

User Manual for PV Grid-tied Inverter

Applicable to: SCA 75K-T-EU, SCA 75K-T-SA
SCA110KTL-DO/EU, SCA110KTL-DO/EU2
SCA 100K-T-EU, SCA 120K-T-EU, SCA 125K-T-EU



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0 Preface

Before starting installation and operation



This manual contains important information about product installation and safe operation, please read it carefully before use.

Thank you for choosing a photovoltaic Grid-tied inverter for Chint Power Systems (hereinafter referred to as "photovoltaic inverter" or "inverter" in this manual). Relying on innovative design and perfect quality control, Chint power system Grid-tied photovoltaic inverters have high reliable quality and are widely used in high-standard photovoltaic Grid-tied systems.

If you encounter any problems during installation or operation, please refer to this manual first. The instructions in it can solve most of the problems for you.

If the problem persists, you can contact your local dealer or representative again.

Please keep this manual in a safe place for easy reference at any time.

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1 IMPORTANT SAFETY INSTRUCTIONS

(SAVE THESE INSTRUCTIONS)

PLEASE READ THIS USER MANUAL CAREFULLY BEFORE THE INSTALLATION AND OPERATION OF THIS PV INVERTER. CPS RESERVES THE RIGHT TO REFUSE WARRANTY CLAIMS FOR EQUIPMENT DAMAGE IF USERS FAIL TO INSTALL THE EQUIPMENT ACCORDING TO THE INSTRUCTIONS IN THIS MANUAL. FAILURE TO FOLLOW THESE INSTRUCTIONS AND OTHER RELEVANT SAFETY PROCEDURES MAY RESULT IN VOIDING OF THE WARRANTY AND/OR DAMAGE TO THE INVERTER OR OTHER PROPERTY!

1.1 Warnings and Symbols in this Document

**DANGER!**

DANGER indicates a situation that has a high degree of potential hazard which may cause death or serious injury.

**WARNING!**

Indicates that there is a moderate potential hazard, which may cause death or serious injury if not avoided.

**CAUTION!**

Indicates that there is a low-level potential hazard, which may cause moderate or light injury to personnel.

**NOTICE!**

Indicates that there is a potential risk, which may cause the equipment to fail to operate normally or cause property damage.

**IMPORTANT!**

Indicates additional information in the manual, emphasizes and supplements the content, and may also provide tips or tricks for optimizing the use of the product, which can help you solve a problem or save your time.

1.2 Markings on the Product

**Risk of Electric Shock:**

This mark indicates that there is high voltage inside the product and you must follow the instructions in the user manual when operating

**High Temperature DANGER**

This logo indicates that this product complies with international safety standards, but it will generate heat during operation, so please do not touch the heat sink and the metal surface of the inverter during the operation of the inverter.

**Dangerous Energy:**

Pay attention to the danger of electric shock, please release the internal energy of the device according to the stipulated time.

**Protection Grounding:**

This mark indicates that this is a Protection ground (PE) terminal, which needs to be firmly grounded to ensure the safety of operators.








**RoHS Symbol:**

In accordance with 2011/65/EU regulations, the inverter imposes restrictions on the use of specific hazardous substances in electrical and electronic equipment.

**CERTIFICATION MARK:**

This inverter has passed CE Certification.

1.3 Safety Precautions of Operating the PV Inverter

	<p>DANGER!</p> <p>Before opening the inverter housing for maintenance, you must first disconnect the grid-side AC power supply and PV-side DC power supply, and ensure that the high-voltage energy inside the equipment has been completely released!</p> <p>Generally, you must cut off all connections to the inverter for at least 5 minutes before you can maintain and operate the equipment.</p>
	<p>WARNING!</p> <p>All operations and connections please professional engineering and technical personnel!</p> <p>To prevent the risk of electric shock during equipment maintenance or installation, please ensure that all DC and AC power has been separated from the equipment, and ensure that the equipment is reliably grounded.</p>
	<p>CAUTION!</p> <p>Please check the wall bracket again before hanging up to make sure that the wall bracket is firmly on the supporting surface.</p> <p>For continued protection against risk of fire, replace only with same type and ratings of fuse. Disconnect supply before changing fuse.</p>
	<p>NOTICE!</p> <p>The inverter is specially designed to integrate the generated AC power into the public grid. Do not directly connect the AC output terminal of the device to private AC power equipment. The inverter does not support battery panel grounding. If grounding is necessary, a transformer must be added to the AC side.</p>
	<p>NOTICE!</p> <p>After unpacking the inverter, keep all its interfaces sealed always, before and after connecting wires.</p>
	<p>NOTICE!</p> <p>Please do not install the inverter in a place exposed to direct sunlight, so as not to reduce the conversion efficiency due to high temperature, in order to ensure the long-term service life of the inverter.</p>
	<p>IMPORTANT!</p> <p>Before choosing a power grid code, please contact your local power supply company. If the inverter is set to work under the wrong grid regulations, the power supply company may cancel the operation permit of the equipment.</p> <p>Please ensure that the entire system complies with national standards and applicable safety regulations before running the inverter.</p>

2 General Introduction

2.1 Photovoltaic Grid-tied System

The inverters are suitable for various commercial and large-scale photovoltaic Grid-tied systems. Photovoltaic systems generally consist of solar cell components (PV Modules), Grid-tied inverters and AC power distribution equipment (Figure 2-1). The solar energy is converted into DC power by PV Modules, then the DC power is converted into AC power with the same frequency and phase as the grid through the Grid-tied inverter. The whole or part of the power is supplied to the local load and the remaining power will be fed to the grid.

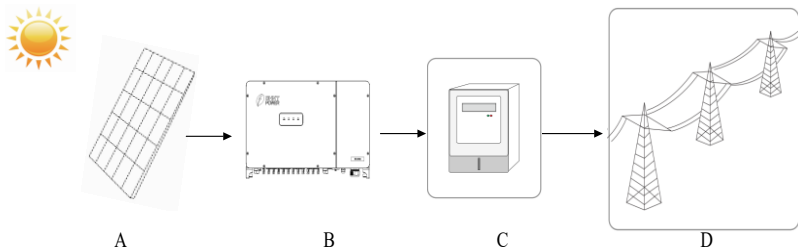


Fig. 2-1 Grid-tied PV Power Generation System

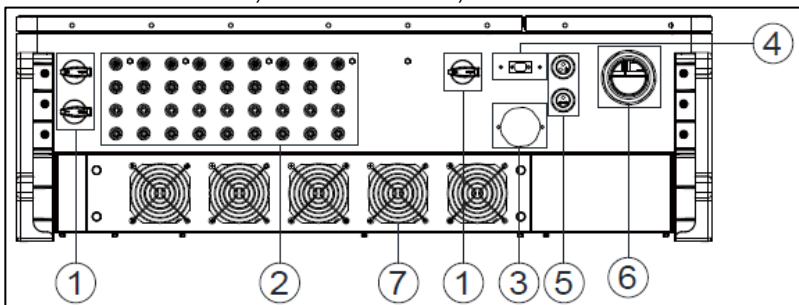
Item	Name	Description
A	PV Modules	Monocrystalline, polycrystalline silicon components, thin film batteries that do not require grounding
B	PV Inverter	SCA 75K-T-EU; SCA 75K-T-SA SCA 100K-T-EU; SCA 110KTL-DO/EU SCA 110KTL-DO/EU2; SCA 120K-T-EU SCA 125K-T-EU
C	metering device	Standard metering device for inverter power generation
D	Public Grid	TT, TN, IT System

Table 2-1 Components of Grid-tied PV system

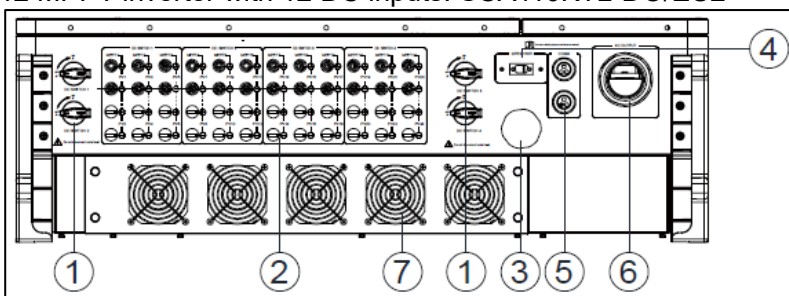
2.2 Main Components and Product Dimensions

9 MPPT inverter with 18 DC inputs:

SCA110KTL-DO/EU; SCA 75K-T-EU; SCA 75K-T-SA



12 MPPT inverter with 12 DC inputs: SCA110KTL-DO/EU2



12 MPPT inverter with 24 DC inputs:

SCA 100K-T-EU, SCA 120K-T-EU; SCA 125K-T-EU

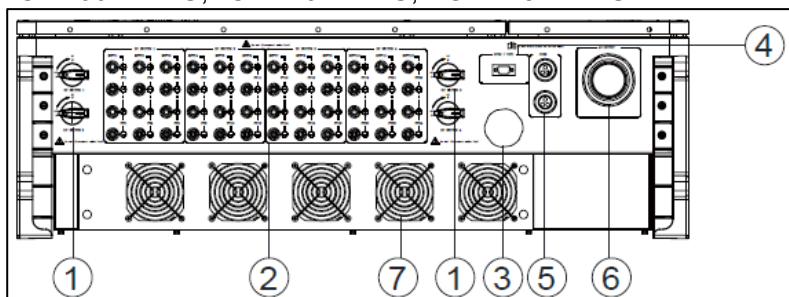


Fig. 2-2 Main Components of inverter

No.	Name	Function
1	DC switch	Turn on/off DC power supply
2	PV strings connectors	Insert male/female connectors
3	Vent valve	Balance pressure difference
4	LINKIT communication interface	Insert LINKIT module
5	RS485 communication interface	RS485 communication line outlet port
6	AC output connector	AC cable outlet port
7	Fans	Cooling the inverter

Table 2-2 Product Components

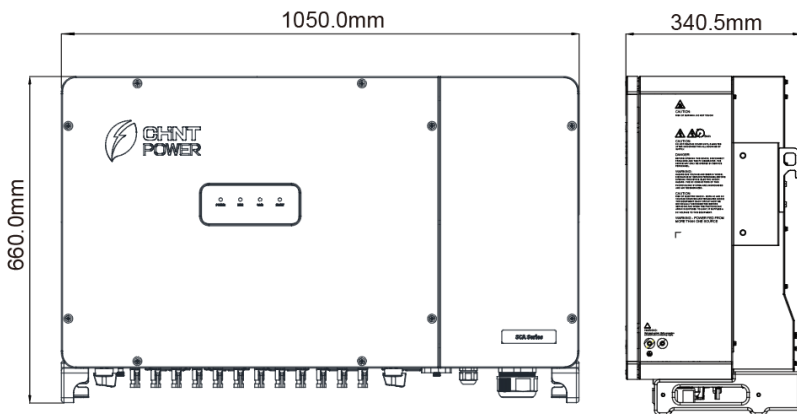


Fig. 2-3 Inverter Dimensions

2.3 LED Display Panel

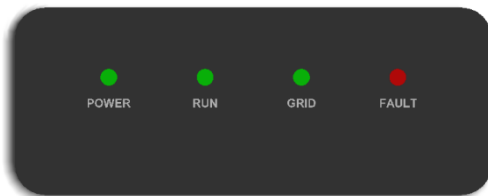


Fig. 2-4 LED Display Panel

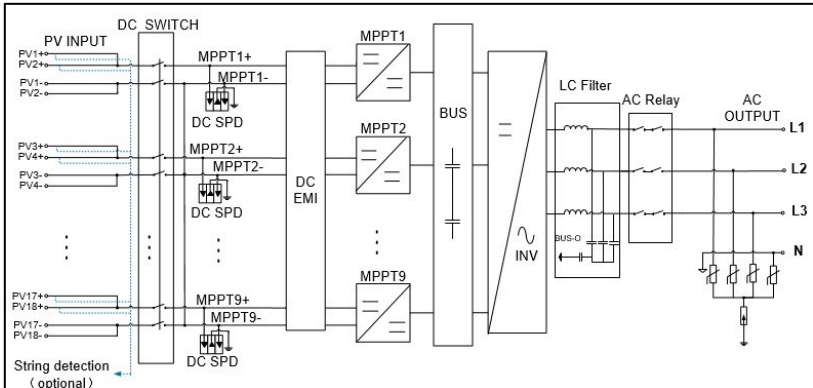
The specific meaning of each indicator status is shown in table 2-3.

LED Logo	Name	Status	Meaning
POWER (Green)	Power Supply Indicator Light	On	Power on (control board starts to work)
		Off	No working power
RUN (Green)	Grid Operation Indicator Light	On	Grid-tied power generation
		Flash	Derating operation status (on for 0.5s, off for 1.6s)
		Off	In other running state or no working power
GRID (Green)	Grid Status Indicator Light	On	Grid is normal
		Flash	Grid is abnormal (on for 0.5s, off for 1.6s)
		Off	No working power
FAULT (Red)	Fault Status Indicator Light	On	Malfunction
		Slow Flash	Alarm failure (on for 0.5s, off for 2s)
		Fast Flash	General failure (on for 0.5s, off for 0.5s)
		Off	No fault or no working power
ALL	Upgrade status	Flash	LCD or DSP upgrading

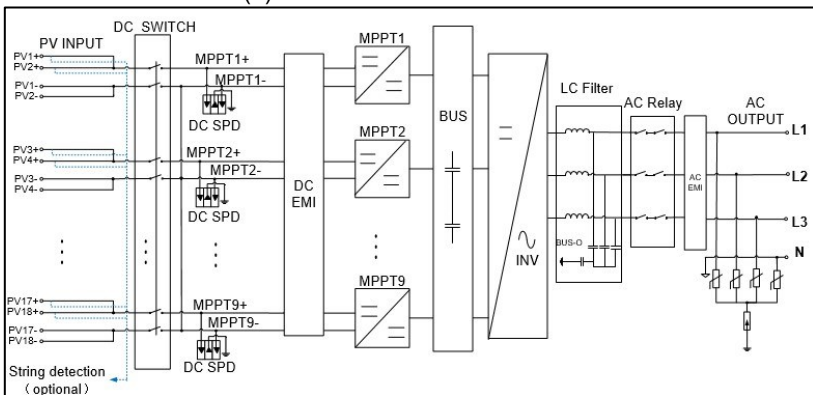
Table 2-3 LED Indicators and their indications

2.4 Product Circuit Structure Design

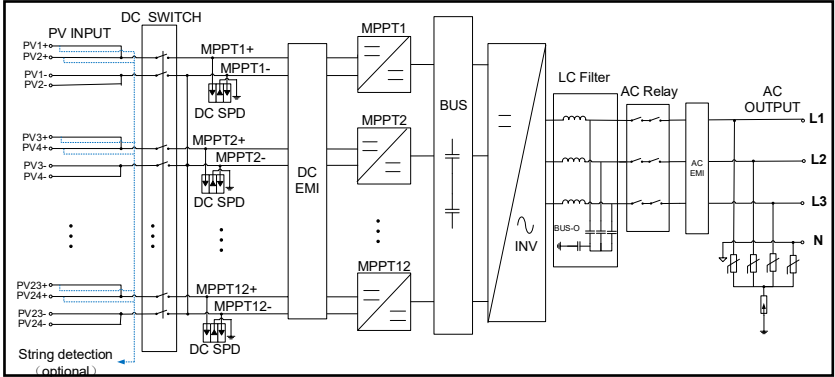
Refer to the pictures below, you can see the schematic diagram of the main circuit of the CPS inverter. PV input goes through the lightning protection circuit and DC EMI filter circuit and then through the previous BOOST circuit to achieve maximum power tracking and boost functions. The inverter uses three-level technology to convert the DC voltage into a three-phase AC voltage, filters out high frequency components through an output filter, and then outputs high-quality AC power through a two-stage relay and an EMI filter. In addition, a string detection function (optional) is added.



