

Three-phase Grid-tied PV String Inverter CPS SCH275KTL-DO/EU Quick Installation Guide

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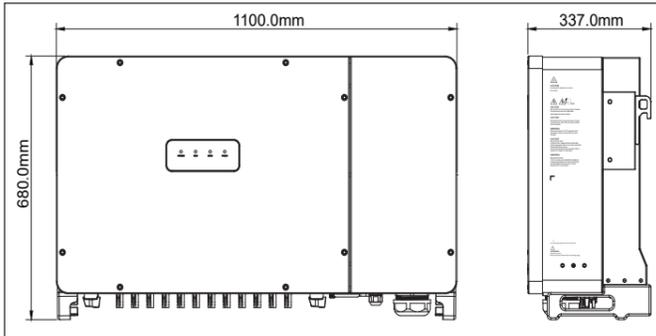
SHANGHAI CHINT POWER SYSTEM CO.,LTD.

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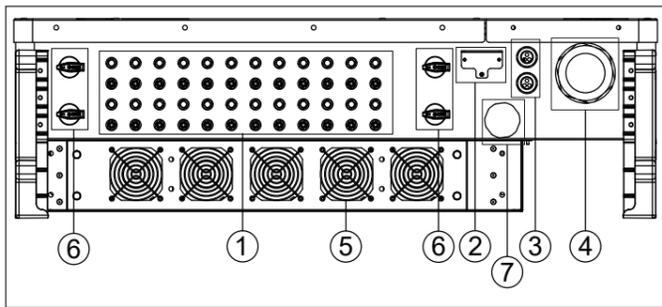
1 Product Dimensions and Main Components

1.1 Dimension

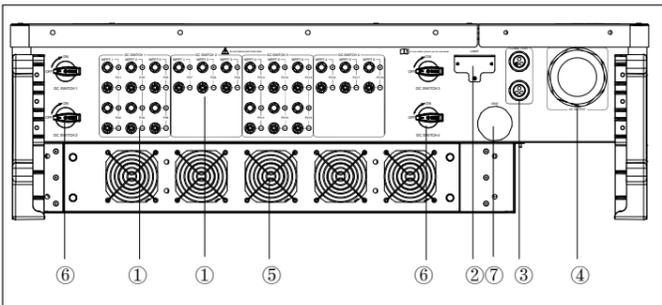


1.2 Main Components

CPS SCH275KTL-DO/EU with 12 Maximum Power Point Trackers (MPPT)



CPS SCH275KTL-DO/EU with 6 Maximum Power Point Trackers (MPPT)



1. DC input quick connector 2. LINKIT interface 3. RS485 interface
4. AC output connector 5. Fans 6. DC switch 7. Vent valve

NOTE: Main differences between these two inverters are that the former has 24 inputs, while the latter has 18 inputs. Their mounting and electrical connection procedures are almost the same, so inverter with 12 MPPTs will be taken as instance in the following contexts. Different points will be introduced separately.

