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CHINT POWER

Three-phase On-Grid PV String Inverter

SCA100K-T-EU;SCA120K-T-EU;SCA125K-T-EU;

Quick Installation Guide

Version: 1.0 Date: July 2024 Doc. No.: 9.0020.0907A0

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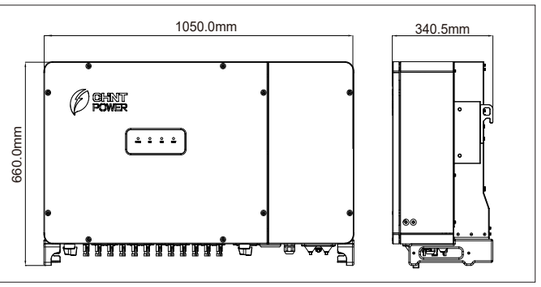
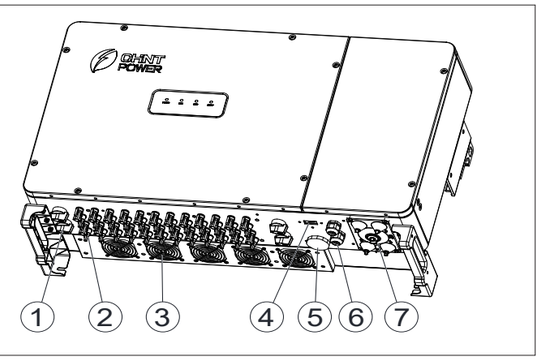
1. Product Dimensions and Main Components

1.1 Outline Dimension

All the inverter series have the same dimensions as shown below.



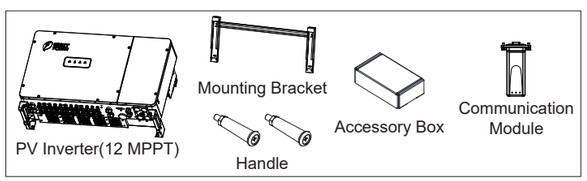
1.2 Main Components



1. DC isolation breaker
2. PV strings connector
3. Fan
4. LINKIT communication interface
5. Vent valve
6. RS485 communication interface
7. AC sealing plate

2. Installation

2.1 Scope of supply

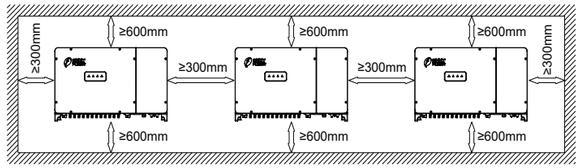


No.	Images	Accessories	Amt	Usage
1		Document	2	For quick guidance and warranty service
2		M10 Nut	4	For mounting bracket
3		M10 x 50 screw	4	
4		M6X16 Screw	4	For fixing inverter and grounding
5		6 Pin terminal	1	Connect 485 COM cable
6		Pan head screw M6X18 with plastic flat washer	1	Spare for front cover
7		Unlock tool for DC connector	1	Unlock connector
8		DC input male (+) Connector and female (-) connector	48	24+ & 24-

NOTICE After unpacking the inverter, keep all its interfaces well sealed before and after connecting cables, to prevent water from entering.

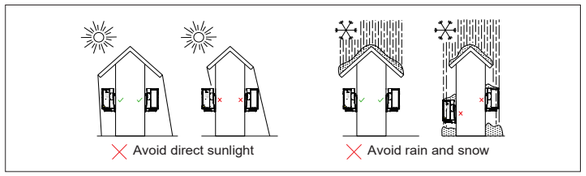
2.2 Recommended Clearances

During planning and installing the inverter, appropriate clearances shown as below shall be reserved to ensure sufficient ventilation and heat dissipation. If the inverters are installed in relatively enclosed space, this clearance shall be increased properly to maintain well ventilated condition. In addition, no objects shall be put in-between two inverters to prevent any negative influences on heat dissipation.