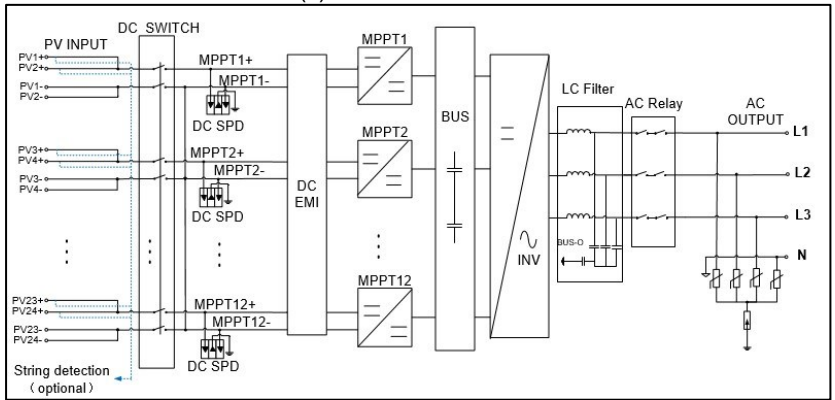
(a) SCA 75K-T-EU&SCA 75K-T-SA



(b) SCA110KTL-DO/EU



(c) SCA110KTL-DO/EU2



(d) SCA 100K-T-EU, SCA120K-T-EU & SCA125K-T-EU

Fig. 2-5 Main circuit diagram of all modules

2.5 Product Protection Functions

- Input polarity reverse protection
- Short circuit protection
- Input to ground insulation resistance monitoring
- Output voltage and frequency monitoring
- Ground leakage current monitoring
- DC component monitoring of output current
- Anti-island protection
- Input and output overvoltage protection
- Input overcurrent protection
- Ambient temperature monitoring
- Module temperature monitoring
- DC arc detection and interruption (unavailable to 110kw inverters)

3 Installation

The following content is the installation instructions of the inverter, please read carefully and follow the steps to install this product. Before installation, please check whether the following items are included in the box.

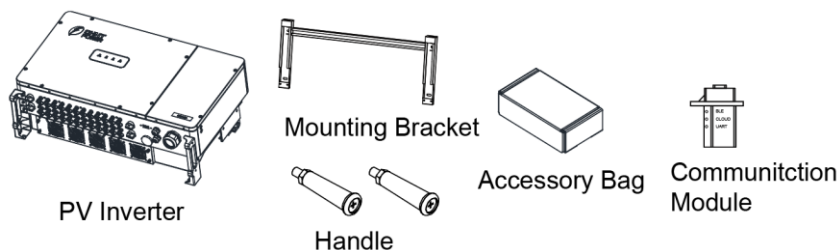












Fig. 3-1 Scope of Supply

No.	Image	Description	QTY	Function
1		Document	2	Quick guide and warranty service
2		M10 Nut	8	4 for AC terminal 4 for mounting bracket
3		M10 Spring washer	4	For AC terminal
4		M10 Flat washer	4	For AC terminal
5		Screw M10X50	4	Fixing mounting bracket
6		Screw M6X16	4	Fixing inverter & Grounding
7		6P signal connector	1	RS485 communication
8		Hexagon socket head cap screw M6X18	1	Fixing cover (spare)
9		Unlock tool for DC connector	1	Remove quick connector
10		DC input male connector & female connector	36	75 Kw: 18+ & 18-
			48	100 Kw: 24+ & 24-
			36	110 Kw(EU): 18+ & 18-

No.	Image	Description	QTY	Function
			24	110 Kw(EU2): 12+ & 12-
			48	120 Kw: 24+ & 24-
			48	125 Kw: 24+ & 24-

Table 3-1 Packing list

3.1 Storage before Unpacking

If the inverter is not immediately installed upon arrival, the following requirements should be met when storing the inverter:

- Do not remove the outer packing of the inverter.
- Store it in a clean, dry place to prevent dust and moisture intrusion.
- During the storage period, regular inspections are necessary (it is recommended to check at least once every three months). If packing damage is detected, replace the packing materials promptly.
- Keep the packing away from corrosive substances to avoid damaging the inverter casing.
- If the inverter has been stored for more than 1 year, perform a comprehensive inspection and test by professional personnel before putting it into operation.
- Do not stack multiple inverters beyond the "Stacking Limit" indicated on the outer packing.

Note: Any damage to the inverter caused by improper storage is not covered by the warranty.

3.2 Mechanical Installation

3.2.1 Installation Precautions

- Salt spray settlement is related to the characteristics of seawater, sea wind, precipitation, air humidity, topography and forest cover in adjacent seas. Therefore, the inverter cannot be installed outdoors in salt-damaged areas (mainly refer to coastal areas within 500m of the coast).
- Inverter generates noise during operation. Do not install it in a place that affects daily life.
- Check that the product environmental specifications (protection degree, operating temperature range, humidity and altitude, etc.) meet the requirements of the specific project location.
- Make sure that the power grid voltage is within the normal range of the Grid Code chosen.
- Ensure that you have been authorized by the local electricity supply authority to connect to the grid.

- Installation personnel must be qualified electricians or those who have received professional training.
- Wear and use proper PPE (personal protective equipment) during installation.
- Enough space must be provided to allow the inverter cooling system to operate normally.
- Install the inverter away from flammable and explosive substances.
- Make sure the installation condition doesn't exceed the temperature limits specified for the inverter, to prevent undesirable power loss.
- Do not install the inverter near an electromagnetic source which can compromise the normal operation of electronic equipment
- The PV Array is not grounded.
- The bottom power and communication interfaces of the inverter should not bear any weight, and should not be directly in contact with the ground.
- Static electricity may damage the electronic components of the inverter, so anti-static measures should be taken during the replacement or installation process.
- Each inverter must be equipped with an AC circuit breaker and should not be shared among multiple inverters.
- Under no circumstances should the device structure, installation sequence, or any other aspect be modified without the permission of the manufacturer.

For detailed specification ranges and limits, see **Chapter 8**.

3.2.2 Installation Instructions

1) Installation Method (Fig. 3-2)

Before installing the inverter, please confirm whether the supporting structure can bear the weight of the inverter, and install the inverter according to the following instructions:

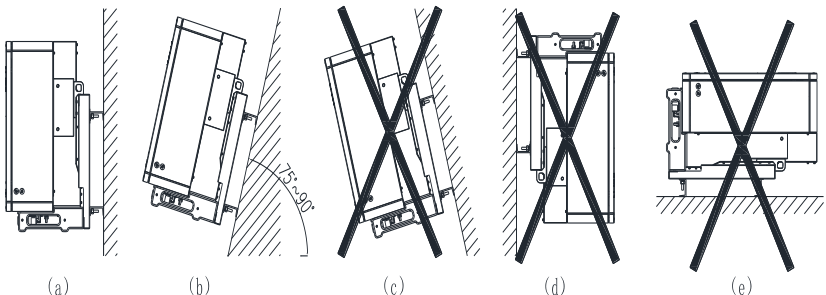
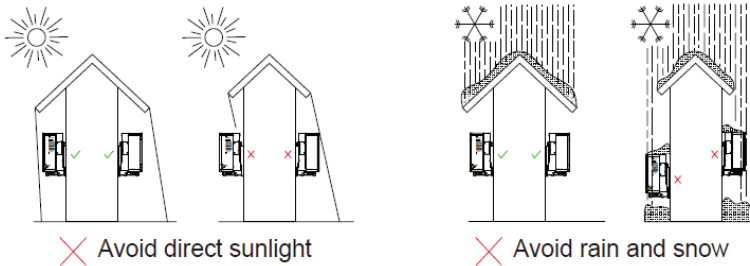


Fig. 3-2 Inverter rack mounting method

No	Explanation
a	If the installation location allows, install the inverter vertically;
b	If the vertical installation cannot be guaranteed, it may be tilted backward 0 to 15 degrees from vertical direction;
c	The inverter does not allow forward installation;
d	The inverter is not allowed to be installed backwards;
e	The inverter is not allowed to be installed horizontally;

2) 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.



3) Installation space size (Fig. 3-3)

The distance between the inverter and surrounding objects should meet the following conditions :

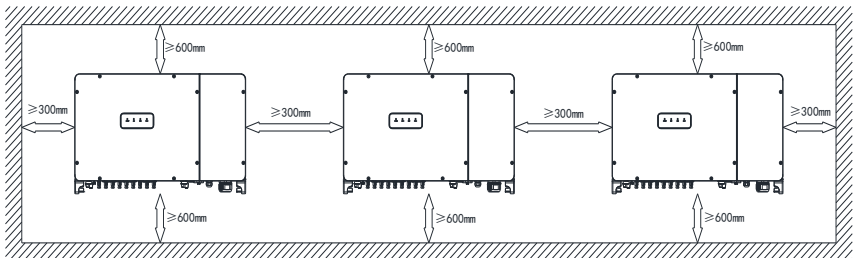
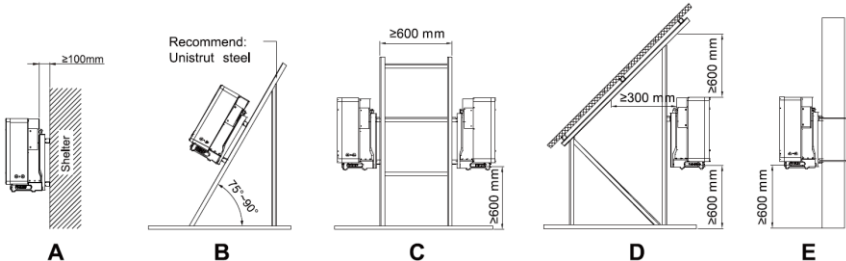


Fig. 3-3 Installation space requirements for inverter racks


NOTICE!

The distance between two parallel inverters must be ≥ 300 mm, and good ventilation should be ensured. If the surroundings are relatively closed, please increase this distance appropriately.

4) Installation Scenarios


A: Keep a distance between the inverter and the shade on its back to ensure good ventilation.

B: The inverter can lean back ≤ 15 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.

3.2.3 Inverter Installation

(1) Mark the hole positions on the mounting structure according to the hole positions and sizes of the mounting bracket, as shown in Fig. 3-4.

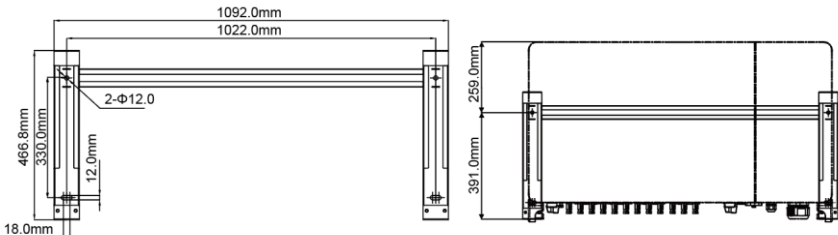


Fig. 3-4 mounting hole diagram

(2). Drill holes with a $\Phi 12\text{mm}$ drill at the marked position, and then fix the bracket ④ with the equipped screws M10X50⑤, M10 flat washer③, M10 spring washer ②, and M10 nut ①.

Tools: Electric drill (with $\Phi 12\text{mm}$ drill bit), No. 17 wrench, torque value: 230.0 kgf.cm.

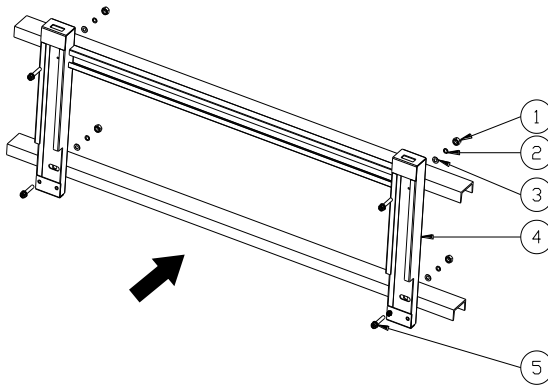


Fig. 3-5 Fixed mounting bracket

CAUTION!

To prevent dust from entering the respiratory system or getting into the eyes during drilling, operators should wear protective goggles and dust masks.

(3) Install the inverter on the mounting bracket. There are two installation methods.

- **Manual hanging:** Two people hold the handles, two people hold the bottom surface and side holders. Hang the inverter on the mounting bracket together by four people (Refer to Fig. 3-6 (a)).
- **Hoisting method:** Tighten two M10 lifting eyebolts (prepared by customer) into screw holes on the both sides of inverter, and use a sling or a hanging rod (inserted through two lifting eyebolts) to lift the inverter onto the mounting bracket. The angle between the two slings must be less than 90 degrees (Refer to Fig. 3-6(b)).

CAUTION!



The host of the inverter weighs approximately 90 kg (≈198.4 lb.), Please check the mounting bracket again before hanging up, to confirm that the mounting bracket is firmly on the supporting surface.

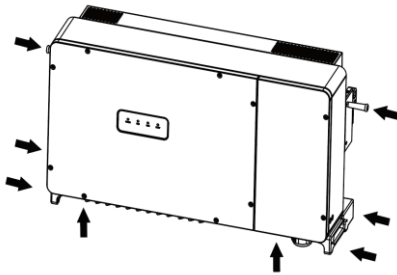


Fig. 3-6 (a) Hanging the inverter manually

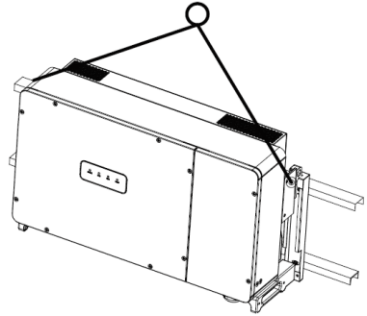


Fig. 3-6 (b) Hoisting the inverter manually

(4) Use two M6X16 screws ⑥ to fix inverter on mounting bracket with No.10 hexagon socket wrench, torque value: 60.0 kgf.cm.

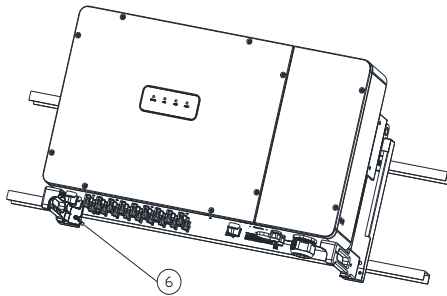


Fig. 3-7 Inverter fixed on backplane bracket

3.3 Electrical connection

**DANGER!**

The cables shall be connected in accordance with the National Electrical Code and all other applicable local codes or jurisdictions. Before connecting all cables, ensure the equipment is free from any damage. Otherwise, it may cause electric shock or fire.

High-temperature environments may result in insulation aging or damage of cables. The distance between the cables and heat-generating devices or the surrounding area of the heat source should be at least 30mm.

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

**NOTICE:**

Please read carefully and refer to Chapter 8 Technical Data before wiring.

Pay attention to watertight during construction.

Cables of the same type should be bundled together, and different types of cables should be arranged separately, with no intertwining or crossing allowed.