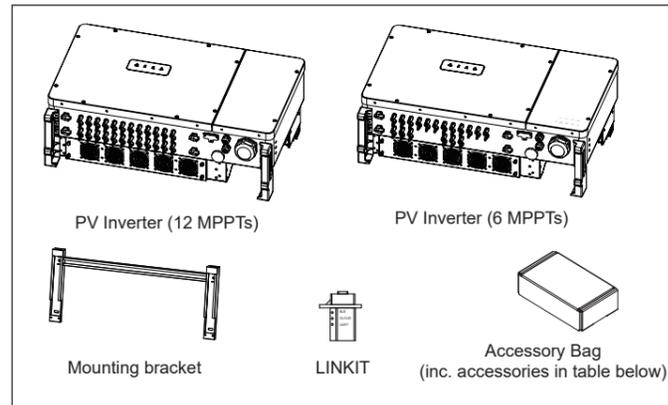


NOTICE

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

2 Installation

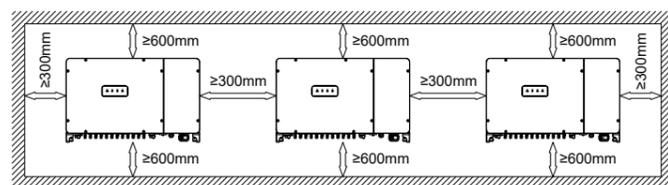
2.1 Scope of Delivery



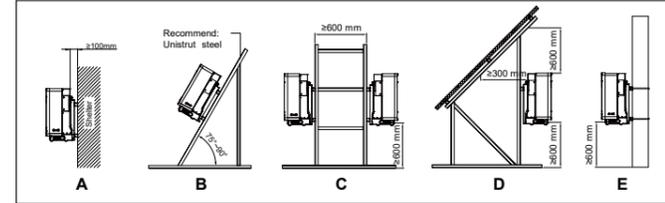
No.	Images	Accessories	Amt	Usage
1		Quick guide, Warranty card	2	For quick guidance and warranty service
2		M10 Nut	4	For mounting bracket
3		M10 Spring washer	4	
4		M10 Flat washer	4	
5		M10X50 Screw	4	
6		M6X16 Screw	4	
7		Handle	2	Carry the inverter
8		M6X18 Screw with plastic flat washer	1	Spare for front cover
9		Unlock tool for DC connector	1	Unlock connector
10		M12 Nut	3	For AC output terminal
11		M12 Spring washer	3	
12		M12 Flat washer	3	
13		M12 Big flat washer	3	
14		6 PIN terminal	1	RS485 communication
15		2 PIN terminal	1	CAN communication
16		DC Input Male (+) Connector	24(18)	PV DC quick connector 12 MPPTs: 24 (+) & 24 (-) 6 MPPTs: 18 (+) & 18 (-)
16		DC Input Female (-) Connector	24(18)	
17		Lifting eyebolts	2	Lift inverter
18		External fuse component	18	only for 6-MPPT inverter

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. The clearance between two parallel inverters shall be more than or equal to 300mm. 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.

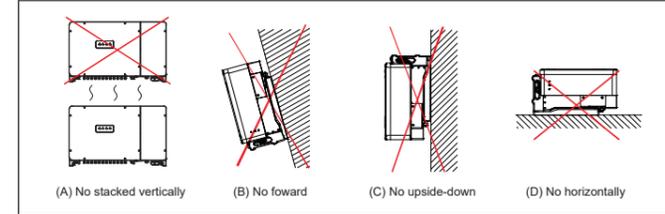


2.3 Installation Mode Requirements



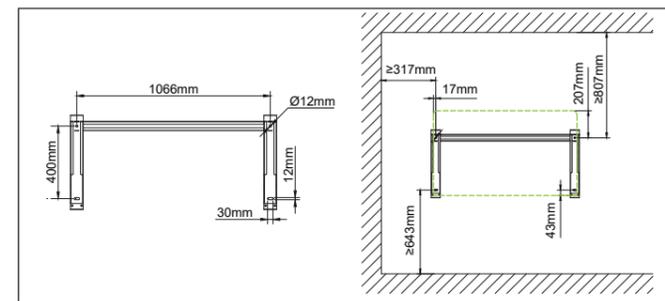
A: Keep a distance between the inverter and the shade on its back to ensure good ventilation. **B:** The inverter can be installed at an angle of 75°~90° while its back shall not be shielded to ensure good ventilation. **C:** Two inverters can be installed back to back, and proper distance shall be kept 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.