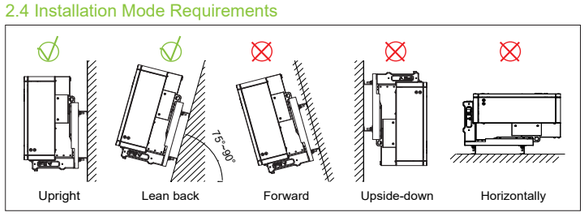


2.3 Installation Environment Requirements

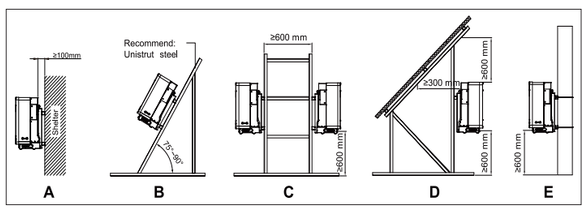
If installation environment allows, avoiding direct sunlight, rain and snow can reduce power derating and extend the life of the inverter. It is recommended that the inverter is installed under a roof or sunshade. However, installation outdoors with direct sunlight, rain and snow doesn't impact warranty.



2.4 Installation Mode Requirements



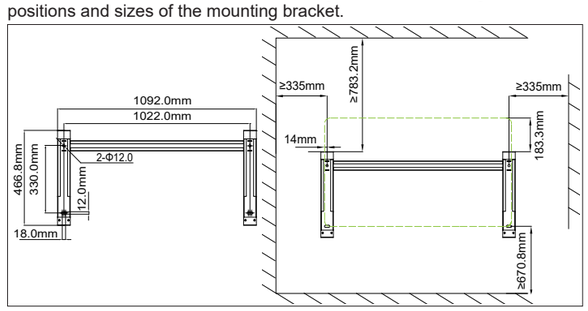
2.5 Installation Scenarios



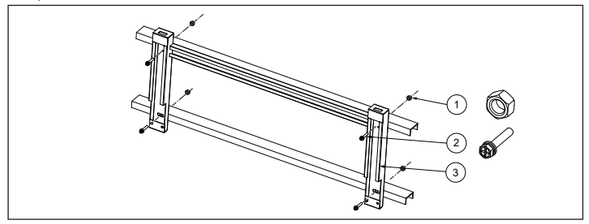
A. Keep proper distance between inverter and shelter to ensure good ventilation.
B. The inverter can be installed at an angle of ≤15° leaning back while its back shall not be shielded to ensure good ventilation.
C. Two inverters can be installed back to back, and proper distance shall be kept to ensure good ventilation.
D. The inverter can be installed under the panel, while its back and top shall not be blocked to ensure good ventilation.
E. The inverter can be installed on a single column holding rod and shall be checked to confirm a secure installation.

2.6 Install the Inverter onto Bracket

1. Mark the hole positions on the mounting structure according to the hole positions and sizes of the mounting bracket.

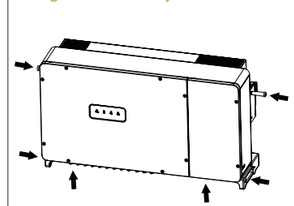


2. Drill holes with Φ12mm drill at marked position, then fix the bracket (3) with screws M10X50 (2) and M10 nut (1) included in accessory box.
Tools: Electric drill (with Φ12mm drill bit), No. 17 hex. socket wrench.
Torque: 22.6 N.m.

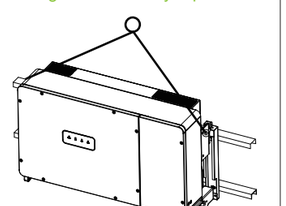


3. Hang inverter on the mounting bracket in either way:
- Manual lifting: two people hold the handles, two people hold the bottom surface and side holders. Hang the inverter onto mounting bracket together.
- Rope lifting: Tighten two M10 lifting eyebolts (offered by customer) in screw holes on both sides of inverter, and use slings or bar (inserted through the lifting eyebolts) to lift the inverter onto the mounting bracket. The angle between the two sling ropes must be less than 90 degrees.

Lifting the inverter by hand

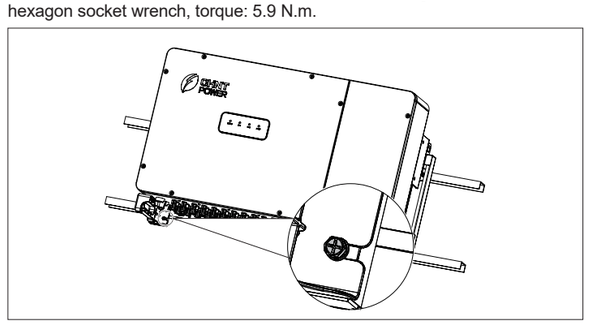


Lifting the inverter by rope



CAUTION Total weight of the inverter is approx.90kg. Ensure the mounting bracket is properly installed before hanging the inverter on the bracket.
It is recommended to have four people in total to hang the inverter.