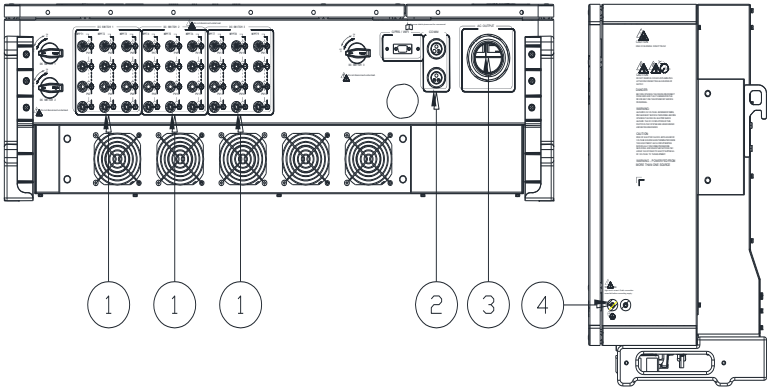
Close covers of AC & DC wire box in time after wiring process to avoid water condensation in wire box.

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 & DC wire box and that on the capacitive plate turns red. Never power on the inverter once any label turns red.

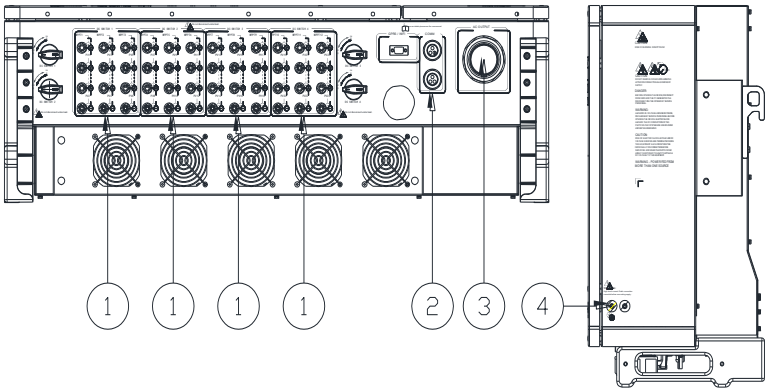
Never damage or tamper with vent valve.

3.3.1 Internal and external interface

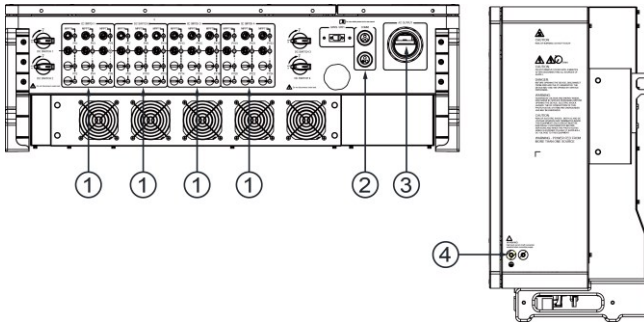
Refer to the figures below, you can see the internal and external interface of the all the inverter modules.



(a) SCA110KTL-DO/EU&SCA 75K-T-EU&SCA 75K-T-SA



(b) SCA 100K-T-EU&SCA 120K-T-EU& SCA 125K-T-EU



(c) SCA110KTL-DO/EU2

Fig. 3-8 External Interface of all inverter modules

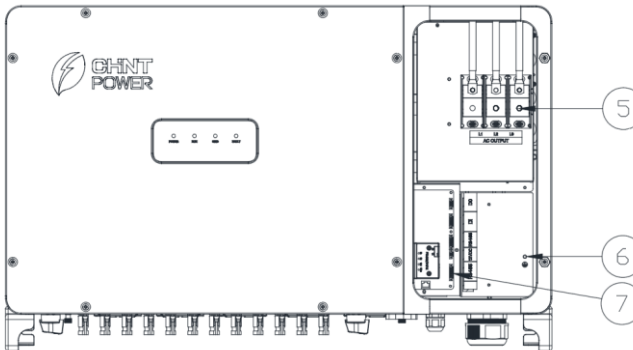


Fig. 3-9 Internal Wiring Point

No.	Description	No.	Description
1	DC Input quick plug terminal	5	AC Output terminal block
2	RS485 communication interface	6	Internal ground stud
3	AC Output wiring gland	7	RS485 communication terminal P170 (for external communication)
4	External ground screw hole		

3.3.2 Cable specifications

The inverter external cable must be equipped with the specifications in the table below :

Table 3-2 Cable specifications

Name	Type	O.D. (mm)	Conductor cross-sectional area (mm ²)
DC Cable	PV cables that meet 1500V standard	6~9	4~6
Grounding cable	Outdoor copper core wire	/	Phase wire diameter/2
AC cable	Outdoor four-core copper/aluminum wire	40~46	Copper core cable : L1,L2,L3,(N):95~120
	Outdoor three-core copper/aluminum wire		Aluminum alloy cable : L1,L2,L3,(N):95~120 PE: Phase wire diameter/2
Communication cable	Communication cable UTP CAT-5e	4.5~6	3*0.2~0.75
	Shielded twisted pair		3*1~1.5

3.3.3 Tools and torque

Tools and torque are as follows:

Table 3-3 Tools & Torque required for wiring

No	Tools	Usage	Torque
1.	5mm hex wrench	Tighten upper cover of combiner box	30.0kgf.cm
2.	No.16 hexagon socket wrench	Tighten AC output terminals	140.0kgf.cm
3.	No.10 hexagon socket wrench	Tighten grounding terminals	60.0kgf.cm
4.	1.5mm flat-blade screwdriver	Tighten RS485 communication terminals	2.0kgf.cm
5.	Diagonal pliers	Making cables	-
6.	Wire stripper	Making cables	-
7.	Crimping Tool	Making cables	-

3.3.4 AC and Ground Connection

Connect your PV inverter to the AC grid through the AC output cable and grounding cable.

- 1) Loosen the 2 captive screws fixing the upper cover of the combiner box with a 5mm hex wrench, and open the upper cover.

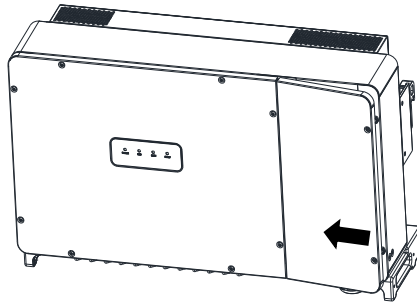


Fig. 3-10 Open upper cover of combiner box

- 2) Grounding

The grounding wire of the inverter has 2 ways to connect, the inverter has an internal grounding wire pole located on the right side of the AC busbar, as shown in Fig. 3-11 on the left, the external grounding hole is located at the bottom of the device 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).

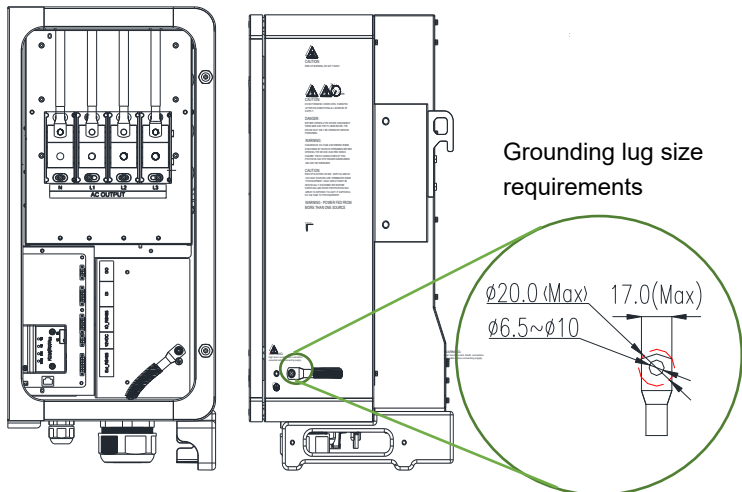


Fig. 3-11 Grounding Method

Depending on the grounding method, the wiring method is different. After the internal grounding wire is connected, the compression nut of the cable fastening head must be tightened.

3) AC Cable Connection

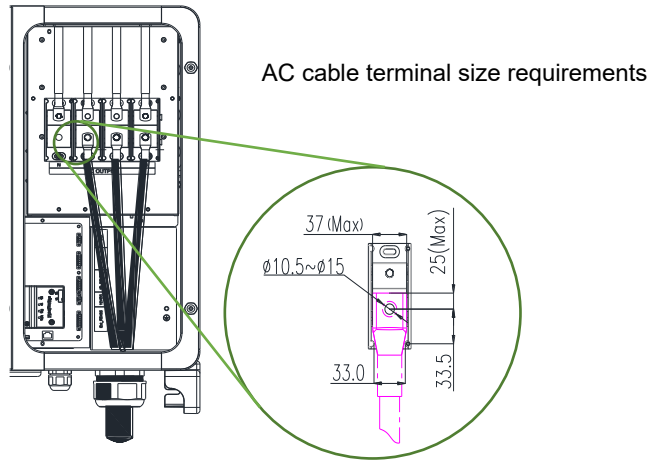


Fig. 3-12 AC Output Line Connection

1. Loosen the locking cap from the AC output watertight cable connector at the bottom of the inverter and remove watertight plug from the locking cap as required
2. Pass the AC cable through the locking cap and the AC output connector. Insert the exposed core wires (stripped length of 14-17mm) into crimp area of compression lugs, wrap the crimp areas with heat shrink tubing or insulation tape, and crimp them using hydraulic plier.

NOTICE!



Use copper compression lugs to match L1, L2, L3 copper wires.
Use Cu-Al bimetallic compression lug or aluminum compression lugs to match L1, L2, L3 aluminum wires.

No washer is required, just select different compression lugs according to different cable materials.

3. Connect compression lugs to L1, L2, L3, N, and PE wiring studs on the AC terminal block, tighten them with M10 flat washers, spring washers and nuts. (the inverter N wire is optional).
4. Adjust cable length, and then retighten the locking cap.

AC output (L1/L2/L3/N) cables of every inverter are connected to AC grid through the 4 pole AC breaker to make sure the inverter can be safely disconnected from AC grid. Please choose the AC breaker referring to the Table 3-4:

Table 3-4 Specification of AC Breaker Selection

Inverter	Inverter AC breaker current parameter
SCA75K-T-EU	200A
SCA75K-T-SA	300A
SCA110KTL-DO/EU	250A
SCA110KTL-DO/EU2	250A
SCA100K-T-EU	250A
SCA125K-T-EU	300A
SCA125K-T-EU	300A



NOTICE!

Leakage current > 1a or without leakage current function.

3.3.5 DC Connection

3.3.5.1 PV Module Configuration

In order to get the best results from your PV inverter, please follow the following guidelines:

- (1) Please refer to Fig. 3-13 to confirm the DC input configuration and ensure that the maximum open circuit voltage of each photovoltaic module is lower than 1100 Vdc under any conditions (considering the negative temperature coefficient of the battery panel, special attention should be paid to the lowest ambient temperature. The open circuit voltage of the photovoltaic array is lower than 1100V);
- (2) Before DC connection, it is necessary to make sure that the photovoltaic modules of the same input area should be the same, including the same model, the same number of panels, the same inclination angle, and the same azimuth;

(3) The short-circuit current of each string is less than 30A (less than 26A for 110kw series).

3.3.5.2 DC Connection Process

Before connecting the PV module cable to the inverter, please refer to Fig. 3-13 and proceed as follows:

- i. Use a multi-meter to measure both ends of the photovoltaic module cable to determine the positive and negative poles;
- ii. Connect the positive (+) cable of the photovoltaic module to the positive (+) input terminal of the inverter;
- iii. Connect the negative (-) cable of the photovoltaic module to the negative (-) input terminal of the inverter;

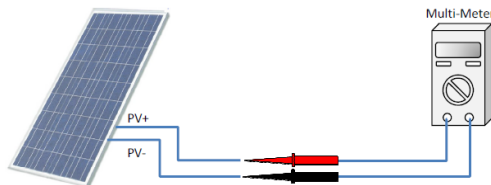


Fig. 3-13 DC Cable Polarity Detection



NOTE :

To avoid reverse connection of the cables, please use a multimeter to check the positive and negative polarity of the dc input cables.

Perform cable connection as the following steps:

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

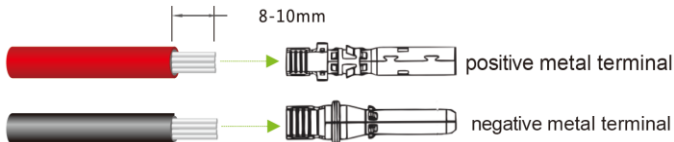


Fig. 3-14 DC Wire stripping

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

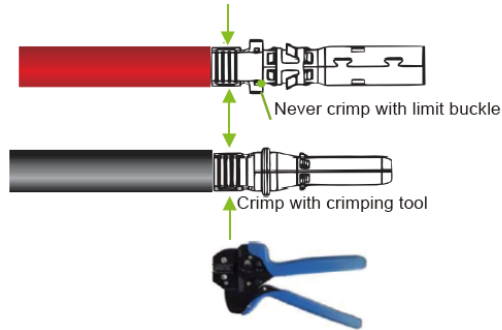


Fig. 3-15 Crimp power cables

NOTICE!


The DC input connectors and metal terminals must be supplied randomly, or the same model of the same manufacturer. Otherwise, poor contact may occur, affecting normal use.

3. Insert the crimped positive and negative power cables into the corresponding male and female connectors until a "click" sound is heard.

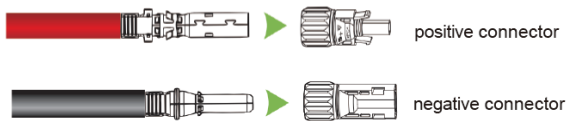


Fig. 3-16 Insert power cables to connectors

NOTICE!


- The grounding wire must be connected well.
- When PV array is exposed to light, it supplies a DC voltage to inverter, so DC switch should be in the OFF state.

4. Measure the cable ends of PV strings using a multi-meter. Ensure that the polarities of the DC input power cables are correct.

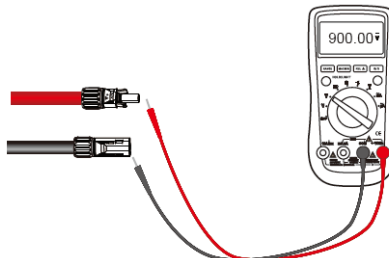


Fig. 3-17 Measure the cable ends of PV strings

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

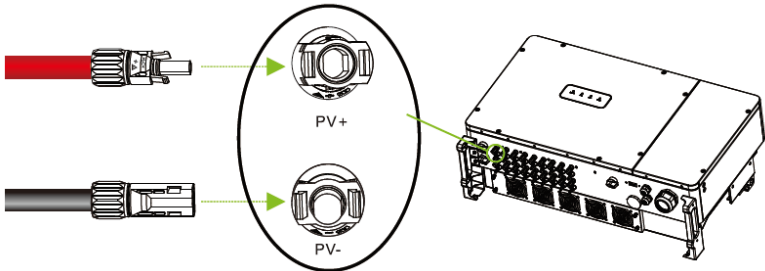


Fig. 3-18 Insert the positive and negative connectors

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.

3.3.6 Communication Connection

3.3.6.1 RS485 wiring

Currently, RS485, Wi-Fi and PLC communication methods are supported, among which RS485 and Wi-Fi are standard and PLC is optional.