2.4 Unacceptable Installation Modes

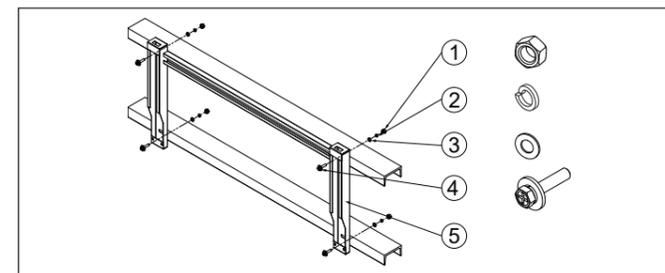


2.5 Install the Inverter onto Bracket

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

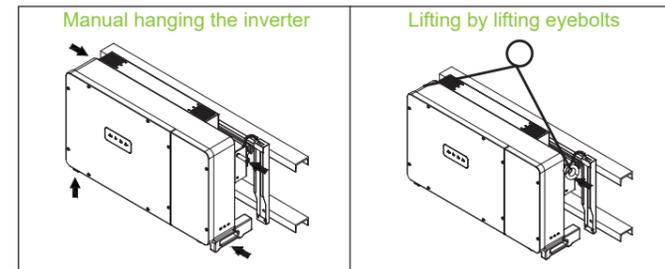


2. Drill holes with Φ12mm drill at marked position, then fix the bracket (5) with the screws M10X50 (4), M10 spring washer (2), M10 flat washer (3), and M10 nut (1) included in accessory bag. Tools: Electric drill (with Φ12mm drill bit), No. 17 hex. socket wrench, torque value: 230.0 kgf.cm.

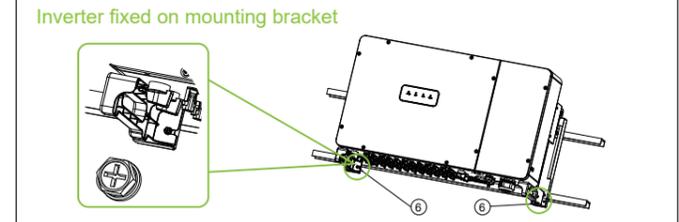


3. Hang the inverter host on the mounting bracket.

- Manual hanging: Two people are needed to properly lift the inverter by the handle positions marked by the arrows, and one is needed to hold the bottom of the inverter, working together to hang the inverter onto the mounting bracket.
- Lifting mounting: tighten two M10 lifting eyebolts in the screw holes on both sides of the machine, and use a sling rope 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.



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



CAUTION

The total weight of the inverter is approx. 106kg (ab. 233.7 pounds). Check that the mounting bracket is properly installed on the support surface once again before hanging the inverter on the bracket. The inverter shall be installed by three operators together at least considering its weight.

2.6 Installation Check

1. Ensure that the three supporting points (on the rear side of the inverter) align with the three holes of the support.
2. Ensure that the inverter is well fixed.
3. Ensure that the inverter is locked on the support and an anti-theft lock is installed.

3 Electrical Connection



DANGER

Before performing any electrical connections, ensure that both DC and AC switches are OFF. Otherwise, fatal injury may be caused by the high voltage from AC and DC cables.

3.1 Tools Required & Torque Values

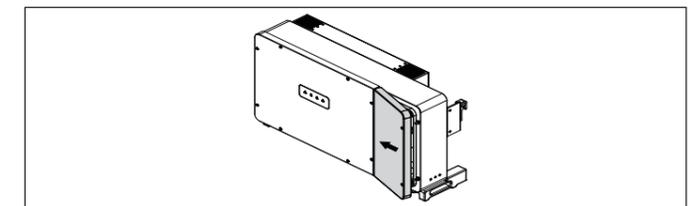
NO.	Tools	Usage	Torque value
1	5mm hex wrench	Fixing upper cover of combiner box	30.0 kgf.cm
2	No.19 hexagon socket wrench	Fixing AC output terminal	320.0 kgf.cm
3	No.10 hexagon socket wrench	Fixing ground terminal	60.0 kgf.cm
4	1.5mm flat-blade screwdriver	Fixing RS485 communication terminal	2.0 kgf.cm
5	Diagonal pliers	Making cables	-
6	Wire stripper	Making cables	-
7	Crimping Tool	Making cables	-

3.2 Cable Specifications (recommended)

Name	Type	Cable O.D. (mm)	Conductor cross-sectional area (mm ²)
DC Cable	PV cables that meet 1500V standard	6~9	4~6
Ground Cable	Outdoor copper core wire	/	Phase wire diameter /2
AC Cable	Outdoor four-core copper/ aluminum wire	56~66	Copper core cable: L1,L2,L3:70~300
	Outdoor three-core copper/ aluminum wire		Aluminum alloy cable: L1,L2,L3:95~300 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 Cable Connection

