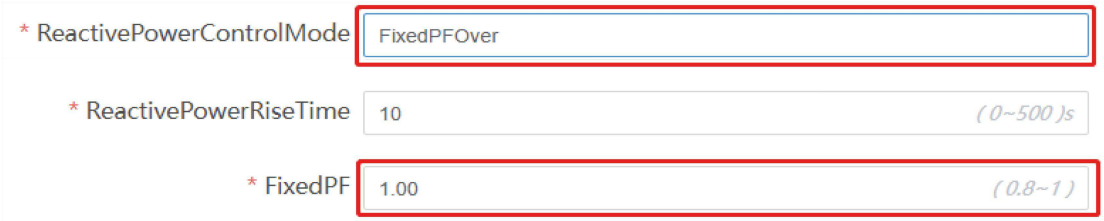
Step4: Click Safety-Reactive, Select the Reactive Power Mode Enable button.



1. Fixed PF Over

If you want set the fix PF over, Find the Reactive PowerControl Mode dropdown menu and select the FixedPFOver option;

Set fixed PF parameters according to your needs, with a default value of 1;



2. Fixed PF Under

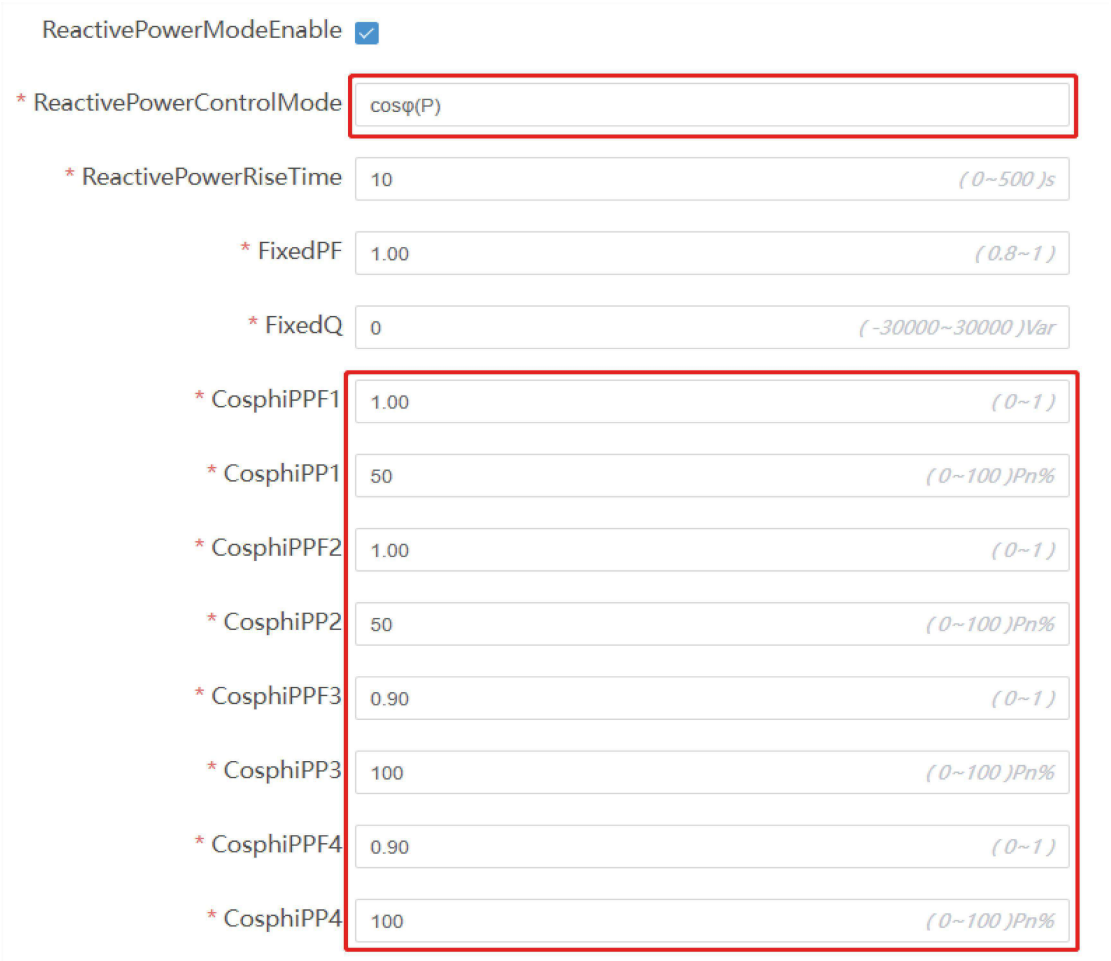
If you want set the fix PF Under, Find the Reactive PowerControl Mode dropdown menu and select the FixedPFUnder option;

Set fixed PF parameters according to your needs, with a default value of 1;

3. P and cosφ function setting

If you want set the P and cosφ, Find the Reactive PowerControl Mode dropdown menu and select the cosφ (P);

You only need to set the following parameters (CosphiPPF1-4,CosphiPP1-4) according to your needs;



4. Fixed Q

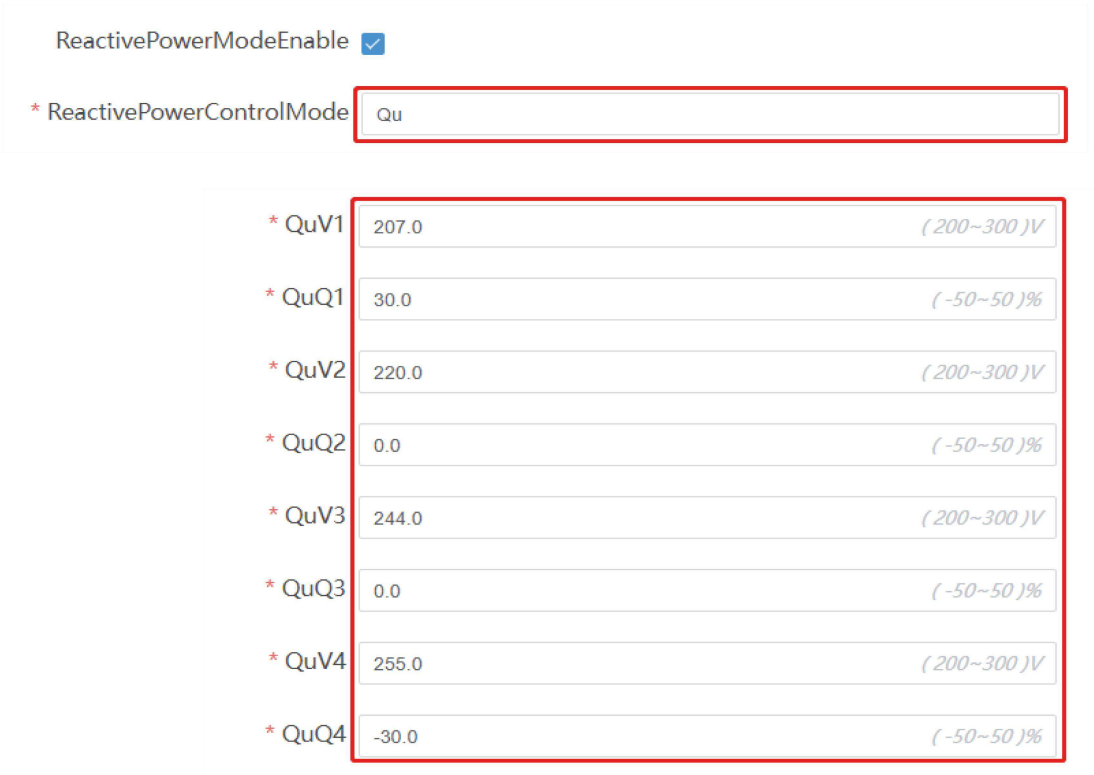
If you want set the fix Q, Find the Reactive PowerControl Mode dropdown menu and select the FixedQ option;