4. Use two M6X16 screws to fix inverter on mounting bracket with No.10 hexagon socket wrench, torque: 5.9 N.m.



2.7 Install Self-check

1. Ensure that supporting points (on the rear side of the inverter) are aligned with holes of mounting bracket.
2. Ensure that the inverter is well fixed.
3. Ensure that the inverter is locked on the mounting bracket and an antitheft lock is installed.

3. Electrical Connection

DANGER Before performing any electrical connections, make sure both DC and AC switches are OFF. Otherwise, fatal injury can occur due to high voltage.

NOTICE
1. Close cover of AC wire box in time after wiring process to avoid water condensation in wire box.
2. Before the first power-on operation, or before running it again after long time (6-12 months) shutdown, check if any water-sensitive label in the bottom left corner of AC wiring box turns red. Never power on the inverter once any label turns red.
3. Never damage or tamper with vent valve.

3.1 Tools required and torques

No.	Tool	Usage	Torque
1	5mm hex wrench	Upper cover of AC wire box	2.9 N.m
2	18mm hexagon socket wrench	AC output terminal	19.6 N.m
3	4mm hex wrench	AC sealing plate	1.4 N.m
4	No.10 hexagon socket wrench	Ground terminal	5.9 N.m
5	1.5mm flat-blade screwdriver	RS485 communication terminal	0.2 N.m
6	Diagonal pliers	Making cables	-
7	Wire stripper	Making cables	-
8	Crimping tool	Making cables	-

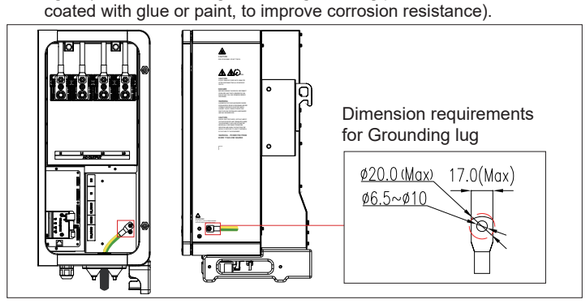
3.2 Cable specification (recommended)

Name	Type	Outer diameter (mm)	Conductor cross-sectional area (mm²)
DC cable	PV cables that meet 1500V standard	6~9	4~6
Grounding cable	Outdoor copper cable	/	Phase wire diameter/2
AC cable	Outdoor four-core cable (L1, L2, L3, and N)	38~64	Aluminum wire: 95~240 Copper wire: 70~240
	Outdoor five-core cable (L1, L2, L3, N, and PE)	40~67	Aluminum wire: 95~240 PE: ≥ Phase wire diameter/2
			Copper wire: 70~240 PE: ≥ Phase wire diameter/2
	Outdoor single-core copper cable	23~32	Aluminum wire: 95~240 Copper wire: 70~240
Comm. cable	Communication cable UTP CAT-5e	4.5~6	3*0.2~0.75
	Shielded twisted pair		3*1~1.5

3.3 Grounding and AC Wiring

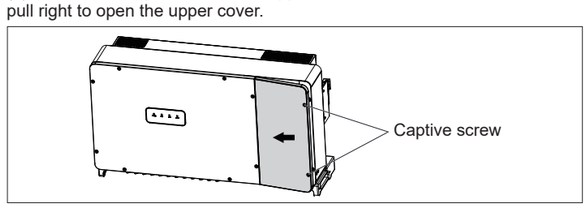
1. Grounding

Connect grounding wire in either way and tighten with M6x16 screws:
- Internal grounding: Connect PE wire to internal grounding stud located on the lower right side of the AC busbar.
- External grounding: Connect grounding cable to external grounding hole located at the bottom of the machine next to the AC port on the right. (Note: After wiring, external grounding position needs to be coated with glue or paint, to improve corrosion resistance).



2. AC Wiring

(1) Loosen two captive screws on upper cover of AC wire box, and then pull right to open the upper cover.



NOTE: In order to avoid missing the screws, the captive screws cannot be removed from the upper cover.

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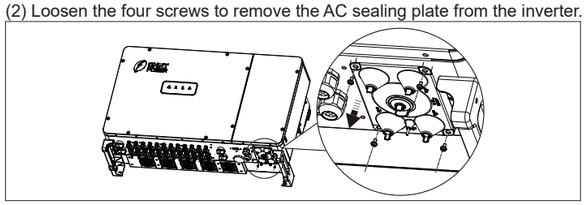
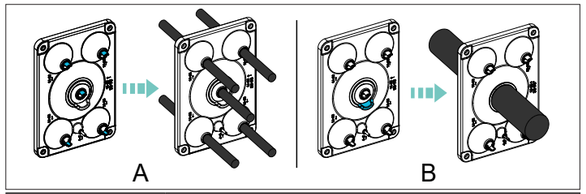
(2) Loosen the four screws to remove the AC sealing plate from the inverter.