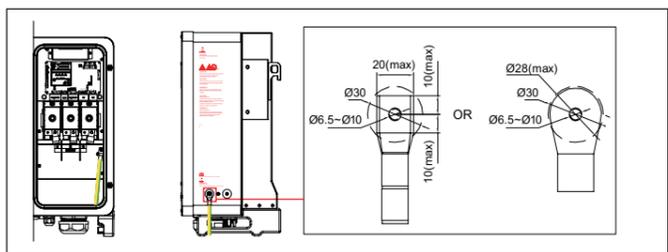
Loosen the two screws fixing the upper cover of the wiring box with a 5mm hex wrench, and open the upper cover. Then perform grounding, AC wiring and DC wiring operations in sequence.



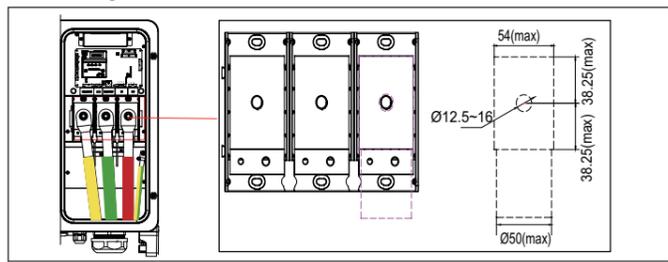
1. Grounding
Connect grounding wire in either of the two ways and tighten with M6x16 screws:

- By internal grounding pole located on the lower right corner of the AC terminal.
- By external grounding pole located at the base which is on the right side of the AC port.

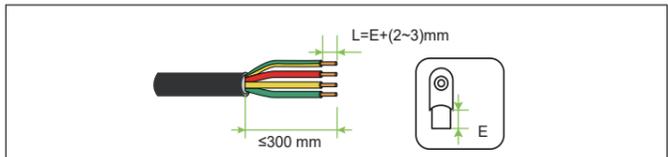
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2. AC Wiring

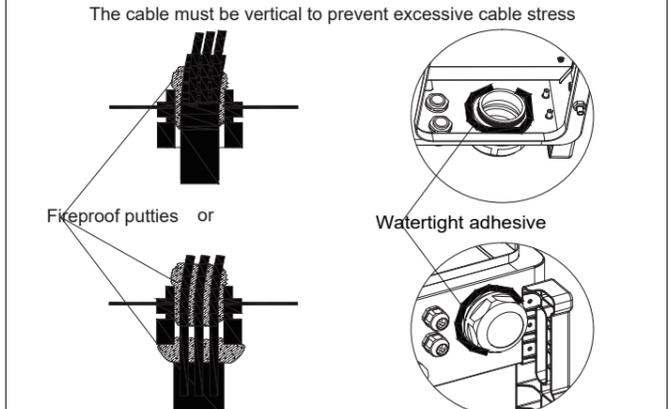
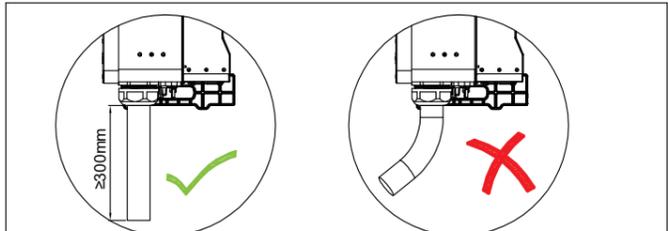


(1) Remove an appropriate length of the jacket and insulation layer from the AC output cable. Insert the exposed core wires into the crimp area of the OT terminal, wrap the wire crimp area with heat shrink tubing or insulation tape, and crimp them using hydraulic pliers.



(2) Loosen the locking cap from the AC output water-tight cable connector at the bottom of the inverter and remove the plug from the locking cap.
 (3) Route the AC output power cable into the locking cap and the AC output connector at the inverter bottom, and connect the AC cable to L1, L2, L3, and E on the AC terminal block, tighten them using screw driver.
 (4) Tighten the locking cap on the AC output water-tight cable connector.