Set fixedQ parameters according to your needs;

5. Q and U function setting

If you want set the Q and U, Find the Reactive PowerControl Mode dropdown menu and select the Qu;

You only need to set the following parameters (QuV1-4,QuQ1-4) according to your needs;

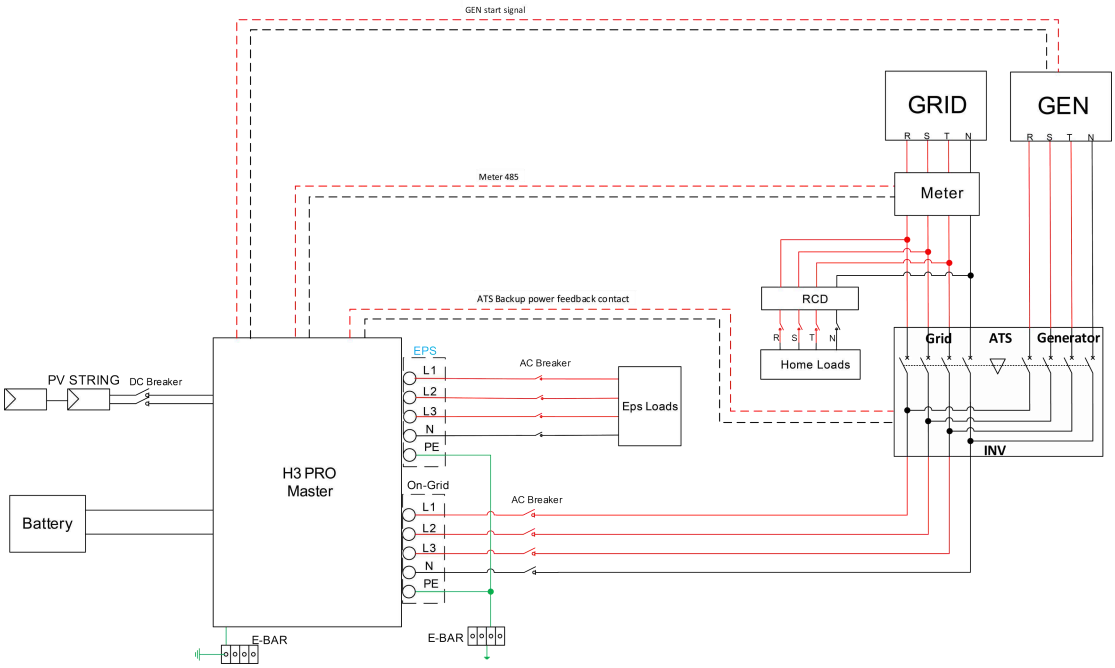


7.6 Dieselgen

H3 PRO inverter, diesel generator with dry contact starting function, ATS backup power supply with normally open contact feedback function.

Single system wiring instrution for dieselgen.

1) Connect the system as shown below:



2) Wiring order：

- Power wiring

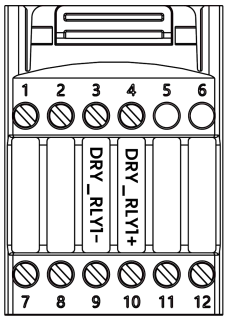
i) Connect the grid to the ATS's normal power port.

ii) Connect the diesel generator output to the ATS's backup power port.

iii) Connect the inverter's grid input to the ATS's output port.

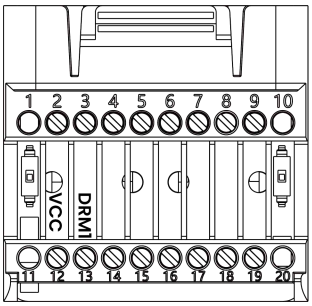
- Signal wiring

i) Connect PIN3: DRY_RLY1- and PIN4: DRY_RLY1+ of the inverter COM signal port to the two ends of the dry contact input that controls the start of the diesel generator.



	Relay-2		Relay-1	
Pin	1	2	3	4
Lable	DRY_RLY2-	DRY_RLY2+	DRY_RLY1-	DRY_RLY1+

ii) Connect the ATS's backup power supply normally open feedback contact to PIN12 VCC and PIN13 DRM1 of COM24 PIN.



12	13	14	15	16	17	18
VCC	DRM1	DRM2	DRM3	DRM4	DRM0	GND

3) Diesel engine mode settings: Setting-Feature-Gen

i) GEN Enable Set the diesel generator to enable.

ii) Start Soc Set the minimum start SOC. If the SOC is lower than this, the diesel generator will start. The default is 20%.

iii) Stop Soc Set the stop SOC. If the SOC is higher than this, the diesel generator will stop. The default is 90%.

iv) Gen Charge Allow the diesel generator to charge the battery at a maximum power. The default is 10kw.

v) Judge Time Set the diesel generator start failure error time. The default is 2min.

vi) Minimum rest time Set the minimum time interval between two diesel generator starts. The default is 10min.

4) DryConfigure setting

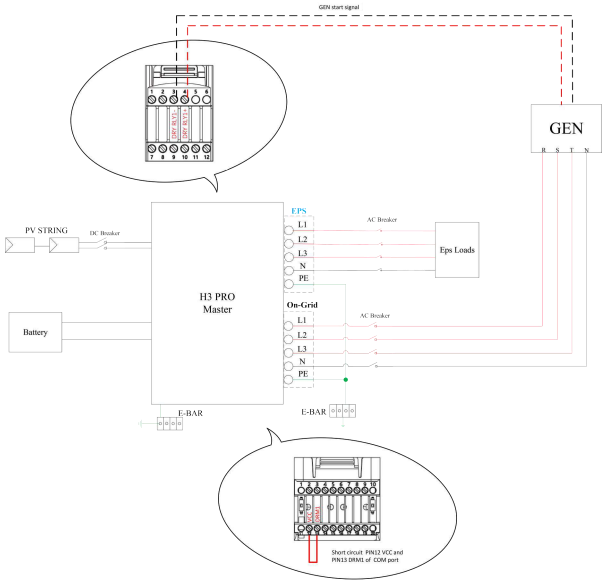
i) DryConfigure Set the DryOut1 to Diesel, DryIn1 to ATS.

ii)When the configuration is correct, the ATS normally open contact closes, and the word G app ears on the screen.

5) Diesel engine mode

Start the inverter normally. The inverter runs normally in diesel generator mode and the screen shows ON Genset.