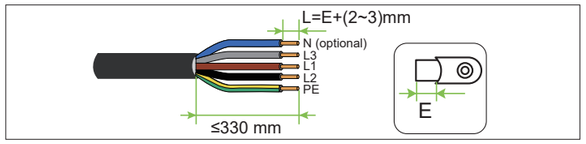
(3) According to cable types, pull off ring tab with hand or plier, and then route cable through the seal ring.

- For outdoor single-core cable, refer to figure A. NOTE: When using the middle seal ring for routing, route grounding wire through it rather than L1, L2, L3, or N wire.
- For outdoor four-core cable and five-core cable, refer to figure B.

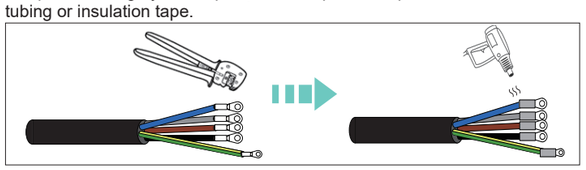


NOTICE	The smallest seal ring of AC sealing plate is reserved. Remember its orientation before removing AC sealing plate and ensure it returns to the original position when recovering the board.

(4) Remove an appropriate length of the jacket and insulation layer from the AC output cable.

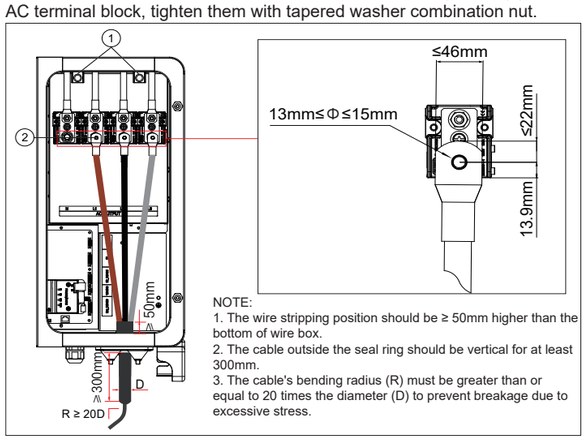


(5) Insert the exposed core wires into crimping area of OT/DT terminal, crimp them using hydraulic plier, then wrap the crimp areas with heat shrink tubing or insulation tape.



NOTICE	Use copper terminals to match copper wires. Use Cu-Al bimetallic terminals or aluminum terminals with Cu-Al bimetallic washers to match aluminum wires. Ensure the washer's outer contour is no smaller than the OT/DT terminal's. The washers are prepared by customer, and it is recommended to purchase washers and terminals from the same manufacturer. Do not connect aluminum terminals directly to the terminal

(6) Unplug the rubber plug (1) of transparent protection cover above the AC terminal block to remove the cover.
Connect crimped OT/DT terminals to L1, L2, and L3 wiring studs (2) on the AC terminal block, tighten them with tapered washer combination nut.



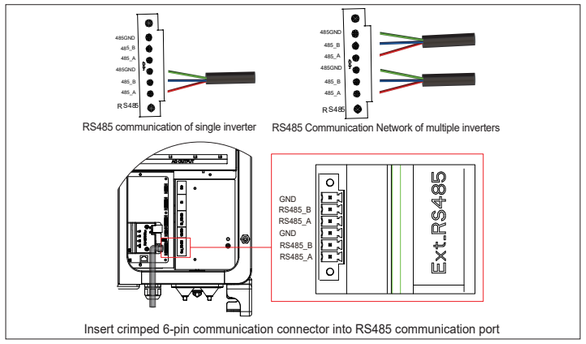
NOTE:
1. The wire stripping position should be ≥ 50mm higher than the bottom of wire box.
2. The cable outside the seal ring should be vertical for at least 300mm.
3. The cable's bending radius (R) must be greater than or equal to 20 times the diameter (D) to prevent breakage due to excessive stress.

(7) Plug the rubber plug to fix the transparent protective cover to prevent accidental contact with the AC busbars.