NOTICE To ensure convenience and safety, it is recommended to use multi-core cables, crimp terminals and proper crimping tool to crimp the cables before wiring.

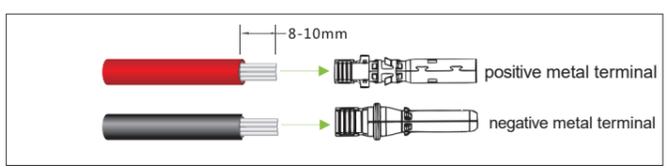


After the cable passes through the fastening head, fireproof putties should be applied to joints to prevent water vapor from entering. Nuts shall not be loosened to keep watertight.

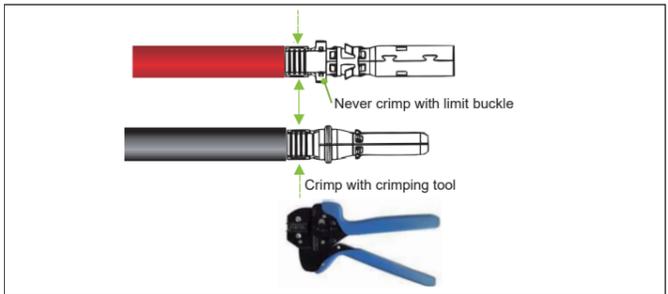
NOTICE Pay attention to keep watertight during construction.

3. DC wiring

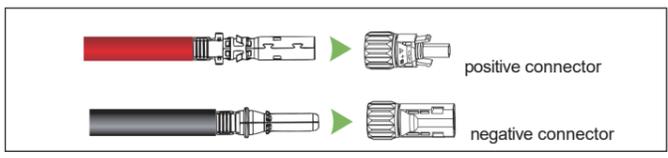
(1) Remove an appropriate length of the jacket and insulation layer from the DC input cable of PV strings.



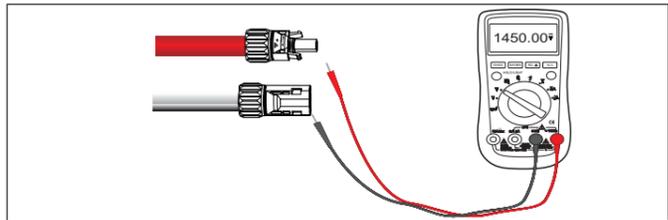
(2) Insert the exposed areas of positive and negative power cables into the metal terminals respectively and crimp them using a professional crimping tool, such as Amphenol H4TC0002 or Devalan D4ZCY001.



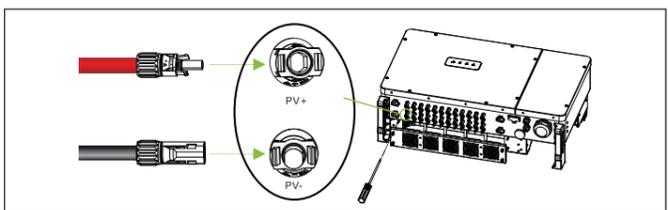
(3) Insert the crimped positive and negative power cables into corresponding positive and negative connectors until a "click" sound is heard. Tighten the locking nuts of the positive and negative connectors.



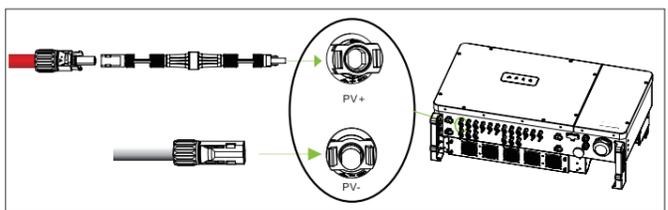
(4) Measure the cable ends of PV strings using a multimeter. Ensure that the polarities of the DC input power cables are correct.



(5a) For 12-MPPT inverter: Insert the positive and negative connectors into their corresponding terminals of the inverter until a "click" sound is heard.