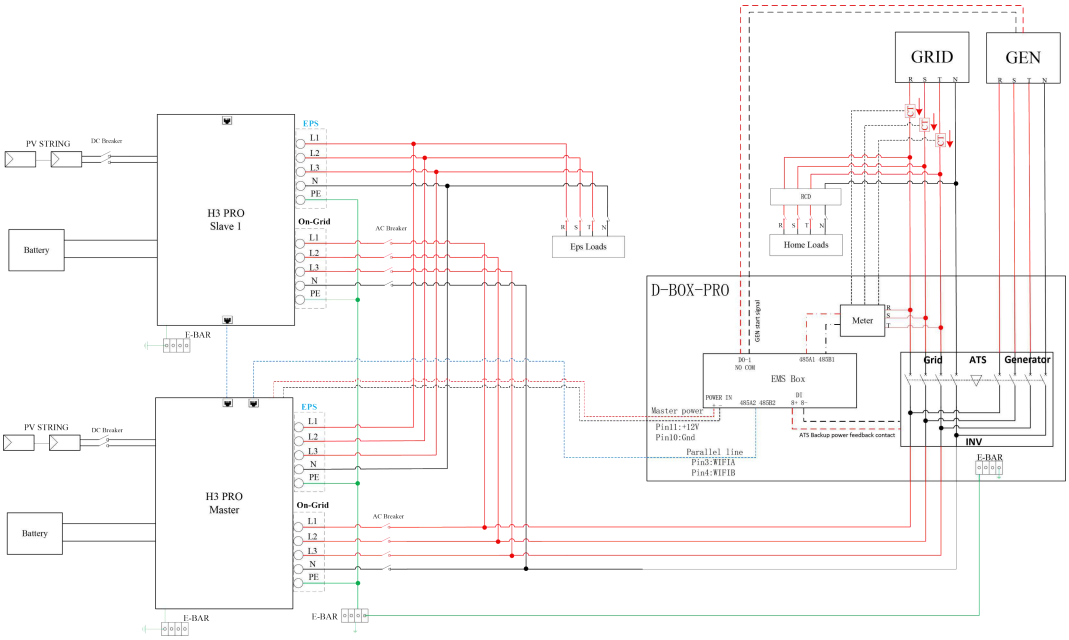
If there is no power grid on site, only diesel generator (without ATS) wiring scheme should be adopted.



No grid, only access to dieselgen (not connected to ATS)

Parallel system wiring instruction for dieselgen:

1) Connect the system as shown below:



2) Wiring order:

- Power wiring

i) Connect the grid to the ATS's normal power port.

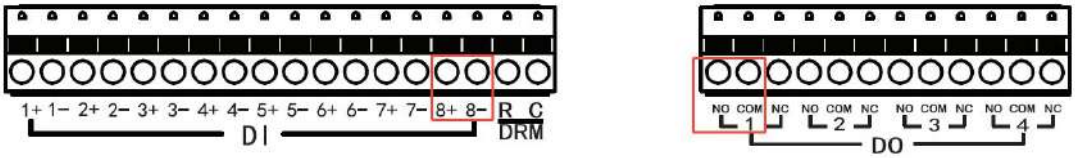
ii) Connect the diesel generator output to the ATS's backup power port.

iii) Connect the inverter's grid input to the ATS's output port.

- Signal wiring

i) Connect the Smartlogger's DO-1 NO and COM to the two ends of dry contact input that controls the start of the diesel generator.

ii) Connect the ATS's backup power supply normally open feedback contact to Smartlogger's DI 8+/8-.



3) Diesel engine mode settings: EMS Configuration-Device Operation-Gen

i) GEN Enable Set the diesel generator to enable.

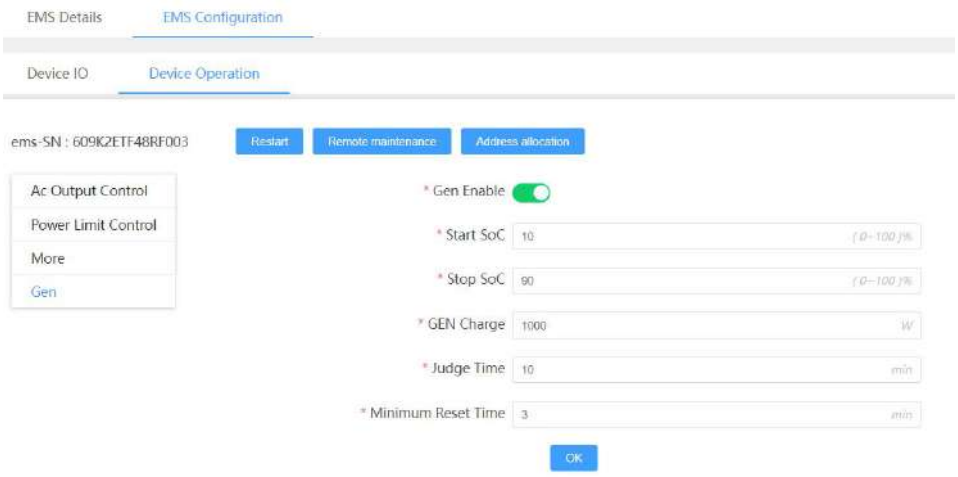
ii) Start Soc Set the minimum start SOC. If the SOC is lower than this, the diesel generator will start. The default is 20%.

iii) Stop Soc Set the stop SOC. If the SOC is higher than this, the diesel generator will stop. The default is 90%.

iv) Gen Charge Allow the diesel generator to charge the battery at a maximum power. The default is 10kw.

v) Judge Time Set the diesel generator start failure error time. The default is 2min.

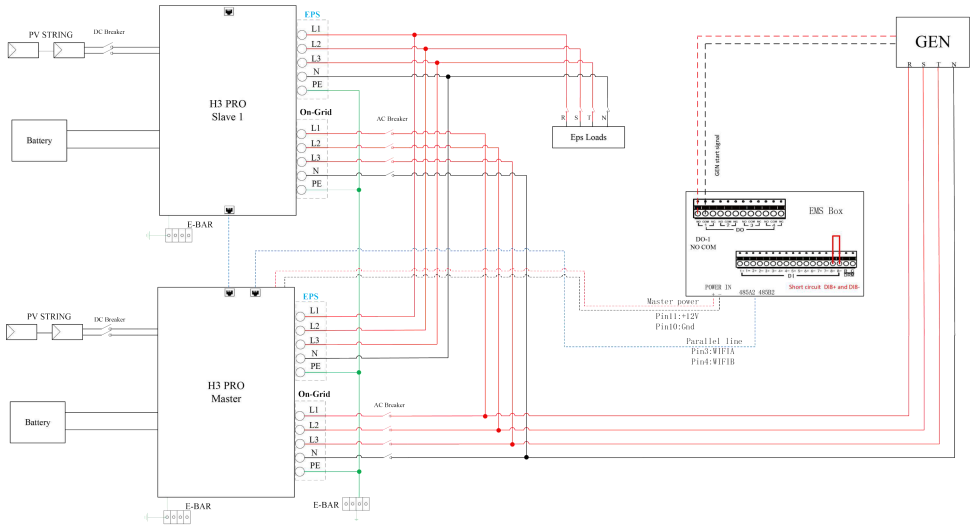
vi) Minimum rest time Set the minimum time interval between two diesel generator starts. The default is 10min.



4) Diesel engine mode

Start the inverter normally. The inverter runs normally in diesel generator mode and the screen shows ON Genset.

If there is no power grid on site, only diesel generator (without ATS) wiring scheme should be adopted.