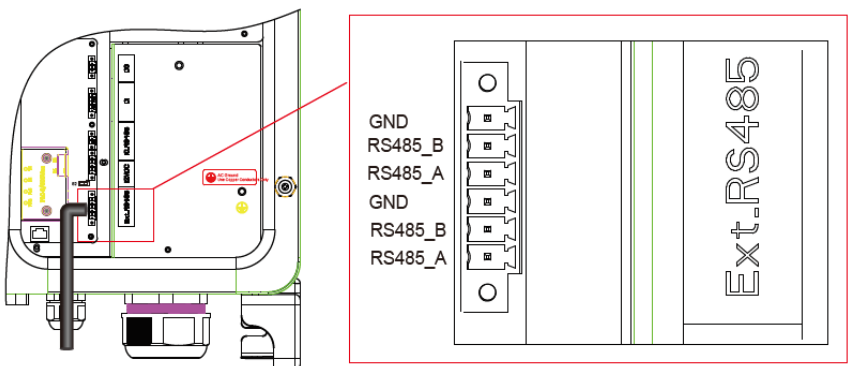
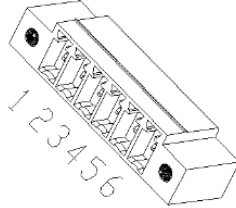


Fig. 3-19 Communication Board

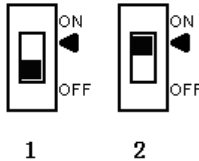
Name	Picture	Configuration Description
------	---------	---------------------------

RS485 port
(6pin connector)
P170



1 – 485GND 4 – GND
2 – RS485- 5 – RS485-
3 – RS485+ 6 – RS485+

RS485
Communication 120Ω
Terminal resistance
selection switch s2



1 – Terminal resistance prohibited
2 – Use of terminal resistor

RS485 Communication Network

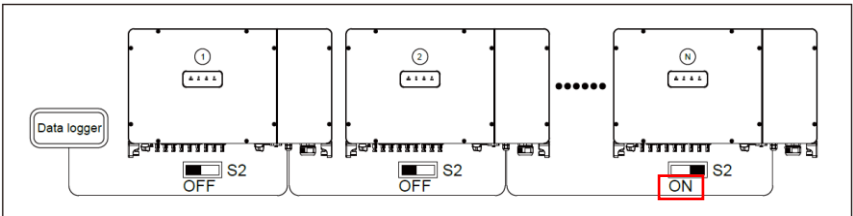


Fig. 3-20 RS485 Communication Network in Daisy chain

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 the communication quality, it is recommended to turn the DIP switch S2 to on, which is the 120ohm terminal resistance on the communication board of the terminal inverter, and keep DIP switch S2 of other inverters as OFF.

NOTE: If there is only one inverter and it's more than 200m and less than 1000m distant from data logger, the Modbus termination switch should also be set to ON, otherwise, it can be set as OFF.

WARNING!



- Make sure all DC and AC power has been disconnected before opening the wire box and ensure that hazardous high voltage and power has been discharged to avoid risk of electric shock.
- Wait at least 5 minutes before opening the wire box.

The detailed steps to perform RS485 wiring are as below:

1. Open the wire box.
2. Loosen the compression nut of tightening head and remove stoppers as required by cable thickness.

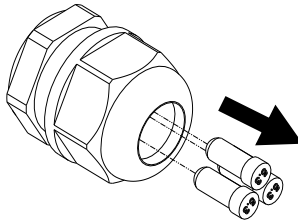
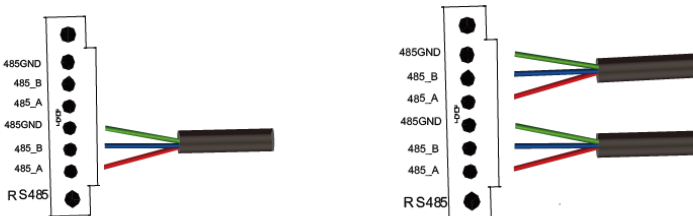


Fig. 3-21 remove stopper

3. Pass communication cables through entrance hole into the wire box.
4. Remove an appropriate length of the jacket and insulation layer from the communication cable. Insert the exposed areas into 6-pin terminal holes respectively, ensuring correct polarity and using a shielded twisted pair cable, and then fasten them with screwdriver. At last, insert the crimped 6-pin terminal onto the corresponding RS485 connectors on the communication board as shown in Fig. 3-20.

Note: The shield of the individual cables must be open (not connected to ground) on one end – the other end of the shield must be grounded.



RS485 communication of single inverter

RS485 Communication Network of multiple inverters

Fig. 3-22 RS485 wiring of single inverter & RS485 network of multiple inverters

- Adjust the cable length and then tighten the compression nut of tightening head. Note: Conduit and tightening head must be sealed and water-tight to maintain its protection rating.

After completing all the wiring steps, fix the 2 screws on the upper cover of the combiner box with a 5mm hex wrench, and close the upper cover.

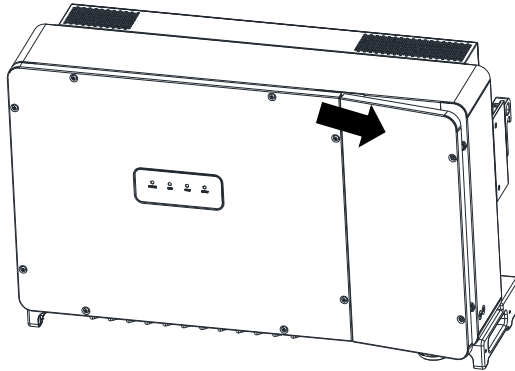


Fig. 3-23 Close upper cover of wire box

IMPORTANT!



- It is important to use hand tools (e.g. hex wrench) instead of power drivers or other types of screw drivers.
 - During installation, it is recommended the cover is in alignment with balanced force to avoid thread damage.
 - Partially engage the screws into the threaded inserts before tightening.
-

3.3.6.2 Install LINKIT

- (1) Remove two screws on the LINKIT cover, and rotate the cover to its opposite side.
- (2) Fasten LINKIT module onto LINKIT port with its original two screws. Note: indicators face towards front cover of the inverter.

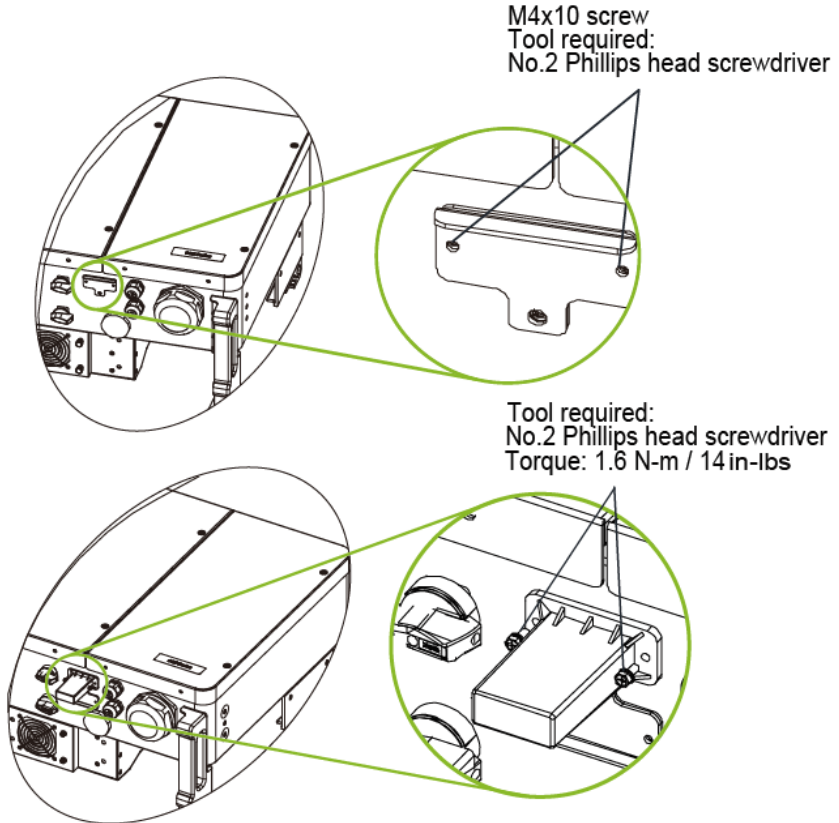


Fig. 3-24 Install the LINKIT module

3.3.7 Cable Connection Notices for Joints and Seals



IMPORTANT!

Pay attention to the following notices when routing cables and sealing the joints.

All the electrical cables and communication cables shall be jointed and sealed properly according to the following requirements to ensure their excellent performance and good water tightness.

- The cable must be vertical to prevent excessive cable stress.

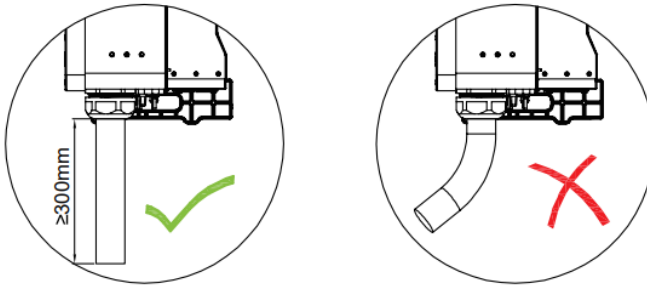


Fig. 3-25 Cable must be vertical

- After the cable passes through the fastening head, fireproof putties shall be applied to seal the joint tightly to prevent water vapor from entering.

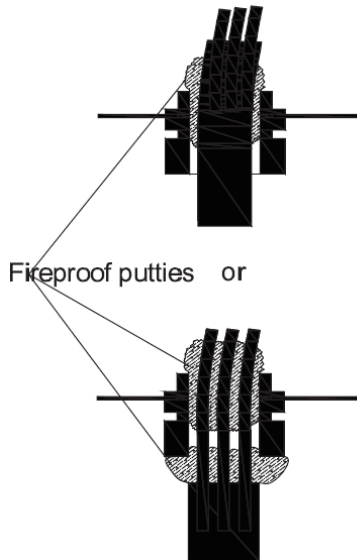


Fig. 3-26 Apply fireproof putties

- After tightening the fastening head, watertight sealants shall be applied on its inner surface and outer surface to avoid loosening or prevent water from entering.

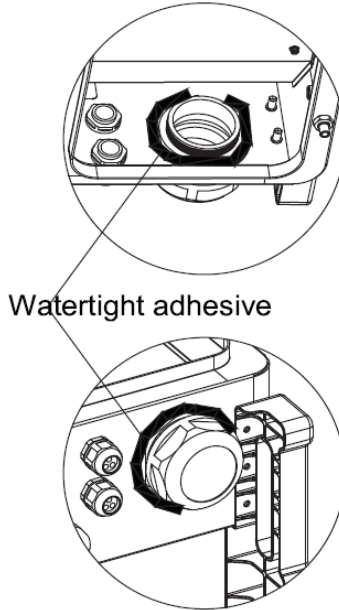


Fig. 3-27 Apply watertight sealants

- Before and after tightening the fastening head, check carefully to ensure the watertight cushion is in good condition, i.e. its surface is uniform and unbroken.

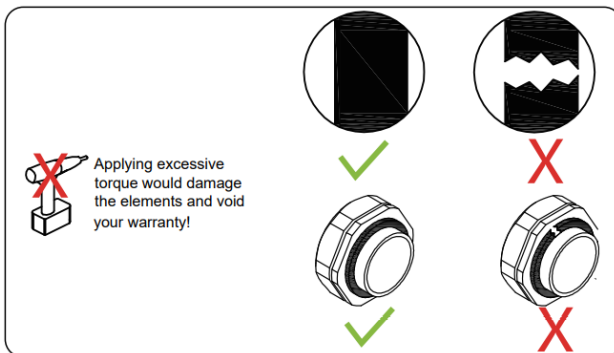


Fig. 3-28 Check watertight cushion

4 Commissioning

4.1 Inverter Installation Inspection



WARNING

Before connecting to the grid, please follow the following guidelines to eliminate hidden dangers and ensure safety.

When the equipment is powered on for the first time, it is imperative that professionals correctly configure the parameters.

Confirm that the supporting structure is firm and reliable, and the mounting screws are fastened.

(Refer to 3.2 Mechanical Installation)

4.2 Inverter Connection Cable Inspection

- Confirm that all cables are connected firmly and reliably and there are no wrong or missing connections.
- The cables are placed reasonably and will not be mechanically damaged.
- Pay special attention to whether the positive and negative polarity of the DC cable on the input side is correct, and turn the DC Switch to the "OFF" position. (Refer to 3.3 Electrical Connection)

4.3 Electrical Inspection

- Confirm that the AC side circuit breaker selection is reasonable.
- Test whether the AC side voltage is normal.
- Test whether the open circuit voltage on the DC side is $\leq 1100V$.

4.4 Commissioning Steps

Complete the test and inspection before operation. Confirm that there is no error. Follow the steps below to test run the inverter.

- 1.) Close the AC side circuit breaker
- 2.) Close the DC side circuit breaker (Skip this step if no breaker).
- 3.) Set the inverter DC switch to the "ON" position. When the solar array produces enough power, the inverter LED POWER indicator will be lit, and the inverter will enter the self-check state in turn.

5 APP Setup

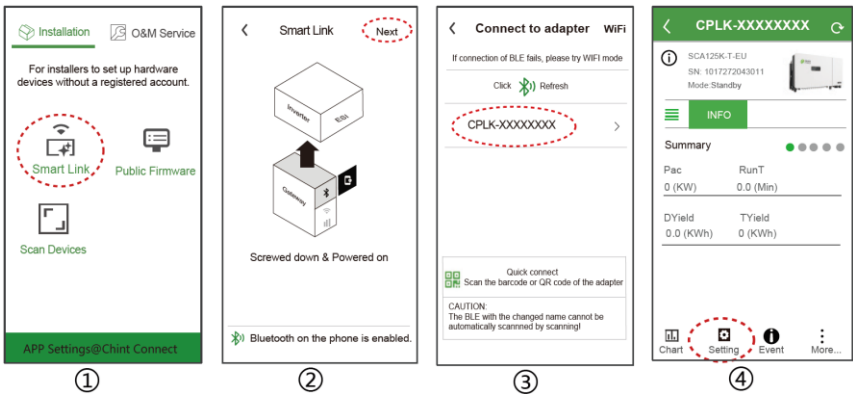
5.1 APP Download

The inverter conducts human-computer interaction through the mobile APP. Apple users can download the iOS version in the Apple store, and Android users can download the APP called "Chint Connect" in the Google store, or directly scan the QR code below to download. (Support Android 4.4 and IOS 11.0 system or higher version system).

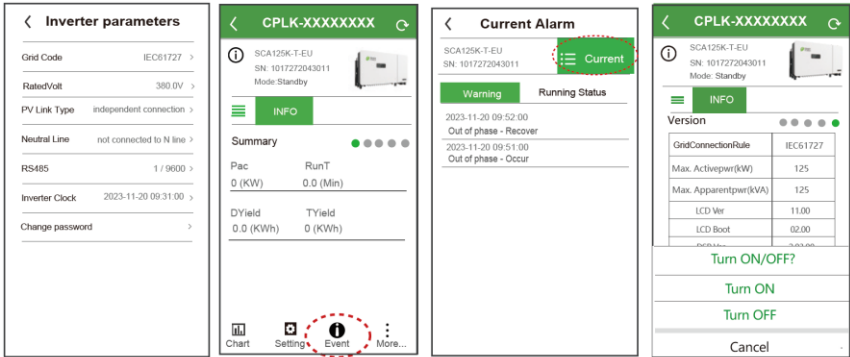


5.2 APP Setting

After power on, the inverter will automatically create a wireless network that uses user devices (tablets, smartphones, etc.) as a visual access point and connects to the inverter via Wi-Fi (Refer to the following steps).