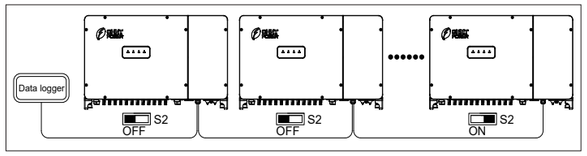
(8) Secure the AC sealing plate to inverter using its original screws.

3.4 Communication connection (optional)

1. Crimp communication cables into 6-pin connector according to the pin definition of communication board, as shown below.
2. Insert the 6-pin connector to communication board.



When the number of inverters in the network is large and the last inverter is more than 200m and less than 1000m from data logger, in order to improve communication quality, it is recommended to turn DIP switch (S2) of 120ohm terminal resistance on the communication board of the terminal inverter to ON, and keep DIP switches (S2) of all other inverters as OFF.

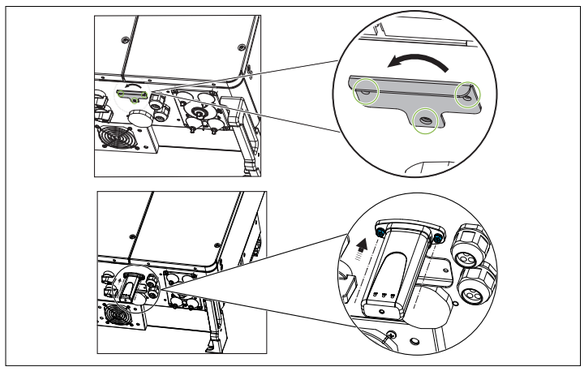


After completing all wiring steps, fix the two captive screws on the upper cover of the wire box, and lock the upper cover.

NOTICE	Screw must be tightened when fixing the cover to prevent water problem.

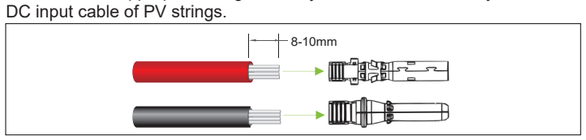
3.5 Install LINKIT Module

1. Remove 2 upper screws on the LINKIT cover, loosen the lower screw, then rotate the cover to expose the LINKIT communication interface.
2. Fasten LINKIT module onto communication interface with its original two upper screws (Indicators face front cover).
Tool required: No.2 Phillips head screwdriver. Torque: 1.6 N.m

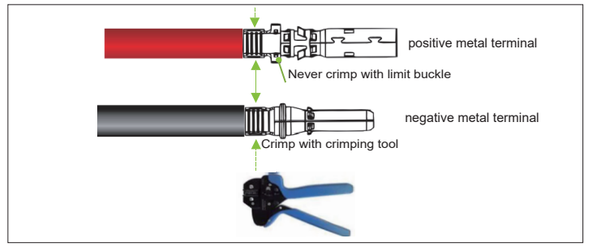


3.6 DC Wiring

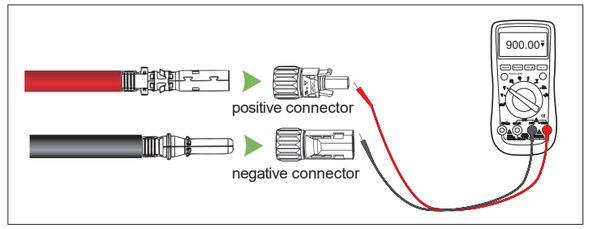
1. Remove an appropriate length of the jacket and insulation layer from the DC input cable of PV strings.



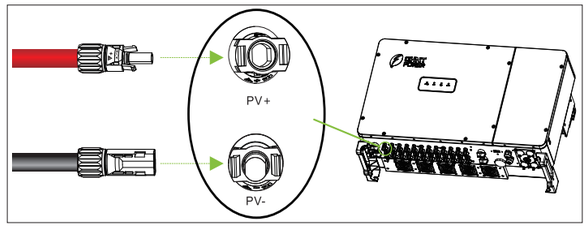
2. Insert the exposed areas of the positive and negative power cables into the metal terminals of the positive and negative connectors respectively and crimp them using a crimping tool, such as Amphenol H4TC0002 or Devalan D4ZCY001.



3. Insert the crimped positive and negative power cables into the corresponding positive and negative connectors until a "click" sound is heard. Tighten the locking nuts of the positive and negative connectors. Measure the voltage of every route strings using a multimeter. Ensure that the polarities of the DC input power cables are correct.



4. Insert the positive and negative connectors into their corresponding terminals of the inverter until a "click" sound is heard.