No grid, only access to dieselgen (not connected to ATS)

For AI-Link: Connect PIN3 and PIN6 of the DI/DO cable to dry contact input terminals that control the start of diesel generator; And short circuit PIN1 and PIN2.

Cable Pin	1	2	3	4	5	6	7	8
DC IN/ 12V 1A	DC IN+	DC IN-						
RCR	1-	1+	2+	3+	4+	5+	4-	5-
Inverter			RS485 -A2	RS485 -B2	RS485- A2		GND	12V
DI/DO	8-	8+	DO1 COM	DO2 NO	DO2 COM	DO1 NO	DO3 COM	DO3 NO
Meter/ 485	RS485- B1	RS485 -A1	RS485 -B3	RS485 -A4	RS485- B4	RS485 -A3		

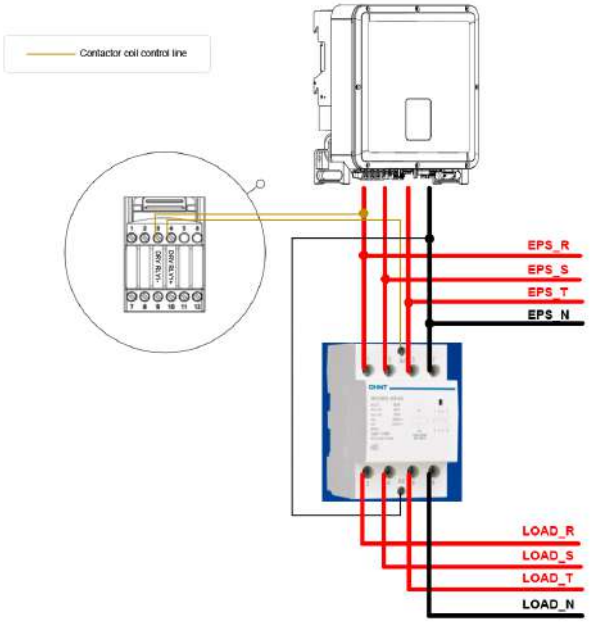
⚠ WARNING

1. The ATS Backup power feedback connect only to the COM port (PIN12/PIN13), which ensure a clean signal back. (free from voltage interference)
2. DO NOT connect to live voltage of high-voltage lines.

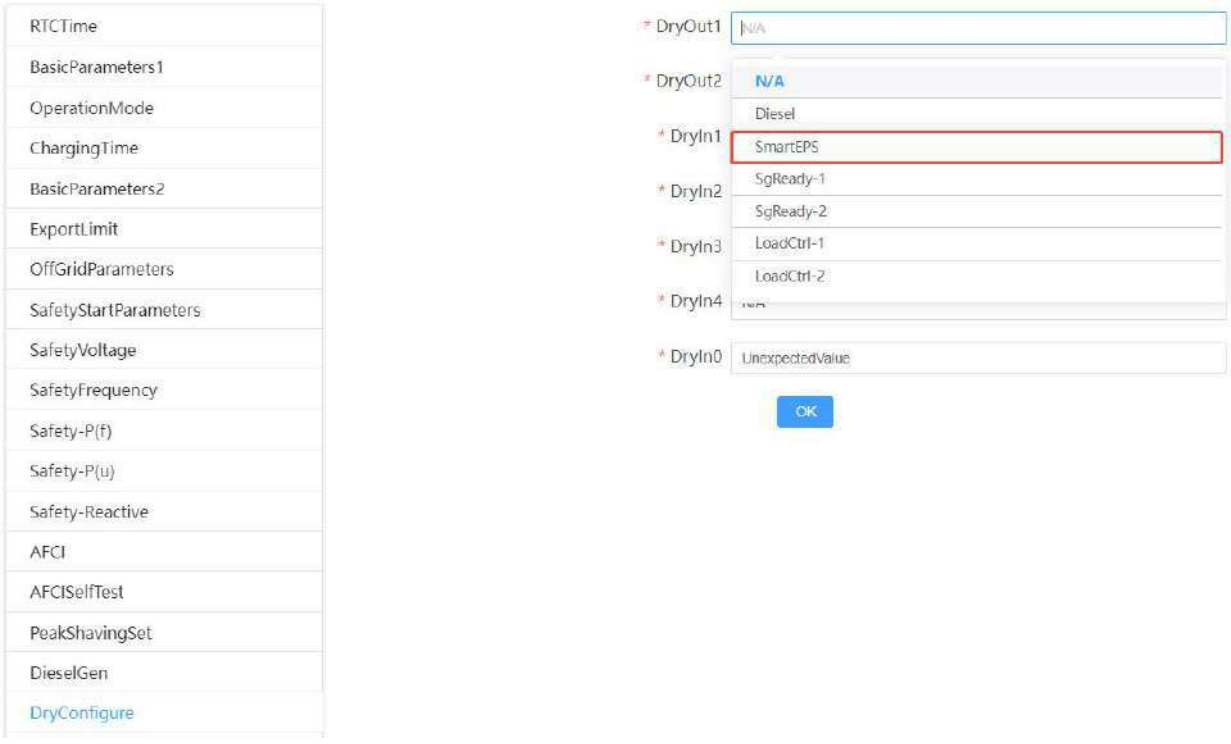
If accidentally connected to a powered signal or high voltage, it may damage the inverter's MCU, resulting in small squares displayed on the screen.

7.7 EPS Wiring

Load switching wiring diagram



DryConfigure setting: DryConfigure Set the DryOut1 to Smart EPS.

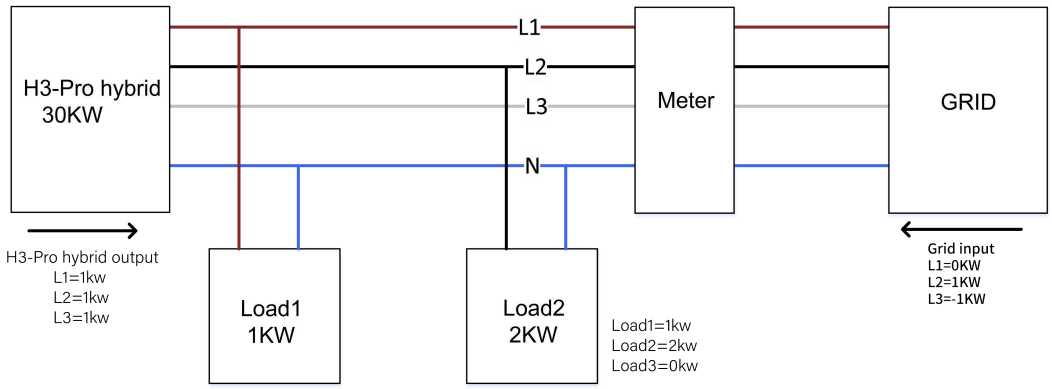


7.8 Unbalanced Load

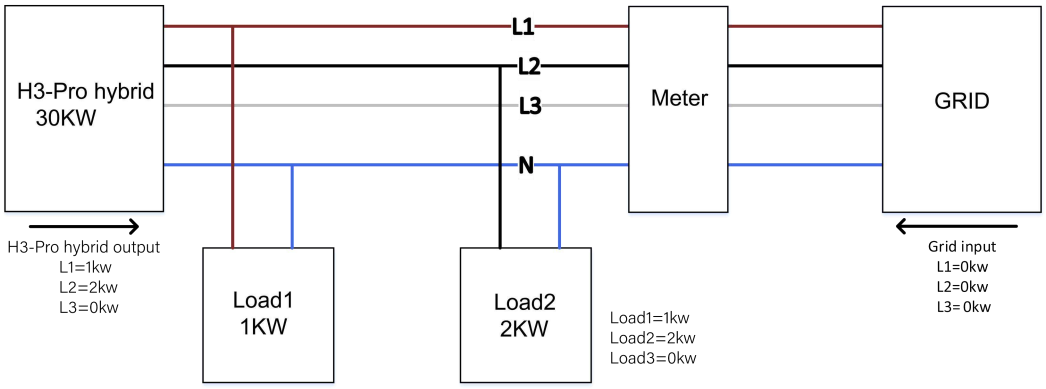
Introduction to the function of unbalanced load:

If the load of each phase in the household load is different, and the power of each phase output by the inverter is the same, there will be one phase output and one phase input. In order to avoid this situation, the unbalanced load can be turned on. The use method is to enable in the balance load interface.
The following is a simple schematic diagram of this function:

Disable balance load



Enable balance load



NOTICE

The maximum capacity of balanced load is 1/3 of the rated power, that is, the maximum output capacity of 30kW machine per phase is 10kW. The same is true for unbalanced load of off-grid function. If the single-phase load exceeds 1/3 of the output capacity under off-grid condition, the machine will report an error.

8. Firmware Upgrading

User can upgrade inverter's firmware via a U-disk.

- **Safety check**

Please ensure the inverter is steadily powered on.

Inverter must keep the battery on through whole procedure of upgrading. Please prepare a PC and make sure the size of U-disk is under 32G, and the format is fat 16 or fat 32.

⚠CAUTION
Caution! Please DO NOT apply USB3.0 U-disk on inverter USB port, the inverter USB port only support for USB2.0 U-disk.

- **Upgrading steps:**

Step 1: Please contact our service support to get the update files, and extract it into your U-disk as follow:

update/master/ H3-Pro_E_Master_Vx.xx.bin

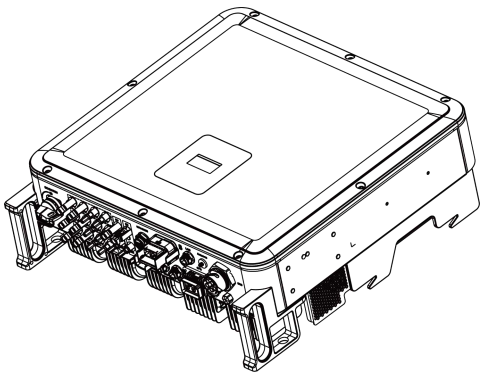
update/slave/ H3-Pro_E_Slave_Vx.xx.bin

update/manager/ H3-Pro_Manager_Vx_xx_E.bin

Note: Vx.xx is version number.

Warning: Make sure the directory is in accordance with above form strictly! Do not modify the program file name, or it may cause the inverter not work anymore!

Step 2: Unscrew the waterproof lid and insert U-disk into the "USB" port at the bottom of the inverter.



Step 3: The LCD will show the selection menu. Then press up and down to select the one that you want to upgrade and press "OK" to confirm to upgrade.

Step 4: After the upgrade is finished, pull out the U-disk. Screw the waterproof lid.

- **local upgrading:**

USB Upgrade Operation Guide(Apply to H3-Pro)

Introduction: The inverter is a high-tech integrated system with a CPU controller, which requires maintenance and upgrade. The upgrade is easy to operate with by end user or installer, upgrade files will be provided by manufacturer, please prepare everything ready before performing this upgrade.

**The same procedure is used for H3-Pro charger.*

Preparations:

1)Prepare one USB 2.0 with memory less than 32G (USB 3.0 incompatibility)

Edit	USB 2.0	USB 3.0
	★★★½☆ (385 ratings)	★★★★☆ (457 ratings)
		
Released	April 2000	November 2008
Speed	High Speed or HS, 480 Mbps (Megabits per second)	10 times faster than USB 2.0. Super Speed or SS, 4.8 Gbps (Giga bits per second)
Signaling Method	Polling mechanism i.e can either send or receive data (Half duplex)	Asynchronous mechanism i.e. can send and receive data simultaneously (Full duplex)

Edit	USB 2.0	USB 3.0
Power Usage	Up to 500 mA	Up to 900 mA. Allows better power efficiency with less power for idle states. Can power more devices from one hub.
Number of wires within the cable	4	9
Standard-A Connectors	Grey in color	Blue in color
Standard-B Connectors	Smaller in size	Extra space for more wires

2) Install the USB disk on your laptop, open it and create a folder named‘update’

3) Create another three separate subfolders named ‘manager’ ‘master’ ‘slave’under ‘update’ folder.

4) Put the upgrade file into corresponding folder as shownbelow

* Formate fo the file name: Model_Firmware type_Vx_xx

File names example:

U:\update\master\H3-Pro_Master_Vx_xx

U:\update\slave\H3-Pro_Slave_Vx_xx

U:\update\manager\H3-Pro_Manager_Vx_xx

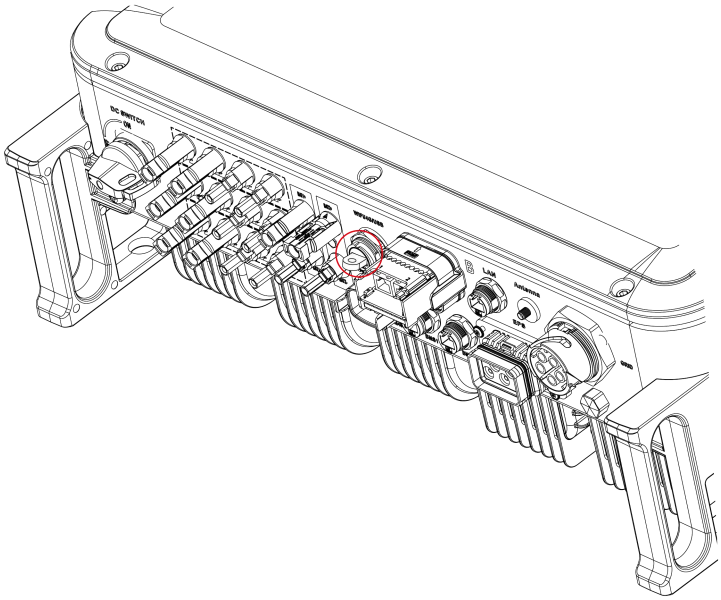
5) Prepare a slotted screwdriver for removing the upgrade portcover.

Upgrade procedure:

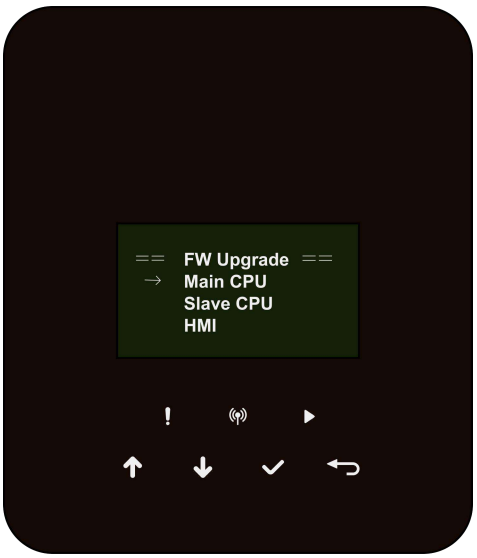
1. Turn off AC breaker(main circuit breaker)firstly then turn off DC breaker, make sure the inverter is powered off.