1. Touch "Smart Link" icon to enter "Smart Link" interface. If it is necessary, touch the bottom "APP Setting" to change or user role and then touch the top-right "Save" button to save your changes.
2. Touch "Next" to enter "Connect to the adapter" interface.
3. Touch wireless network named CPLK-XXXXXXX(XXXXXXX can be found on the LINKIT label) shown in Bluetooth List, or touch the green QR to scan LINKIT bar code, to connect network and enter main interface.
4. Touch "Setting" icon and input password "1111", it goes to "Inverter parameter" page.



5. Set or change inverter parameters if necessary, such as Grid Code, PV Link Type, RS485 etc.
6. When the RUN indicator lights up, it indicates that the device is running normally. You can browse through the real-time data in the APP by sliding the interface left and right. If the inverter cannot run normally, FAULT indicator lights up. Click “Event” icon to see fault information.
7. Touch the top-right icon to check detailed current and history fault information. Troubleshooting related problems and restart. Contact service personnel if there are still faults.
8. Touch “More” icon and input password “1111” to power on/off the device.

IMPORTANT!



- Please check with your local electricity supply company before selecting a Grid Code. If the inverter is operated with a wrong Grid Code, the electricity supply company may cancel the interconnection agreement.
- Placing the inverter into operation before the overall system complies with the national rules and safety regulations of the application is not permitted.
- The inverter can only be paired with one mobile phone via Bluetooth at the same time.
- The distance between the phone and the inverter shall be within 5m and there is no obstruction.

5.3 Structure Overview

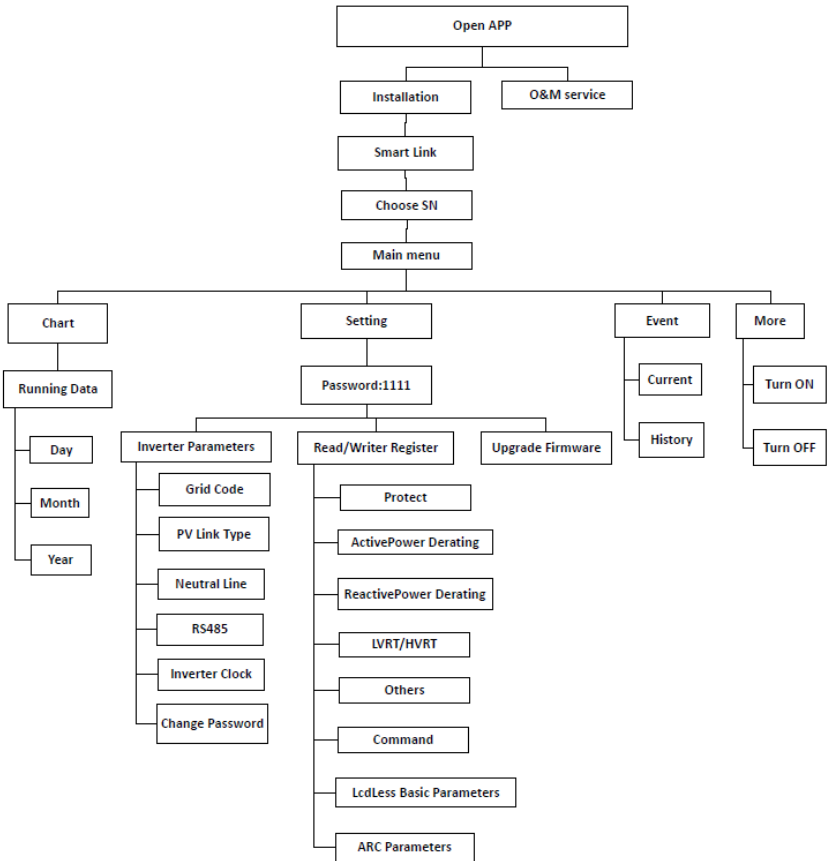


Fig. 5-1 Structure of App interface

5.4 Main Menu

The following interfaces will take SCA125K-T-EU as an instance. Different product types have slight differences, the pictures are just for reference. In the main interface, you can access the following submenus:

- Chart
- Setting
- Event
- More

You can view the main status information and "DC", "AC", "Other" and "Version" information of the inverter on the main interface:

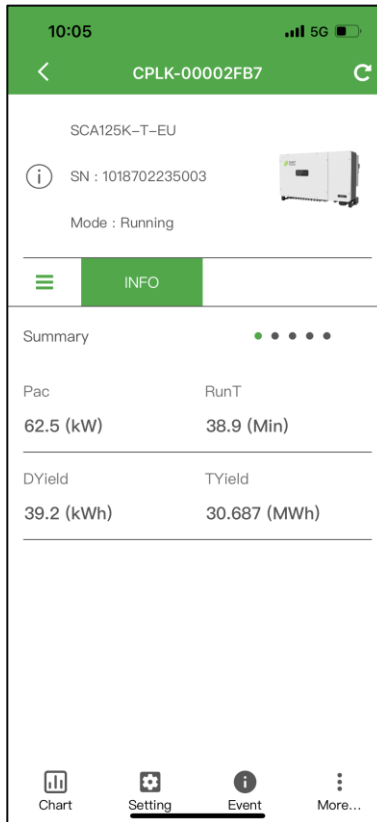


Fig. 5-2 main interface

5.4.1 Chart Menu

In the chart submenu, you can view the power generation in the following ways: current, day, month, year, and total :

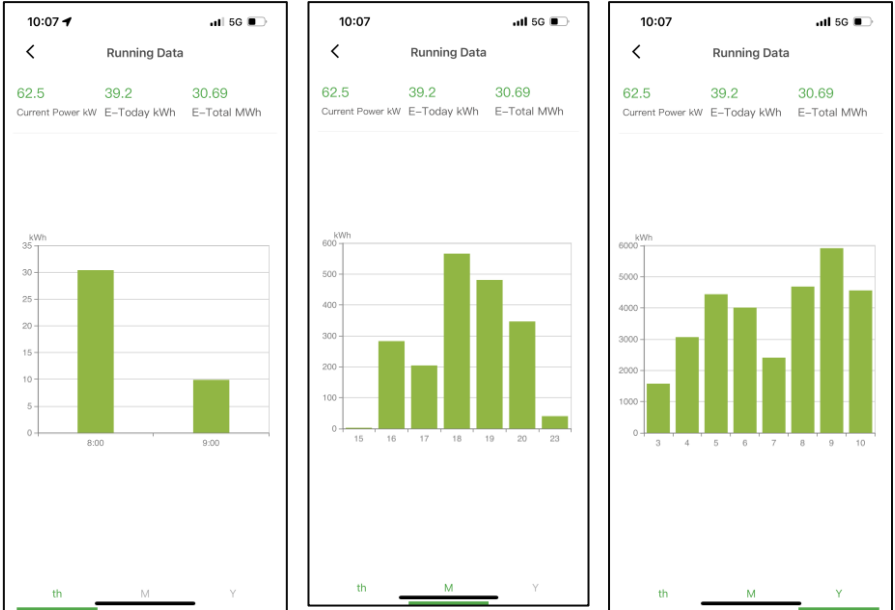


Fig. 5-3 running information

5.4.2 Setting Menu

Select settings and enter the password "1111" as shown below:

In the "Settings" section, you can access the following submenus:

- Inverter Parameters
- Read/Write Registers
- Firmware Upgrade

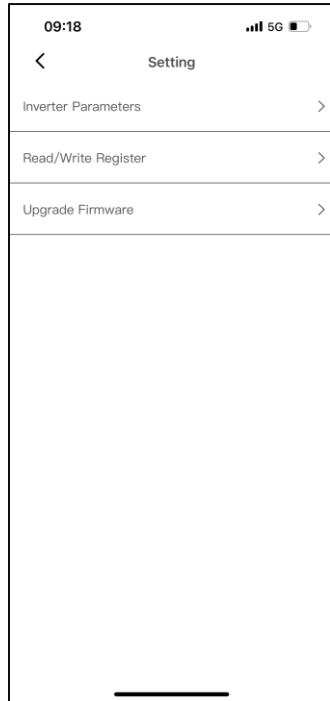


Fig. 5-4 Setting Menu

5.4.2.1 Inverter Parameters

Touch the **Inverter Parameters** tab, you can find the following sub-menus.

- Grid Code
- PV Link Type
- Neutral Line
- RS 485
- Inverter Clock
- Change Password

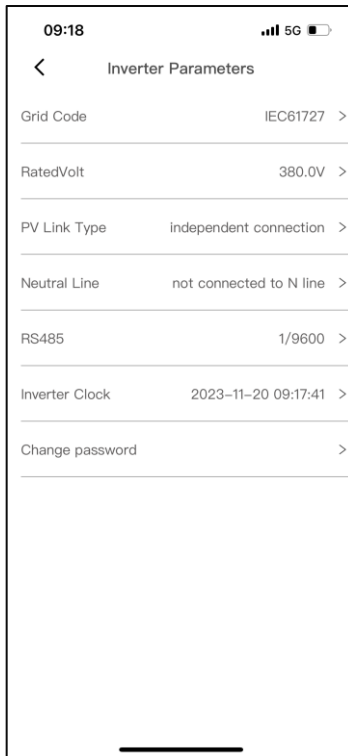


Fig. 5-5 Inverter Parameters

5.4.2.2 Read/Write Registers

In the "Read/Write Register" interface, you can access the following submenus:

- Protect
- ActivePowerDerating
- ReactivePowerDerating
- LVRT/HVRT
- Others
- Command
- LcdLess Basic Parameters
- ARC Parameters (unavailable to 110kw inverters)

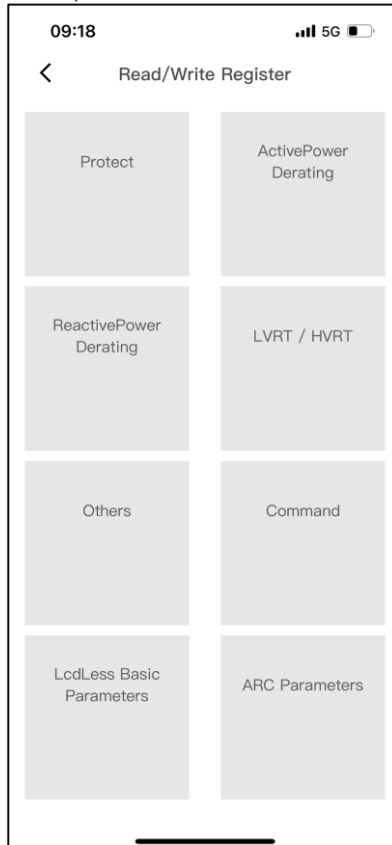


Fig. 5-6 Read/Write Register

5.4.2.2.1 Protect

This interface is used to display and set the protection parameters of AC grid voltage, frequency and recovery, as shown below:

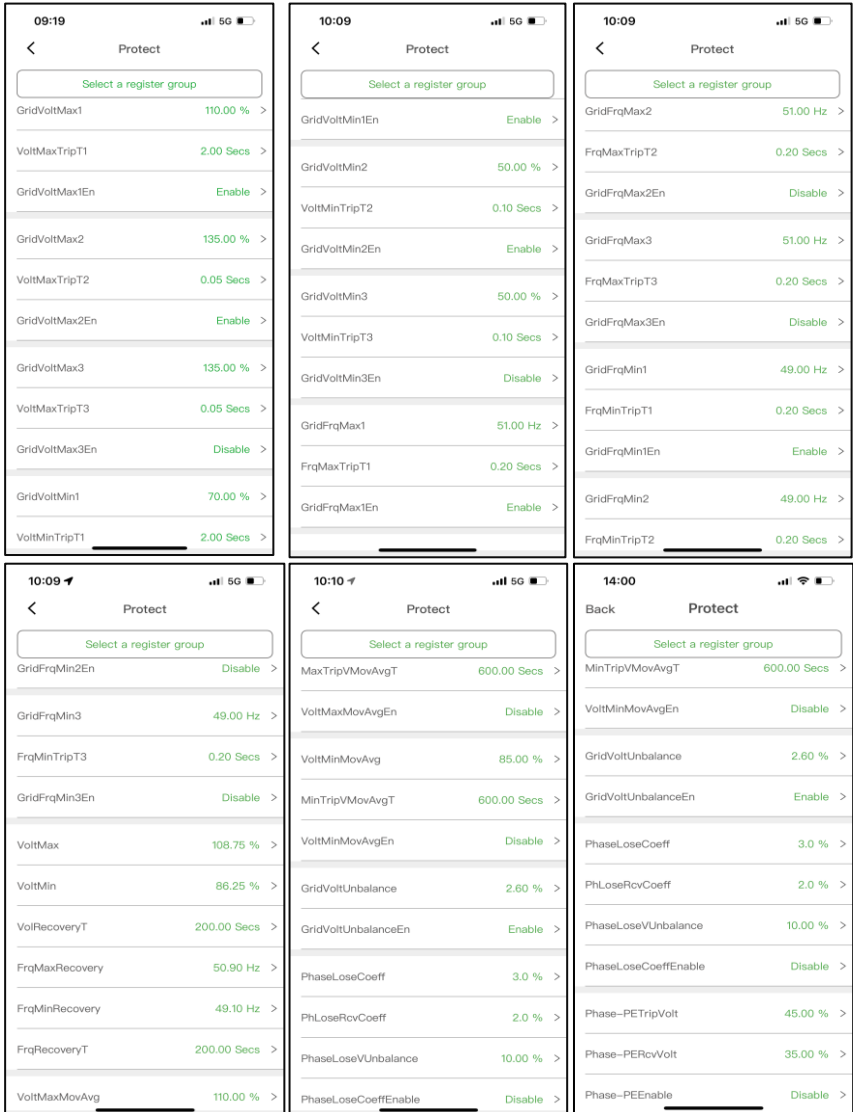


Fig. 5-7 protection parameters

5.4.2.2.2 Active Power Derating

The "Active Power Derating" menu is used to set active power derating parameters, including active power derating, over frequency derating and high temperature frequency derating.

You can see the Curve of over voltage derating in Fig. 5-8 and Curve of over frequency derating in Fig. 5-9.