NOTICE	Make marks on all positive and negative power cables to identify their correct strings (such as PV1+, PV1- , PV2+, PV2-). Make sure all strings are connected to corresponding ports according to port names printed on the device, to avoid wrong connection. Otherwise, it may result in device damages or property loss.

4. Display

4.1 LED Indicator

4.2 Description of Indicator

LED Icon	Name	Status	Meaning
POWER (Green)	Working Power Indicator	On	Has working power
		Off	No working power
RUN (Green)	Grid Operation Indicator	On	In the state of grid-connected power generation
		Flash	Derating operation status (on for 0.5 seconds, off for 1.6 seconds)
		Off	In other running state or no working power
GRID (Green)	Grid Status Indicator	On	Grid is normal
		Flash	The power grid is abnormal (on for 0.5 seconds, off for 1.6 seconds)
		Off	No power supply
FAULT (Red)	Fault Status Indicators	On	Permanent failure
		Quick Flash	General failure (on for 0.5 seconds, off for 0.5 seconds)
		Slow Flash	Alarm failure (on for 0.5 seconds, off for 2 seconds)
		Off	No fault or no working power supply
4 LEDs	Upgrade status	Flash	Upgrade Firmware (on for 0.05 seconds, off for 0.3 seconds)

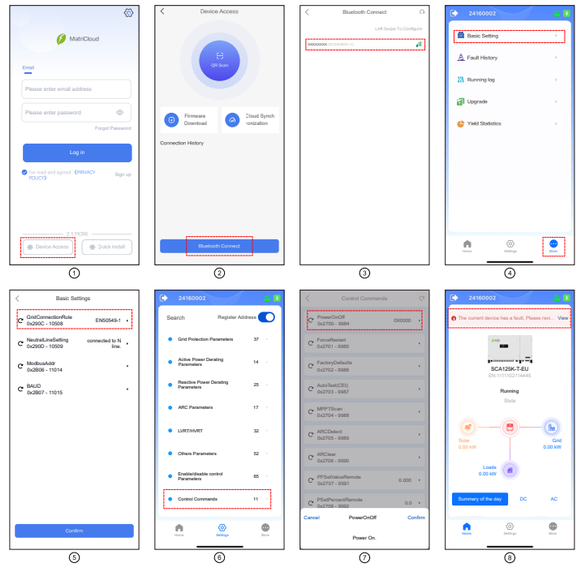
5 Commissioning

WARNING	Before PV system is powered on, it's important to check installation & wiring for any potential hazards.

1. Turn on AC circuit breaker.
2. Set the DC switch to ON position. When the solar array generates enough power, the POWER indicator will light up and the inverter will enter the self-check process.
3. Download App (users can directly scan the QR code to download App which can only support Android 4.4 and IOS 11.0 or higher version system).

4 Set APP as shown in the following figures.

① Open MatriCloud App and click "Device Access".
② Click "Bluetooth Connect".
③ Click device number (Last 8 digits of SN on the COM module label) to access main interface.
④ Click "More" on the main interface, select "Basic Settings".
⑤ Configure the basic parameters, such as Gird Connection Rule, Neutral Line Setting, and others.
⑥ Click "Settings" and input password "1111" to configure the register parameters. Note: Register parameters must be configured according to the communication protocol under the guidance of the engineer.
⑦ You can power on or power off the inverter in the "Settings > Control Commands" interface.
⑧ If a fault occurs, click the red text on the main interface to view the fault information, resolve the fault using the troubleshooting list in the user manual, restart the inverter, and recommission; If the fault persists, contact customer service for assistance.



6. Troubleshooting

CAUTION	External fans are provided for the inverter. Periodically check and clean the inlets/outlets of the fans to ensure good dissipation. If any abnormal with a fan, replace it immediately.

Issue	Solution
No display	1. Check if the DC switch is in ON or OFF position. 2. If there is PV wire box, check the fuses and wire connections.
No feed-in power	1. Check if AC breaker is on. 2. Wait for strong sunlight. 3. Check if the number of PV strings is correct. 4. Operate as required by the inverter.
Inverter abnormal	1. Disconnect both AC and DC breakers. 2. Wait at least 10 minutes, then switch on AC and DC breakers. 3. Check if inverter is working properly.
Less feed-in power	1. Check if the inverter is exposed to direct sunlight or in an environment with poor ventilation. 2. Check if the heatsink is dusty or blocked or fan abnormal. 3. Check if there is enough installation distance between inverters.