2. Remove the upgrade port cover with a screwdriver.

3. Plug in the USB disk.

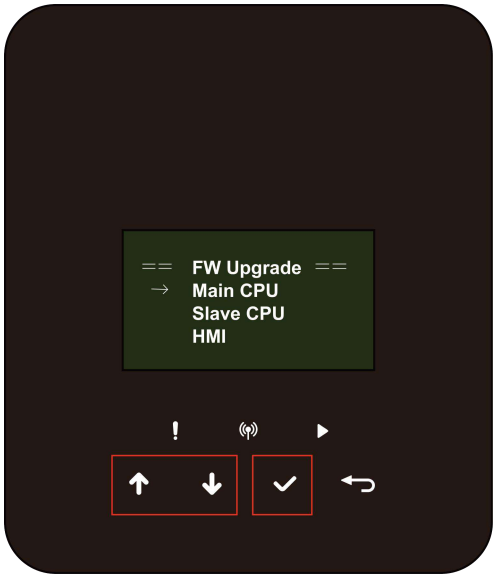


4.Only turn on DC breaker (**make sure PV voltage is above 120V**) wait for 10 seconds, the inverter screen will show as below:



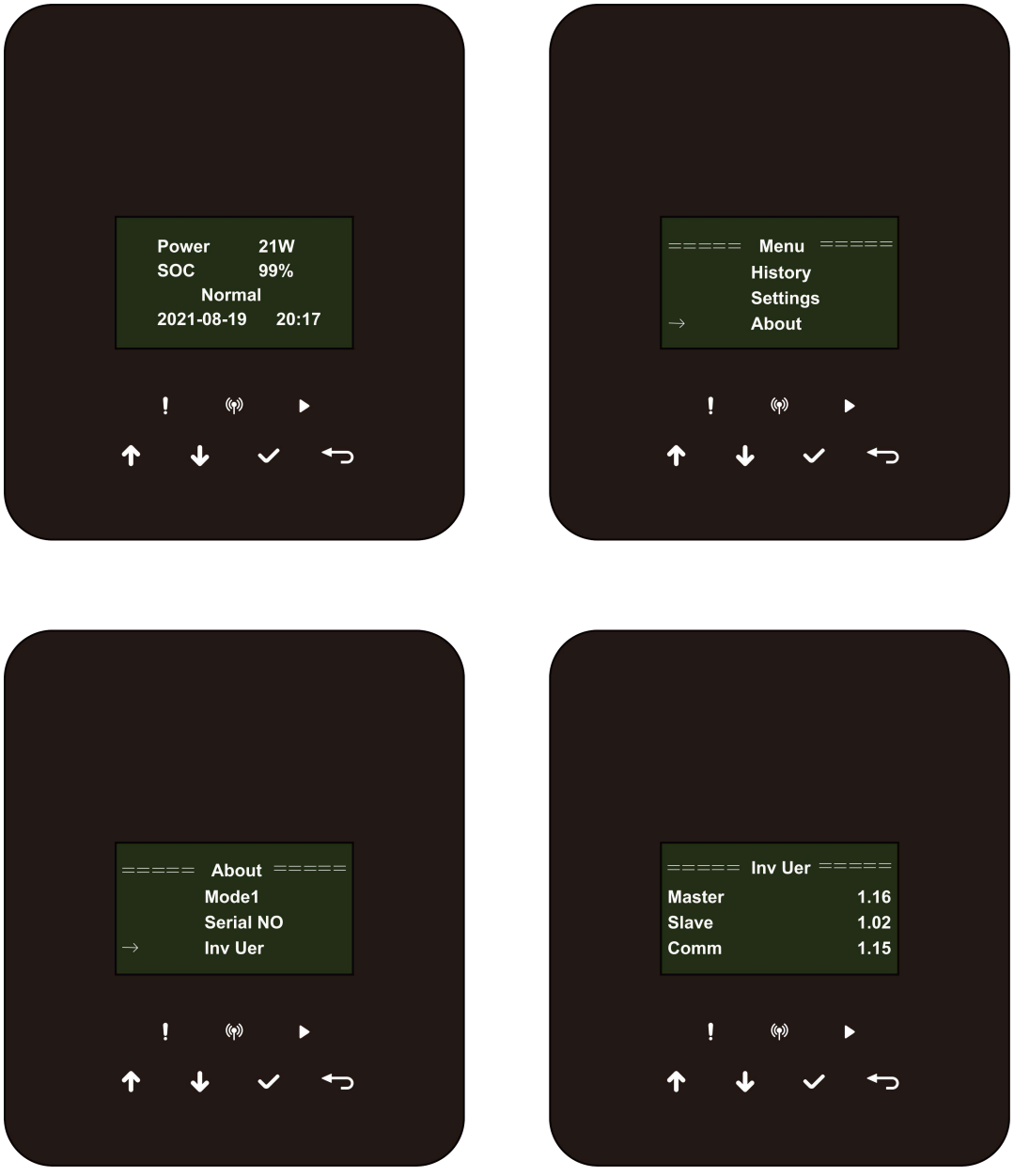
5. If you want to upgrade the inverter firmware, click “up” or “down” to choose the targeted firmware, then click “enter” to start the upgrade. The upgrade will proceedlike .
below:

NOTE: Main CPU is “master”, Slave CPU is “slave”, HMI is “manager”.



6. Remove the USB disk after upgrade completed. Follow the procedure blew and click the option to view the version:

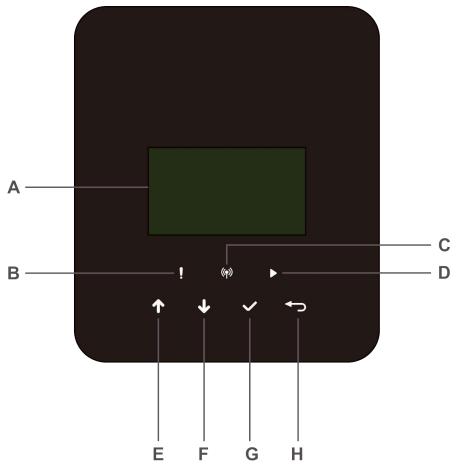
Menu -> About -> Inv Ver



7. Turn on AC &DC breaker. If you updated the HMI, long press the “enter” and click “set” to turn on the inverter. Make sure the inverter can enter **Normal State**.

9. Operation

9.1 Control Panel



Object	Name	Function
A	LCD screen	Display the information of the inverter.
B	Indicator LED	Red: The inverter is in fault mode.
C		Blue: Light off- No network connection. Blink- connect to the internet. Light on- connection successful.
D		Green: The inverter is in normal state.
E	Function button	Up button: Move cursor to upside or increase value.
F		Down button: Move cursor to downside or decrease value.
G		OK button: Confirm the selection.
H		Return button: Return the previous operation.