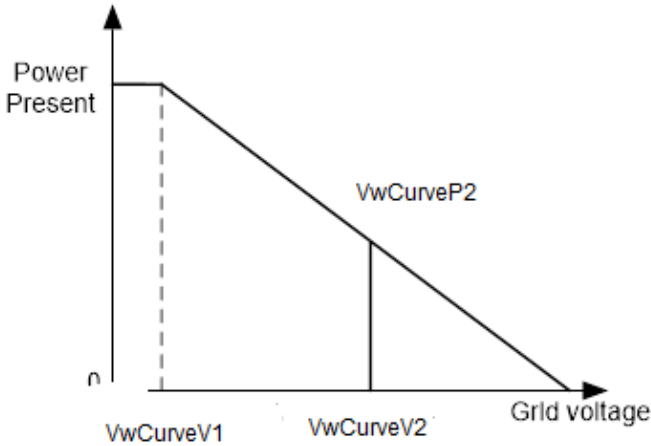


Fig. 5-8 Curve of over voltage derating

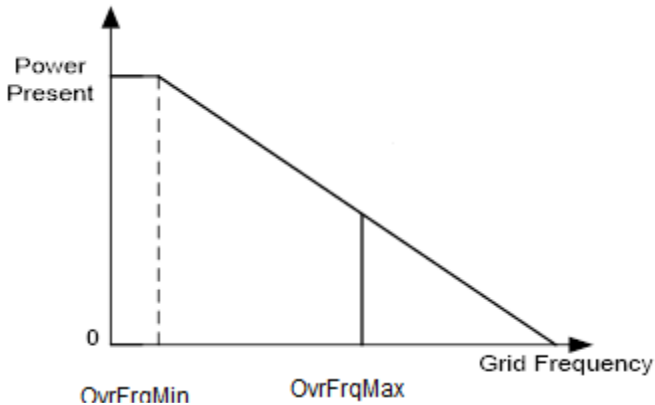


Fig. 5-9 Curve of over frequency derating

In the “ActivePower Derating” interface, you can access and set the following parameters:

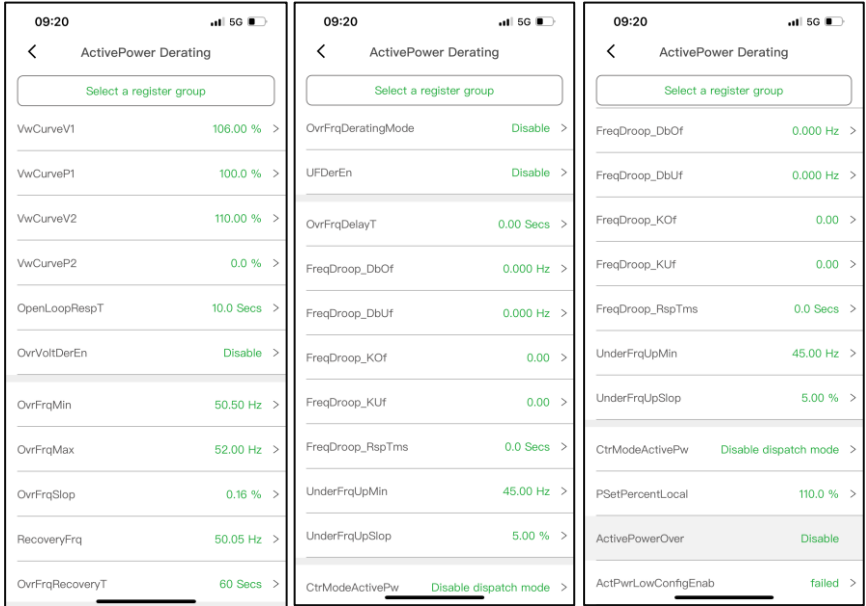


Fig. 5-10 ActivePower Derating interface

5.4.2.2.3 Reactive Power Derating

The "ReactivePowerDerating" menu is used to set the grid reactive power derating parameters, including PF parameters, Qu parameters, etc.

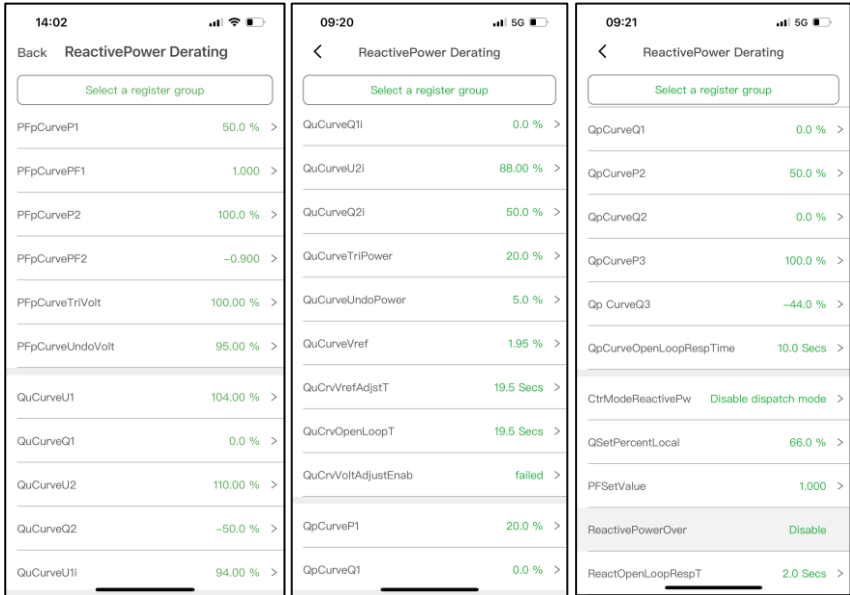


Fig. 5-11 ReactivePowerDerating menu

NOTICE: If "Remote" is selected, PF and Q values can be adjusted through remote software.

(1) PF setting: set PF value

NOTICE: The reactive power can be changed by adjusting the power factor.

(2).PF(P) curve: PF curve mode

NOTICE: The power factor changes according to power changes, as shown in Fig. 5-12:

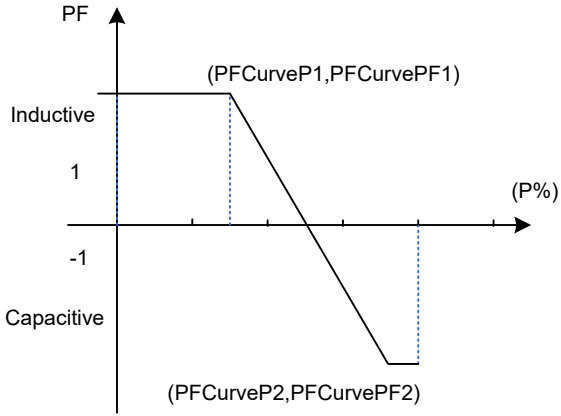


Fig. 5-12 PF(P) Curve Mode

(3).Q(U) curve: Q(U) curve mode

NOTICE: The reactive power compensation will change according to the change of the grid voltage, refer to the Fig. 5-13.

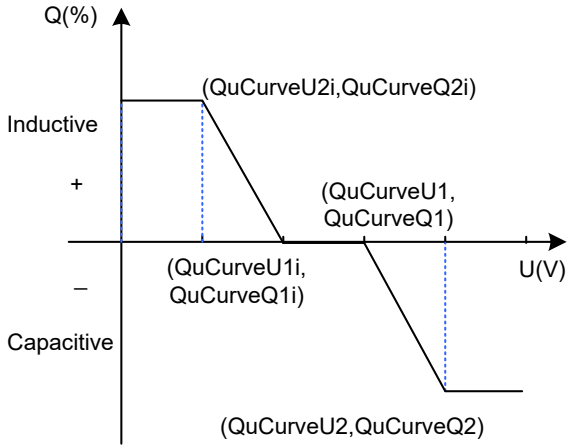


Fig. 5-13 Q(u) Curve Mode

5.4.2.2.4 LVRT/HVRT

“LVRT / HVRT” is used to set LVRT (low penetration) and HVRT (high penetration) parameters:

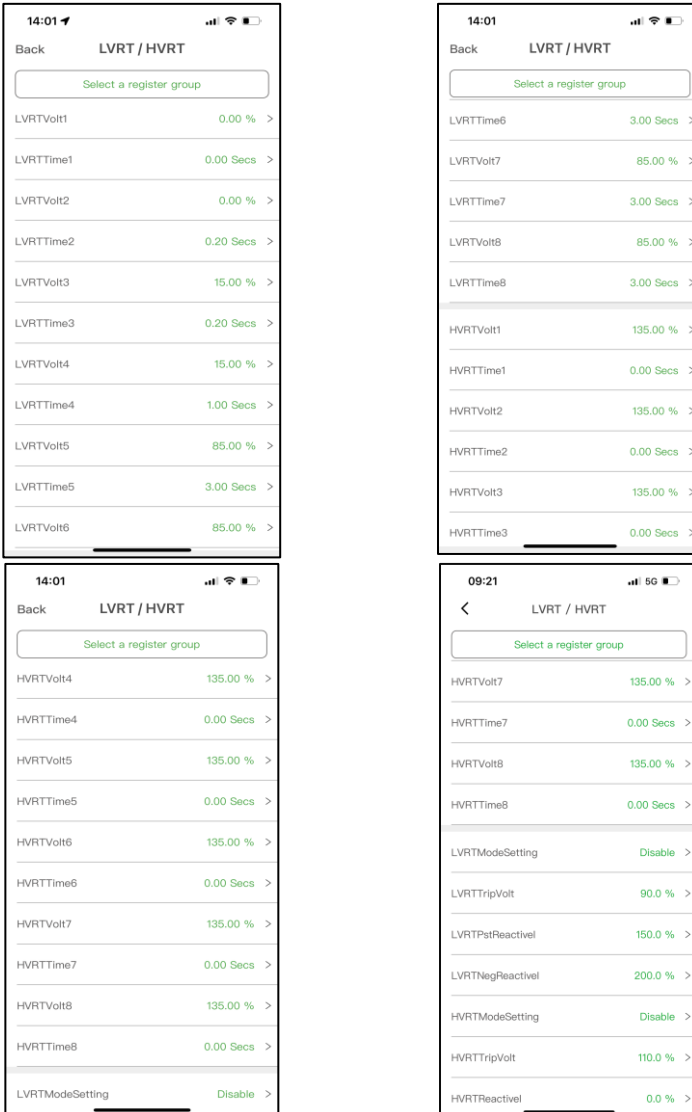


Fig. 5-14 LVRT/HVRT

Refer to the figures below, you can see the LVRT Curve.

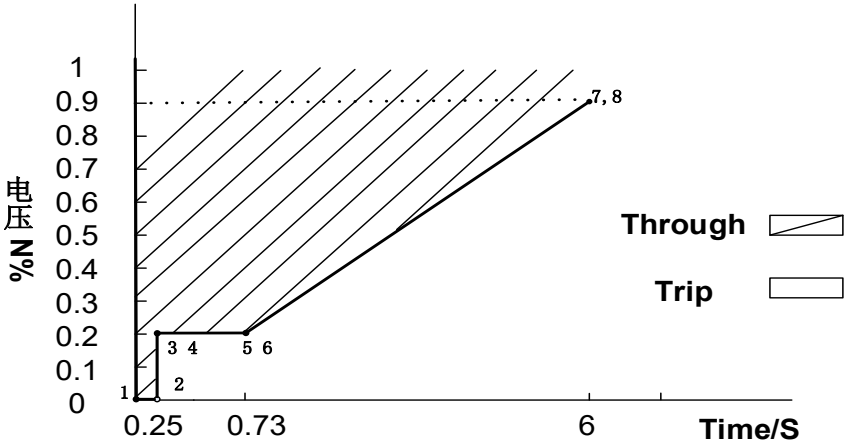


Fig. 5-15 LVRT Curve (just for reference)

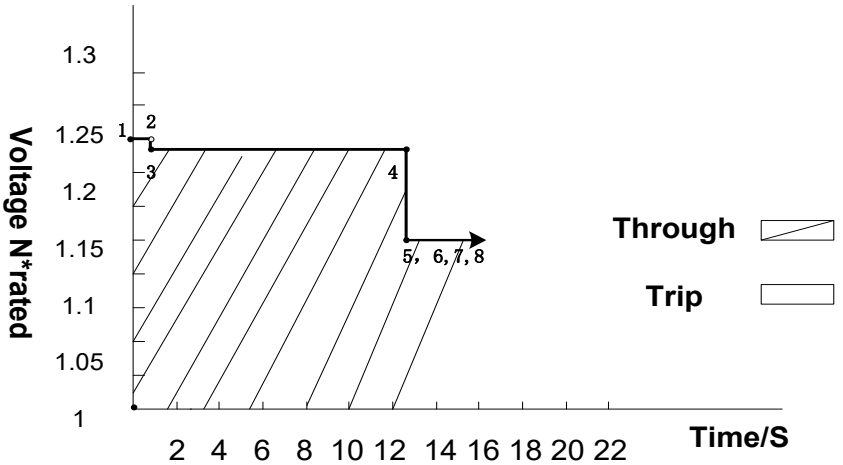


Fig. 5-16 HVRT Curve (just for reference)

5.4.2.2.5 Others

In the others interface, you can find the following common parameters shown as below.

09:21 Others

Select a register group

- PowerOnDelay 1 Secs >
- ReactivePowerStep 50.00 % >
- ErrSoftStartP 30.00 % >
- NormSoftStopP 30.00 % >
- NormSoftStopPEn Disable >
- NormSoftStartP 30.00 % >
- NormDeratingStep 30.00 % >
- PVSlowStartStep 10.00 % >
- PVSlowStartPwDelta 5.00 % >
- PVSlowStartSEn (HECO) Disable >
- FaultPowerT 94.0 °C >

10:12 Others

Select a register group

- FaultEnvT 89.0 °C >
- GFCISaticValue 1.125 A >
- GFCISaticT 0.20 Secs >
- GFCISaticEn Enable >
- GFCIDynProFactor 150.0 % >
- GFCIDynProEn Disable >
- DCIProtection1 1.00 % >
- DCIProtectionT1 10.00 Secs >
- DCIProtection1En Enable >
- DCIProtection2 950 mA >

14:02 Others

Select a register group

- DCIProtectionT2 1.00 Secs >
- DCIProtection2En Disable >
- PVStartupVolt 285 V >
- MPPTScanPeriod 3600 Secs >
- MPPTScanEn Disable >
- ISOProtection 36 kΩ >
- ISOProtectionEn Enable >
- StartUpMinTemp -30.0 °C >
- DuplicationControl 10 % >
- Article 4 groups, control parameter setting of inverter loop >
- PIDCheckEn No external connection PID-Box >

09:23 Others

Select a register group

- Island Protect Enable >
- FANDetectEn Enable >
- ACSPDDetectEnSet Disable >
- AIFreDisturbTrip 0.020 Hz >
- OperationOverVol 120.00 % >
- OperationOverVolEn Disable >
- VirtualDamping 0.250 Ω >
- MPPTRangEnable Enable >
- RapidShutdownEnabBit Disable >
- FreqLv2Prtn(CEI) 0 >
- PVIFuseCheckEn Disable >

09:23 Others

Select a register group

- PV2FuseCheckEn Disable >
- PV3FuseCheckEn Disable >
- PV4FuseCheckEn Disable >
- PV5FuseCheckEn Disable >
- PV6FuseCheckEn Disable >
- PV7FuseCheckEn Disable >
- PV8FuseCheckEn Disable >
- PV9FuseCheckEn Disable >
- PV10FuseCheckEn Disable >
- PV11FuseCheckEn Disable >
- PV12FuseCheckEn Disable >

09:23 Others

Select a register group

- PV13FuseCheckEn Disable >
- PV14FuseCheckEn Disable >
- PV15FuseCheckEn Disable >
- PV16FuseCheckEn Disable >
- PV17FuseCheckEn Disable >
- PV18FuseCheckEn Disable >
- PV19FuseCheckEn Disable >
- PV20FuseCheckEn Disable >
- PV21FuseCheckEn Disable >
- PV22FuseCheckEn Disable >
- PV23FuseCheckEn Disable >

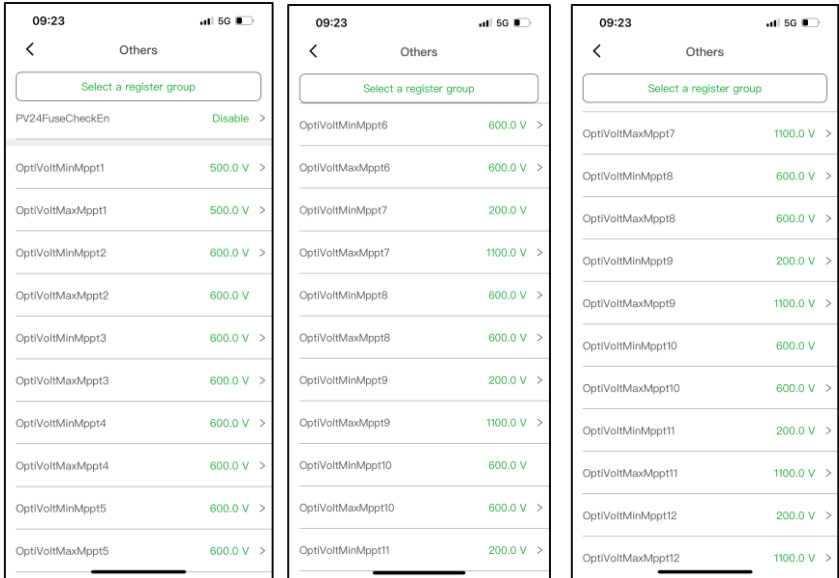


Fig. 5-17 others interface

5.4.2.2.6 Command

In the “Command” interface, you can access the following submenus:

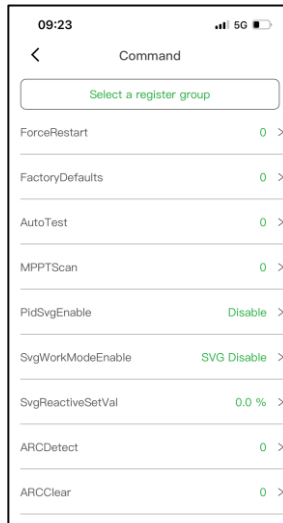


Fig. 5-18 Command interface

- **Force Restart:** When a permanent failure occurs, you have the option to re-energize the inverter. After re-energizing, the fault will be restored. Alternatively, you can perform a forced restart through the APP or web interface, and the fault will also be restored. There are no limitations on the number of times these procedures can be carried out.
- **FactoryDefaults:** The manufacturer's parameter default values can be restored when the inverter is not in operation mode. Otherwise "Fault Operated" will be reported.
- **AutoTest:** Only for Italian Grid Code.
- **MPPTScan:** It is used to execute the MPPT scanning manually. The device screen will skip to normal operation interface if the MPPT scanning succeeds, or remain on the interface if the scanning fails. MPPT scan function is used for multi-MPP tracking, and is useful if the PV panels are partly shadowed or installed with different angles. The factory setting of MPPT scan is <Enabled, yet can also be set to Disabled. When the MPPT scan function is enabled, the scan period is 60 minutes.
The inverter will scan the maximum power point in the MPPT range, according to the following conditions:
 - The total input power is lower than 90% of the active power.
 - Once this MPPT scan function is activated on the device, it will search the maximum power point at a voltage step of 5V in the MPPT range for full load, and retrieve the maximum power point.
- **PidSvgEnable:** When the communication between the control board and the communication board is lost in the evening, turn on the PID or SVG working mode. The SVG function can be divided into two modes. This function is reserved for later use.
- **SvgWorkModeEnable:** This function is reserved for later use.
- **SvgReactiveSetVal:** After choosing to enable SVG function, set the reactive power value acc. to requirements of Electricity Supply Company. This function is reserved for later use.
- **ARCDetect:** This function is used to manually detect whether the ARC board is faulty (if 4G network card is connected, this function can be used remotely on web page). During normal operation, using this function will shut down the running device for ARC detection. If there is a fault, the "ARCDetect" item will display "Error" and an ARC board fault record will show on the fault page under the "Event Warning" menu (refer to section 5.4.3 to check fault information); If there are no faults, the "ARCDetect" item will display "successful".
Note: The device will automatically perform ARC board detection before normal operation every day. Therefore, it's unnecessary to perform this function when the device is running normally.
ARCDetect is unavailable to 110kw inverters.

- ARCClear:** This function is used to manually clear the ARC protection of the machine (if 4G network card is connected, this function can be used remotely on web page). The device is preset to automatically reconnect 5 times within 24 hours by default (the automatic reconnection time can be set in parameter area of ARC interface, refer to Fig. 5-20). When ARC protection is triggered for the fifth time, it is necessary to manually clear the ARC fault. Then the device will resume the automatic reconnection function – reconnect five times within 24 hours. (unavailable to 110kw inverters).

5.4.2.2.7 LcdLess Basic Parameters

The LcdLess Basic Parameters interface is used to set the parameters as below.

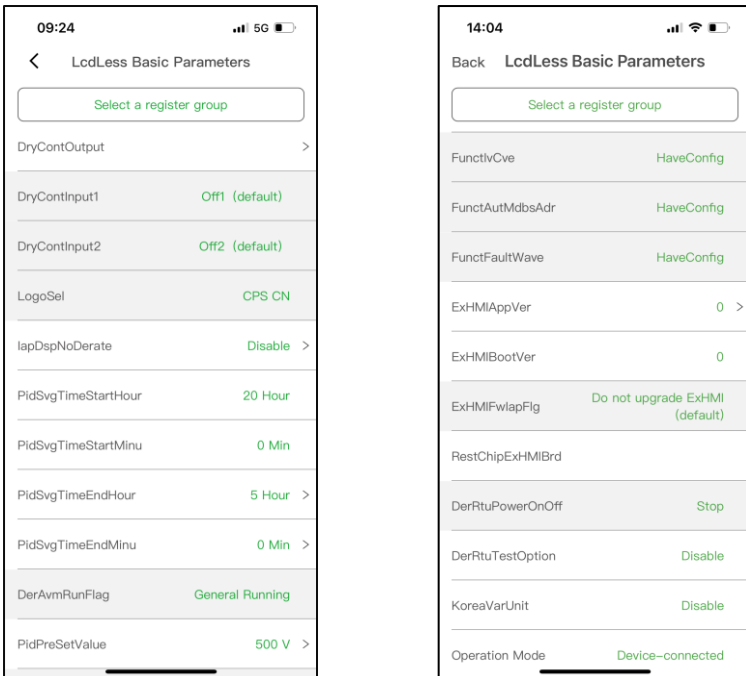


Fig. 5-19 LcdLess Basic Parameters interface

5.4.2.2.8 ARC Parameters

In the ARC parameter setting interface, bandwidth, start frequency, proportion, filter, threshold, single period amplitude limit, basic amplitude of each frequency band, and ARC enable default setting, are all set as system default parameters that cannot be changed by the user. The ARC fault recovery time, with a setting range of 5-600 minutes, can be set by users according to their own demands.



IMPORTANT!

The **ARC** Fault detection parameters should **ONLY** be adjusted by CPS or Qualified representative.

Arc fault detection is not an operational function for the 110Kw inverters.

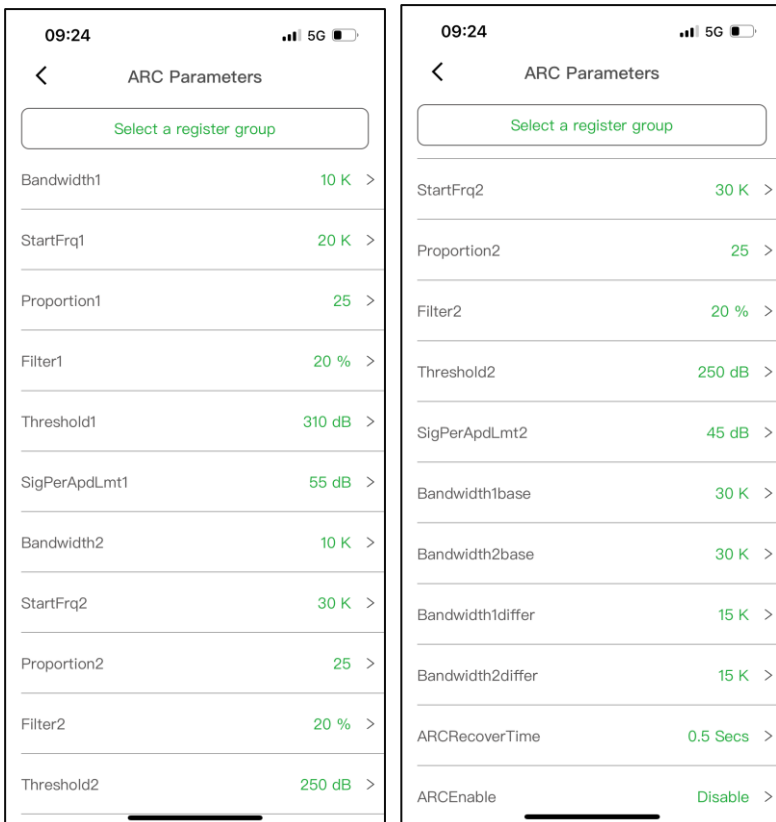


Fig. 5-20 ARC Parameters

When ARC protection is triggered, the device will perform automatic reconnection functions for five times within 24 hours (the automatic reconnection time can be set in the “ARCRecoverTime” item, as shown in Fig. 5-20). When ARC protection is triggered the fifth time, it is necessary to manually clear the ARC fault (see 5.4.2.2.6). Then the device will resume the automatic reconnection function – reconnect five times within 24 hours, and manual startup is required.

The ARC function is in accordance with the IEC 63027 standard, and the product category is:

SCA 75K-T-EU, SCA 75K-T-SA & CPS SCA100KTL-DO: F-I-AFPE-1-6-3

- Full coverage
- Integrated
- AFPE (Arc fault protection equipment)
- 1 monitored strings per input port
- 6 input ports per channel
- 3 monitored channel

CPS SCA120KTL-DO & SCA 125K-T-EU: F-I-AFPE-1-8-3.

- Full coverage
- Integrated
- AFPE (Arc fault protection equipment)
- 1 monitored strings per input port
- 8 input ports per channel
- 3 monitored channel

5.4.2.3 Software Upgrade

Refer to the specific instructions or consult our after-sale department, you can see the detailed procedures for software upgrade.

5.4.3 Event Menu

Touch the **Event** icon, you can see two options (**Current** and **History**).
 If you select the history option, there are 2 submenus in the History menu:
 “Warning” and “Running Status”, as shown below.

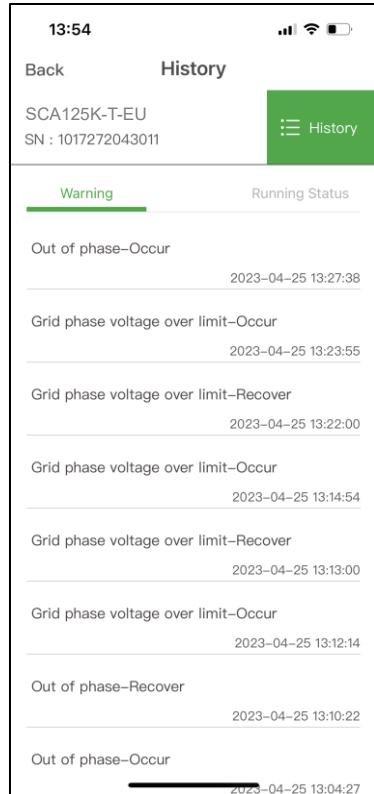


Fig. 5-21 Event Menu

5.4.4 More Menu

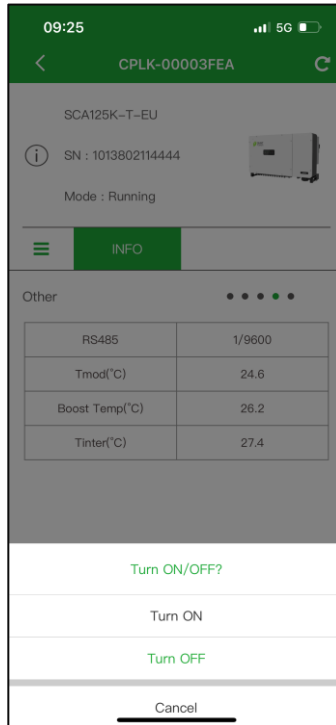


Fig. 5-22 More Menu

- Manual Turn ON/OFF:** Manual Power ON/OFF is required after Grid Code setting or manual (fault) shut-down. Touch to submenu “Turn ON/OFF”. Then move the cursor to “Turn ON” to start the inverter, the inverter will start up and operate normally if the start-up condition is met. Otherwise, the inverter will go to stand-by mode.

Normally, it is not necessary to Turn OFF the inverter, but it can be shut down manually if Grid Code setting or maintenance is required.

Move the cursor to submenu “Turn ON/OFF”. Move the cursor to “Turn OFF” and ensure, then the inverter will be shut down.
- Automatic Turn ON/OFF:** The inverter will start up automatically when the output voltage and power of PV arrays meet the set value, AC power grid is normal, and the ambient temperature is within allowable operating range.

The inverter will be shut down automatically when the output voltage and power of PV modules are lower than the set value, or AC power grid fails; or the ambient temperature exceeds the normal range.

6 Maintenance

WARNING!



- Before starting any product maintenance, the inverter should be stopped running, the AC circuit breaker connected to the grid and the PV input on the DC side shall be all disconnected, and then wait at least 5 minutes before starting any operation.
 - Maintenance operations can be performed by qualified personnel only.
 - To reduce the risk of electrical shock, please do not perform other servicing other than those specified in the operation instructions unless you are qualified to do so.
-

6.1 Check Electrical Connection

- Check all the cable connections as a regular maintenance inspection every 6 months or once a year.
- Check the cable connections. If loose, please tight all the cables acc. to section 3.3 Electrical connection.
- Check for cable damage, especially whether the cable surface is scratched or smooth. Repair or replace the cables if necessary.

6.2 Clean the Air Vent Filter

The inverter can become hot during normal operation. So, the inverter uses built-in cooling fans to provide sufficient air flow to help in heat dissipation. In order to ensure good ventilation and heat dissipation of the inverter, it is necessary to check the air inlet and outlet regularly.

Ensure that air inlets and outlets are not blocked and clean the vent with soft brush or vacuum cleaner if necessary.

6.3 Replace the Cooling Fans

If the internal temperature of the inverter is too high or abnormal noise is heard assuming the air vent is not blocked and is clean, it may be necessary to replace the external fans.



IMPORTANT!

Please disconnect the AC & DC power before replacing the fans.

Refer to the following procedures for replacing the cooling fans.

1. Use a No.2 Phillips head screwdriver to remove the 4 screws fixing the fan tray as shown in Fig. 6-1.

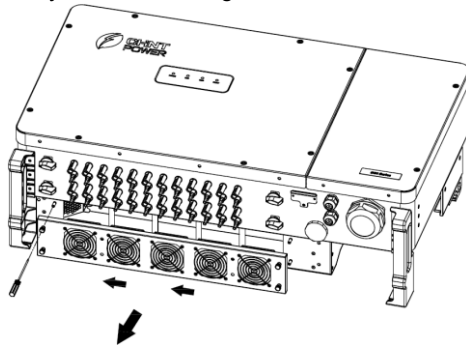


Fig. 6-1 Remove the fan tray and fan

2. Disconnect the watertight cable connector from cooling fan, as shown in Fig. 6-2.

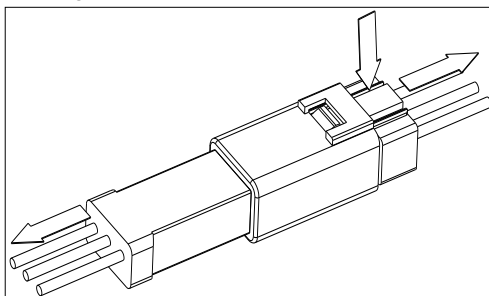


Fig. 6-2 Disconnect the watertight cable connector

3. Use a No.2 Phillips head screwdriver to remove the 4 screws fixing every fan.

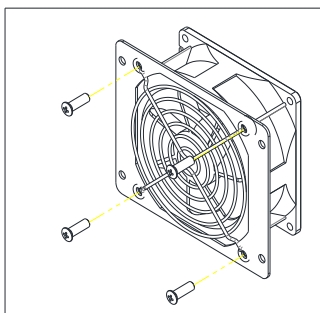


Fig. 6-3 Replace cooling fans

4. Place the new cooling fans on the fan tray, and fasten the cable on the fan tray with cable ties. Tools required: No.2 Phillips head screwdriver, torque value: 14~18kgf.cm
5. Reinstall the assembled fans onto the inverter. Tools required: No.2 Phillips head screwdriver, torque value: 16kgf.cm.