Earth Fault

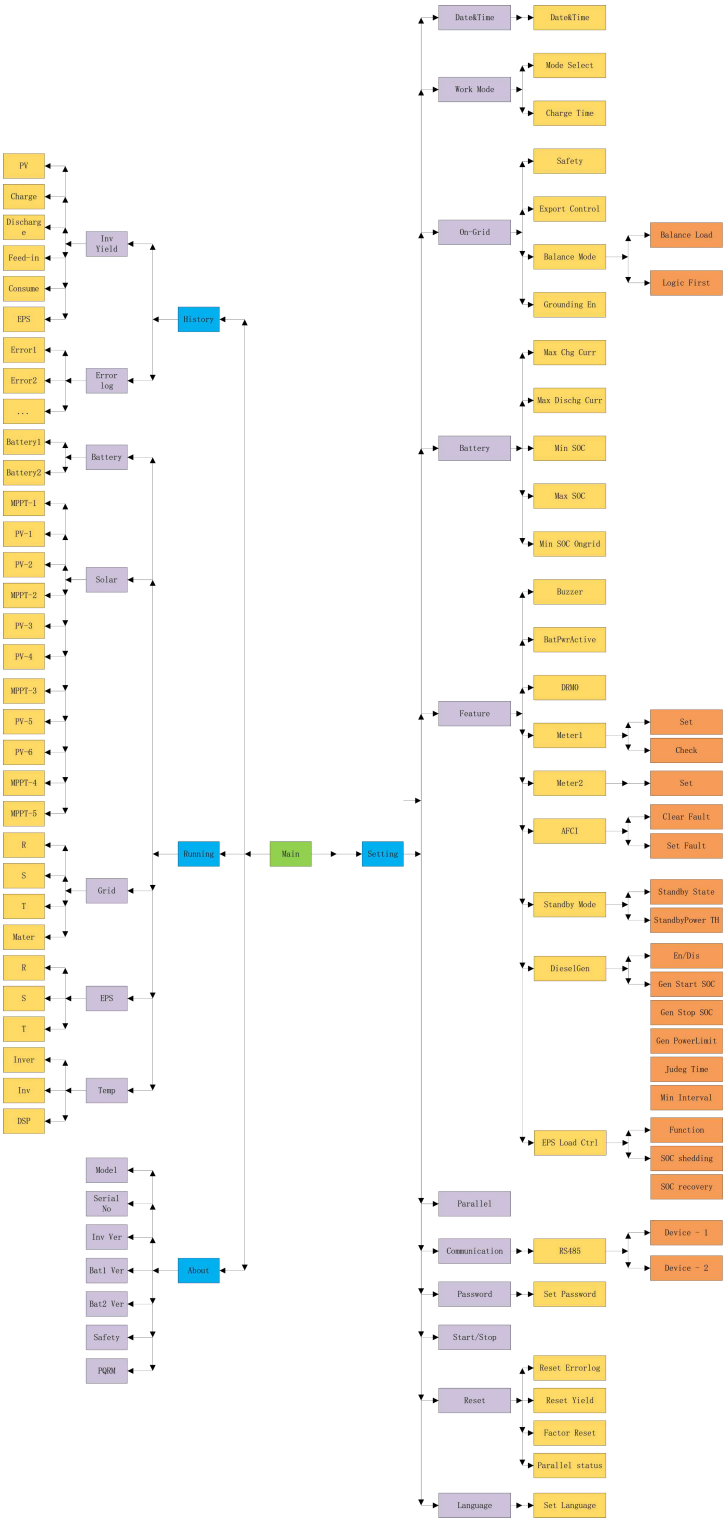
The inverter complies with the grounding fault alarm monitoring requirements of IEC 62109-2, Section 13.9. In the event of a grounding fault alarm, the inverter screen will display the fault code "Isolation Fault," and the red LED indicator will light up. Additionally, a notification will be received in the application. Meanwhile, the entire system will be powered off.

The specific phenomenon is:

1. LCD screen displays 'Earth fault'.
2. Reports 'Earth fault' on the web page.
3. APP will send a warming information of Earth fault.

Note:If a ground fault alarm occurs, contact the installer immediately. Do not attempt to operate or touch the product until the fault is fully cleared.

9.2 Function Tree



The function tree is constantly updated and is actually based on the screen display.

Note: The initial selection of safety regulations does not require a password. Subsequent updates to safety regulations require a password, but querying safety regulations and PQRM parameters does not require a password.

10. Maintenance

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

10.1 Alarm List

Fault Code	Solution
Grid Lost Fault	Grid is lost. • System will reconnect if the utility is back to normal. • Or seek help from us, if not go back to normal state.
Grid Volt Fault	Grid voltage out of range. • System will reconnect if the utility is back to normal. • Or seek help from us, if not go back to normal state.
Grid Freq Fault	Grid frequency out of range. • System will reconnect if the utility is back to normal. • Or seek help from us, if not go back to normal state.
PLL_ OverTime	Three-phase system access single-phase AC. • System will reconnect if the utility is back to normal. • Or seek help from us, if not go back to normal state.
10min Volt Fault	The grid voltage is out of range for the last 10 Minutes. • System will reconnect if the utility is back to normal. • Or seek help from us, if not go back to normal state.
SW Inv Cur Fault	Output current high detected by software. To upgrade to the latest software, at least ensure that the master is upgraded to 1.69 or above. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
DCI Fault	DC component is out of limit in output current. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
HW Inv Cur Fault	Output current high detected by hardware. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
SW Bus Vol Fault	Bus voltage out of range detected by software. Please check whether the N line is connected to the GRID port of the inverter. To upgrade to the latest software, at least ensure that the master is upgraded to 1.69 or above. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
Bat Volt Fault	Battery voltage fault. • Check if the battery input voltage is within the normal range. • Or seek help from us.

SW Bat Cur Fault	Battery current high detected by software. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
Iso Fault	The isolation is failed. • Please check if the insulation of electric wires is damaged. • Wait for a while to check if back to normal. • Or seek for help from us.
Res Cur Fault	The residual current is high. • Please check if the insulation of electric wires is damaged. • Wait for a while to check if back to normal. • Or seek for help from us.
Pv Volt Fault	PV voltage out of range. • Please check the output voltage of PV panels. • Or seek for help from us.
SW Pv Cur Fault	PV input current high detected by software. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
Temp Fault	The inverter temperature is high. • Please check if the environment temperature. • Wait for a while to check if back to normal. • Or seek for help from us.
Ground Fault	The ground connection is failed. • Check the voltage of neutral and PE. • Check AC wiring. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
Over Load Fault	Over load in on grid mode. • Please check if the load power exceeds the limit. • Or seek for help from us.
Eps Over Load	Over load in off grid mode. • Please check if the eps load power exceeds the limit. • Or seek for help from us.
Bat Power Low	The battery power is low. • Wait the battery to be recharged. • Or seek for help from us.
HW Bus Vol Fault	Bus voltage out of range detected by hardware. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
HW Pv Cur Fault	PV input current high detected by hardware. Check whether PV positive and negative are connected. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.