6.4 Replace the Inverter



IMPORTANT!

Make sure the AC breaker and DC switch of inverter are turned off.

Replace the inverter in reverse order relative to the installation steps in section 3.2 Mechanical Installation.

1. Use a #3 Philips head screwdriver to remove the two M6X16 screws.
2. Remove the inverter from its mounting bracket with the coordination of 4 people.
3. Replace the new inverter on the mounting bracket and fasten it.

7 Troubleshooting

7.1 LED Lamp Troubleshooting

If the LED light indicates any faults, please perform troubleshooting according to the Table 7-1:

Table 7-1 LED Light Troubleshooting

LED Lamp Failure State	Troubleshooting Method
“Power” light not on	<ol style="list-style-type: none"> 1. Disconnect the external AC circuit breaker 2. Turn the DC switch to the “OFF” position 3. Check PV input voltage and polarity
“GRID” light flashing	<ol style="list-style-type: none"> 1. Disconnect the external AC circuit breaker 2. Turn the DC switch to the “OFF” position 3. Check that the grid voltage and circuit breaker wiring are correct and firm
“RUN” light off or “FAULT” light on	Refer to Table 7-2 for troubleshooting

7.2 APP Display Troubleshooting



DANGER!

- Please disconnect the inverter from AC grid and PV modules before opening the equipment. Make sure hazardous high voltage and energy inside the equipment has been discharged.
- Do not operate or maintain the inverter until at least 5 minutes after disconnecting all sources of DC and AC.

When the photovoltaic power generation system fails, such as: output short circuit, grid voltage overvoltage, undervoltage, grid frequency overfrequency, underfrequency, high ambient temperature, and device internal failure, the inverter will automatically stop and the fault information will be displayed on the APP.

Before contacting the after-sales service, you can quickly locate the cause of the fault based on the faults listed in Table 7-2, and deal with it according to the recommended handling method. There are three main types of failures: alarm, protection, and failure.

Table 7-2 Fault Information Table

Warning	Internal Communication Failure	<ol style="list-style-type: none"> 1. Observe for 5 minutes to see if the inverter can automatically eliminate this alarm; 2. Disconnect the DC switch and let the system receive power again; 3. Contact after-sales service personnel
	External Fan Alarm	<ol style="list-style-type: none"> 1. Observe for 5 minutes to see if the inverter can automatically eliminate this alarm; 2. Check on the spot whether there are foreign objects on the fan blades; 3. Disconnect the DC switch and let the system receive power again; 4. Contact after-sales service personnel
	Internal Fan Alarm	<ol style="list-style-type: none"> 1. Observe for 5 minutes to see if the inverter can automatically eliminate this alarm; 2. Check on the spot whether there are foreign objects on the fan blades; 3. Disconnect AC power and let the system receive power again; 4. Contact after-sales service personnel
	Warning 0030 (Eeprom Failure)	<ol style="list-style-type: none"> 1. Observe for 5 minutes to see if the inverter can automatically eliminate this alarm; 2. Contact after-sales service personnel
	Warning 0040 DC Abnormal side lightning protection device	<ol style="list-style-type: none"> 1. Observe for 5 minutes to see if the inverter can automatically eliminate this alarm; 2. Check whether the DC lightning protector is damaged 3. Contact after-sales service personnel
	Warning 0050 Temperature	<ol style="list-style-type: none"> 1. Check the temperature display value

	Sensor Abnormal	<ol style="list-style-type: none"> 2、 Disconnect AC power and let system receive power again 3、 Contact after-sales service personnel
	Warning 0100 AC MOV Abnormality	<ol style="list-style-type: none"> 1、 Observe for 5 minutes to see if the inverter can automatically eliminate this alarm 2、 Contact after-sales service personnel
Protection	Protection 0090 (Bus Voltage High)	<ol style="list-style-type: none"> 1. Restart the inverter, disconnect the AC and DC connections, wait for 5 minutes to discharge and then turn it on 2. Contact after-sales service personnel
	Protection 0070 (Bus High Voltage Difference)	<ol style="list-style-type: none"> 1. Restart the inverter, disconnect the AC and DC connections, wait for 5 minutes to discharge and then turn it on 2. Contact after-sales service personnel
	Grid voltage abnormality	<ol style="list-style-type: none"> 1. Check whether the AC input voltage of the inverter is normal 2. Restart the inverter 3. Contact after-sales service personnel
	Protection 0020 (Grid-tied relay protection)	<ol style="list-style-type: none"> 1. Restart the inverter, disconnect the AC and DC connections, wait for 5 minutes to discharge and then turn it on 2. Contact after-sales service personnel
	Over-temperature protection	<ol style="list-style-type: none"> 1. Check whether the external ambient temperature is within the working range of the inverter 2. Check if the fan and air outlet are blocked 3. Check whether the installation environment and spacing meet the requirements, and whether the heat dissipation meets the requirements 4. Observe for 30 minutes to see if the fault is automatically eliminated 5. Contact after-sales service personnel
	Protection 0170 (DCI current is too high)	<ol style="list-style-type: none"> 1. Set the maximum DCI to 400mA (refer to 5.11) 2. Restart the inverter to observe whether the fault is automatically eliminated 3. Contact after-sales service personnel
	Insulation	<ol style="list-style-type: none"> 1. Check whether the PV cable and ground

	Resistance is too low	<p>cable are normal</p> <ol style="list-style-type: none"> Restart the inverter and observe whether the fault is automatically eliminated Contact after-sales service personnel
	Leakage Current is too high	<ol style="list-style-type: none"> Check whether the PV cable and ground cable are normal Restart the inverter and observe whether the fault is automatically eliminated Contact after-sales service personnel
	Protection 0150 MCU Protection	<ol style="list-style-type: none"> Restart the inverter, disconnect the AC and DC connections, wait for 5 minutes to discharge and then turn it on Contact after-sales service personnel
	Protection 0100 The leakage current sensor is abnormal	<ol style="list-style-type: none"> Restart the inverter, disconnect the AC and DC connections, wait for 5 minutes to discharge and then turn it on Contact after-sales service personnel
	Reverse PVx Input (x=1,2...18/24)	<ol style="list-style-type: none"> Disconnect the AC and DC connections and swap the positive and negative poles of the reverse branch Restart the inverter to see if it is normal Contact after-sales service personnel
	PVx input overcurrent (x=1,2...18/24)	<ol style="list-style-type: none"> Check whether the PV input current is within the acceptable range Restart the inverter, disconnect the AC and DC connections, wait for 5 minutes to discharge and then turn it on Contact after-sales service personnel
	PVx input voltage is too high (x=1,2...18/24)	<ol style="list-style-type: none"> Check if the PV input voltage is within the range of 1100V Restart the inverter, disconnect the AC and DC connections, wait for 5 minutes to discharge and then turn it on Contact after-sales service personnel
	Protection 0230 Start-up inverter open loop self-check failure	<ol style="list-style-type: none"> Restart the inverter, disconnect the AC and DC connections, wait for 5 minutes to discharge and then turn it on Contact service personnel
Failure	Failure 0010~0150	<ol style="list-style-type: none"> Restart the inverter, disconnect the AC and DC connections, wait for 5 minutes to discharge and then turn it on Contact service personnel

8 Technical Data

Model Name	SCA120K-T-EU	SCA125K-T-EU	SCA100K-T-EU	SCA75K-T-EU	SCA75K-T-SA	SCA110KTL-DO/EU	SCA110KTL-DO/EU2
DC Input							
Max. DC Voltage	1100Vdc	1100Vdc	1100Vdc	1100Vdc	1100Vdc	1100Vdc	
MPPT Voltage Range	200~950Vdc	200~950Vdc	200~950Vdc	200~950Vdc	200~950Vdc	200~1000Vdc	
MPPT Voltage Range (Full Load)	500-850Vdc	500-850Vdc	500-850Vdc	400-850Vdc	400-850Vdc	500-870Vdc	
Start Voltage/Power	300Vdc/300W	300Vdc/300W	300Vdc/300W	300Vdc/300W	300Vdc/300W	300Vdc/100W	
Rated DC Voltage	615Vdc	615Vdc	615Vdc	615Vdc	615Vdc	620Vdc	
Number of MPPT/Max. Number of DC Connection Sets	12/24	12/24	12/24	9/18	9/18	9/18	12/12
Max. DC Current	12*30	12*30	12*30	9*30	9*30	9*26	12*26
DC Disconnection Type	Integrated Switch	Integrated Switch	Integrated Switch	Integrated Switch	Integrated Switch	Integrated Switch	
AC Output							
Rated AC Power	120kW	125kW	100kW	75kW	75kW	100kW	
Max. AC Power	132kVA	125 kVA	110kVA	75 kVA	75 kVA	110kVA	
Rated AC Voltage	380 / 400V	380 / 400V	380 / 400V	380 / 400V	220Vac	380V, 400V	
AC Voltage Range*	322~528Vac	322~528Vac	322~528Vac	322~528Vac	150~330Vac	322-528Vac	
Grid Connection Type	3Φ / N / PE	3Φ / N / PE	3Φ / N / PE	3Φ / N / PE	3Φ / N / PE	3Φ / N / PE	
Max. AC Current	201A	190A	167A	114A	197A	167A	
Rated Frequency	50Hz / 60Hz	50Hz / 60Hz	50Hz / 60Hz	50Hz / 60Hz	50Hz / 60Hz	50/60Hz	
Grid Frequency Range*	45 - 55Hz/ 55-65Hz	45 - 55Hz/ 55-65Hz	45 - 55Hz/ 55-65Hz	45 - 55Hz/ 55-65Hz	45 - 55Hz/ 55-65Hz	47-53/57-63Hz	
Power Factor (cosφ)	>0.99(±0.8 adjustable)	>0.99(±0.8 adjustable)	>0.99(±0.8 adjustable)	±0.8 (adjustable)	±0.8 (adjustable)	>0.99(±0.8 adjustable)	
Current THD	< 3%	< 3%	< 3%	< 3%	< 3%	< 3%	
AC Disconnection Type	-	-	-	-	-	-	
System Data							
Topology	Transformerless	Transformerless	Transformerless	Transformerless	Transformerless	Transformerless	
Max. Efficiency	98.8%	98.50%	98.11%	98.64%	98.41%	98.40%	
Euro Efficiency	98.4%	98.10%	98.00%	98.4%	97.7%	98.00%	
Consumption at Standby/Night	< 30W / < 6W	< 30W / < 6W	< 30W / < 6W	< 30W / < 6W	< 30W / < 6W	< 30W / < 6W	
Environment Data							
Ingress Protection	IP66	IP66	IP66	IP66	IP66	IP66	
Cooling Method	Cooling Fans	Cooling Fans	Cooling Fans	Cooling Fans	Cooling Fans	Cooling Fans	
Operating Temperature Range	-30°C - +60°C	-30°C - +60°C	-30°C - +60°C	-30°C - +60°C	-30°C - +60°C	-30°C - +60°C	
Ambient Humidity	0 - 100%	0 - 100%	0 - 100%	0 - 100%	0 - 100%	0 - 100%, Non-condensing	
Altitude	4000m	4000m	4000m	4000m	4000m	4000m	
Display and Communication							
Display	LED+ APP (Bluetooth)	LED+ APP (Bluetooth)	LED+ APP (Bluetooth)	LED+ APP (Wi-Fi)	LED+ APP (Wi-Fi)	LED + APP(Bluetooth)	
Communication	RS485 / Wi-Fi / PLC (Optional)/Ethernet (Optional) & 4G (Optional)	RS485 / Wi-Fi / PLC (Optional)/Ethernet (Optional) & 4G (Optional)	RS485 / Wi-Fi / PLC (Optional)/Ethernet (Optional) & 4G (Optional)	RS485 (Standard) / GPRS/ WIFI/PLC	RS485 (Standard) / GPRS/ WIFI/PLC	RS485 / Wi-Fi (Standard) & 4G (Optional)	
Mechanical Data							
Dimensions (W*H*D) [mm]	1050 * 660 * 340mm	1050 * 660 * 340mm	1050 * 660 * 340mm	1050*340*660	1050*340*660	1050 * 660 * 340mm	
Weight [kg]	90	90	90	86	86	86	
Safety							
Certifications	IEC61000, IEC/EN 62109, IEC61727/62116, EN50549, NC RFG, CEI 0-16, CEI 0-21, UNE217001, UNE 217002, NTS_V2.1, VDE-AR-N 4110, VDE-AR-N 4105, UTE-C15			LVD, IEC61727&IEC62116, IEC62109, IEC61000, ABNT 16149/16150, PORTARIA N° 140(only for 75kW)		IEC61000-6, IEC/EN 62109, IEC61727/62116/61683/60068, EN50549	

* "Output Voltage Range" and "Output Frequency Range" may be differ according to specific grid codes.

9 Quality Assurance

9.1 Liability exemption

1. Exceed the quality assurance period of the product.
2. Cannot provide product serial number or the SN is not clear/complete.
3. Damage during transportation/storage/handling.
4. Misuse, abuse, intentional damage, negligence or accidental damage.
5. Improper commissioning, testing, operation, maintenance or installation performed by customer, including but not limited to:
 - Failure to meet safe operating environment or system requirements of external electrical parameters provided in written document;
 - Failure to operate the covered product in accordance with the product's operating manual or user guide;
 - Relocate and reinstall systems not in accordance with the requirements of Chint power;
 - Unsafe electrical or chemical environment or other similar kind of conditions;
 - Direct failure caused by wrong voltage or faulty power system;
 - Unauthorized disassembly of the products, or unauthorized modification of the product or provided software;
6. Entrust installation, maintenance personnel not designated by the CHINT to install, repair and disassemble the products;
7. Damages caused by ignoring the safety warnings in the manual or break the rules in relevant statutory safety regulations;
8. Damages caused by operating environment beyond the requirements of the product user manual or failure to commissioning, install, use and maintain the equipment according to the requirements of the product user manual.
9. Unforeseen disasters or irresistible accidents (including but not limited to acts of public enemies, acts of government agencies or domestic or foreign institutions, vandalism, riots, fires, floods, typhoons, explosions or other disasters, epidemic or quarantine restrictions, labor disturbances or labor shortages, accidents, cargo embargoes or any other events beyond the control of CHINT).
10. The lightning protection measures have not been implemented or are not in accordance with standards (Photovoltaic systems' lightning protection measures should comply with the relevant national and IEC standards; otherwise, it may result in damage to photovoltaic devices such as modules, inverters, distribution

facilities, etc., due to lightning strikes).

11. Other circumstances that are not covered by the company's after-sales warranty agreement.

9.2 Quality clause (warranty clause)

1. For products that fail during the warranty period, our company will repair or replace new products free of charge;
2. Customer shall present the invoice of the product and date of purchase. At the same time, the trademark on the product should be clearly visible, otherwise we have rights to refuse quality assurance.
3. The unqualified product under replacement should be returned to our company;
4. It is necessary to provide a reasonable time for the company to overhaul the equipment.
5. For more warranty terms, refer to the applicable standard warranty policy in place at time of purchase

If you have any questions about the photovoltaic Grid-tied inverter, please contact us, we will be very happy to help you.

10 Recycling

Distributors or installers should contact the inverter manufacturer after removing the inverter from the photovoltaic module and follow the instructions below to dispose.



The inverter cannot be disposed of as household waste.

When the inverter's service life expires, please dispose of it in accordance with the electrical waste disposal laws applicable to the installation location. You can contact the inverter manufacturer or distributor for handling.

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Email: service.cps@chint.com