HW Bat Cur Fault	Battery current high detected by hardware. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
SCI Fault	The communication between master and manager is fail. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
MDSP SPI Fault	The communication between master and slave is fail. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
MDSP Smpl Fault	The master sample detection circuit is failed. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
Res Cur HW Fault	Residual current detection device is failed. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
Inv EEPROM Fault	The inverter eeprom is fault. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
PvCon Dir Fault	The PV connection is reversed. • Check if the positive pole and negative pole of PV are correctly connected. • Or seek help from us.
Bat Relay Open	The battery relay keeps open. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
Bat Relay Short Circuit	The battery relay keeps close. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
Bat Buck Fault	The battery buck circuit mosfet is fail. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
Bat Boost Fault	The battery boost circuit mosfet is fail or The relay on the battery side of the inverter is not closed. To upgrade to the latest software, at least ensure that the master is upgraded to 1.69 or above. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
Eps Relay Fault	The eps relay is failed. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
BatCon Dir Fault	The battery connection is reversed. • Check if the positive pole and negative pole of battery are correctly connected. • Or seek help from us.

Grid Relay Fault	The grid relay keeps open or close. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
RDSP SPI Fault	The communication between master and slave is fail. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
RDSP Smpl Fault	The slave sample detection circuit is failed. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
ARM EEPROM Fault	The manager eeprom is fault. • Disconnect PV, grid and battery, then reconnect. • Or seek help from us, if not go back to normal state.
Meter Lost Fault	The communication between meter and inverter is interrupted. • Check if the communication cable between meter and inverter is correctly and well connected.
BMS Lost	The communication between BMS and inverter is interrupted. • Check if the communication cable between BMS and inverter is correctly and well connected.
Bms Ext Fault	The communication between BMS and inverter is interrupted. • Check if the communication cable between BMS and inverter is correctly and well connected.
Bms Int Fault	DIP switch at the wrong position; The communication between battery packs is interrupted. • Move the DIP switch to the correct position; • Check if the communication cable between battery packs is correctly and well connected.
Bms Volt High	Battery over voltage. • Please contact battery supplier.
Bms Volt Low	Battery under voltage. • Please contact battery supplier.
Bms ChgCur High	Battery charge over current. • Please contact battery supplier.
Bms DchgCur High	Battery discharge over current. • Please contact battery supplier.
Bms Temp High	Battery over temperature. • Please contact battery supplier.
Bms Temp Low	Battery under temperature. • Please contact battery supplier.

BmsCellImbalance	The capacities of cells are different. • Please contact battery supplier.
Bms HW Protect	Battery hardware under protection. • Please contact battery supplier.
BmsCircuit Fault	Bms hardware circuit fault. • Please contact battery supplier.
Bms Insul Fault	Battery insulation fault. • Please contact battery supplier.
BmsVoltsSen Fault	Battery voltage sensor fault. • Please contact battery supplier.
BmsTempSen Fault	Battery temperature sensor fault. • Please contact battery supplier.
BmsCurSen Fault	Battery current sensor fault. • Please contact battery supplier.
Bms Relay Fault	Battery relay fault. • Please contact battery supplier.
Bms Type Unmatch	The capacity of battery packs is different. • Please contact battery supplier.
Bms Ver Unmatch	The software between slaves are different. • Please contact battery supplier.
Bms Mfg Unmatch	The cell manufacture is different. • Please contact battery supplier.
Bms SwHw Unmatch	The slave software and hardware are not match. • Please contact battery supplier.
Bms M&S Unmatch	The software between Master and Slave are not match. • Please contact battery supplier.
Bms ChgReq NoAck	No action for charging request. • Please contact battery supplier.

10.2 Troubleshooting and Routine Maintenance

- Troubleshooting

a. Please check the fault message on the System Control Panel or the fault code on the inverter information panel. If a message is displayed, record it before doing anything further.

b. Attempt the solution indicated in table above.

c. If your inverter information panel is not displaying a fault light, check the following to make sure that the current state of the installation allows for proper operation of the unit:

(1) Is the inverter located in a clean, dry, adequately ventilated place?

(2) Have the DC input breakers opened?

(3) Are the cables adequately sized?

(4) Are the input and output connections and wiring in good condition?

(5) Are the configurations settings correct for your particular installation?

(6) Are the display panel and the communications cable properly connected and undamaged?

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

- Safety check

A safety check should be performed at least every 12 months by a qualified technician who has adequate training, knowledge and practical experience to perform these tests. The data should be recorded in an equipment log. If the device is not functioning properly or fails any of the tests, the device has to be repaired. For safety check details, refer to section 2 of this manual.

- Maintenance checking list

During the process of using the inverter, the responsible person shall examine and maintain the machine regularly. The required actions are as follows.

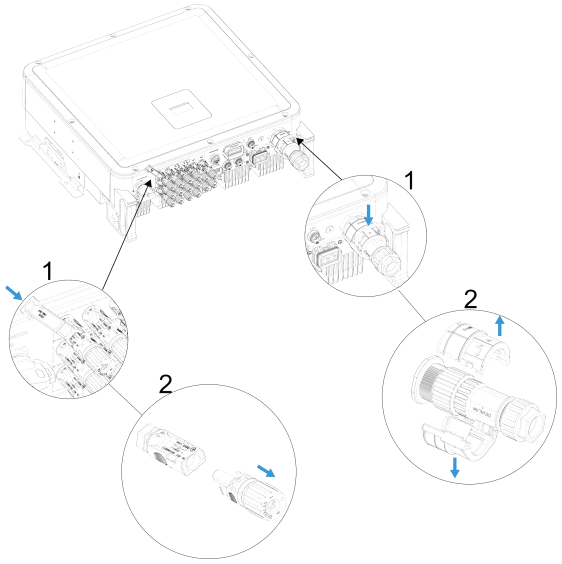
- Check that if the cooling fins at the rear of the inverters are collecting dust/dirt, and the machine should be cleaned when necessary. This work should be conducted periodically.
- Check that if the indicators of the inverter are in normal state, check if the display of the inverter is normal. These checks should be performed at least every 12 months.
- Check if the input and output wires are damaged or aged. This check should be performed at least every 12 months.
- Get the inverter panels cleaned and their security checked at least every 6 months.

Note: Only qualified individuals may perform the following works.

11. Decommissioning

11.1 Dismantling the Inverter

1. Press and hold the "√" button on the top of the screen and select "stop" to stop the machine.
2. Rotate DC SWITCH to the off state.
3. Turn off the buttons and control switches on the battery.
4. Turn off all external AC breakers.
5. Disconnect the AC and eps connectors.
6. Wait for the screen on top of the machine to go off.
7. Wait for 5 minutes, this is to ensure that the capacitors inside the machine discharge.
8. Use a current clamp to make sure there is no current on the DC line.
9. Using the tool on the DC terminal, press the two snaps on the DC terminal and pull it outward with force at the same time.
10. Make sure there is no PV positive terminal and no voltage above the PV negative terminal, use a multimeter to measure.
11. Also use a multimeter to measure the PV positive and PV negative terminals to the PE line above the voltage no voltage.
12. Use a tool to disconnect the AC terminal and the terminal for communication.



11.2 Packaging

If possible, please pack the inverter with the original packaging. If it is no longer available, you can also use an equivalent box that meets the following requirements.

- Suitable for loads more than 30 kg.
- Contains a handle.
- Can be fully closed.

11.3 Storage and Transportation

Store the inverter in dry place where ambient temperatures are always between -40°C - + 70°C. Take care of the inverter during the storage and transportation; keep less than 4 cartons in one stack. When the inverter or other related components need to be disposed of, please ensure it is carried out according to local waste handling regulations. Please be sure to deliver any inverter that needs to be disposed from sites that are appropriate for the disposal in accordance with local regulations.

If you have any questions, please contact your local after-sales service or send an email to: service@fox-ess.com

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