(5b) For 6-MPPT inverter: Connect external fuse component to PV positive connector, then insert the positive connector of the fuse component and negative connector into corresponding terminals of the inverter until a "click" sound is heard.

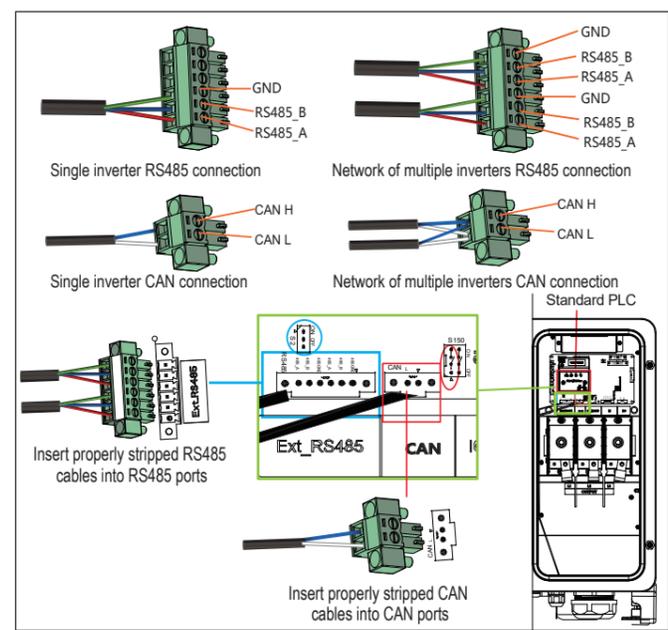


3.4 Communication connection (optional)

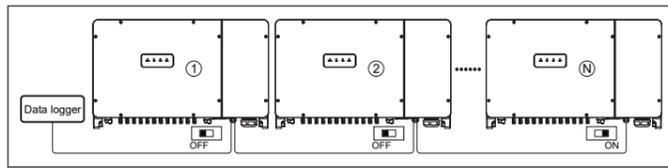
The inverter is equipped with AC-PLC, RS485, CAN and Ethernet communication module as standard.

If you prefer to use RS485 communication mode, AC-PLC module shall be removed in advance, then you can activate the RS485 as described below. (Please consult our after-sales department for the removal procedures)

1. Connect RS485 and CAN communication cables as below:
 - (1a) Connect RS485 cables with the help of 6-pin terminal to RS485 communication ports (controlled via S2 DIP switch shown in blue circle);
 - (1b) Connect CAN cables with 2-pin terminal to CAN communication ports (controlled via left S150 DIP switch shown in red circle).



(2) If there are multiple inverters in the network and the last inverter is more than 200m distant from data logger, the DIP switch of the last inverter in the daisy-chain should be in ON position to enable the 120ohm terminal resistance. While those switches of all other inverters should be in the OFF position to disable the terminal resistance.

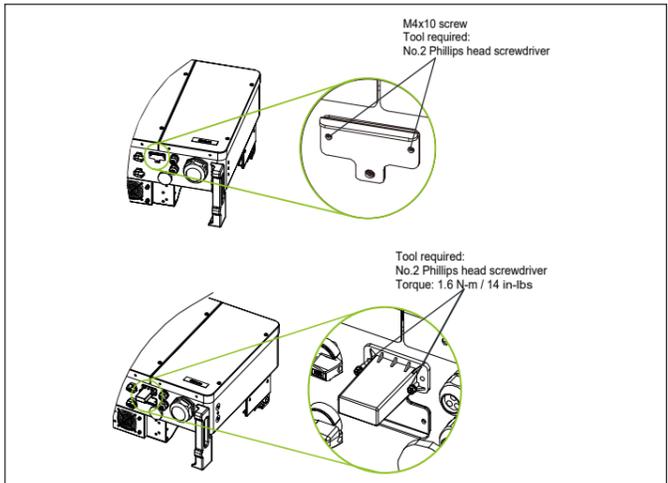


Notes: S2 switch shall be set as above if RS485 communication mode is adopted, while left S150 switch shall be set as above if CAN communication mode is chosen.

(3) After completing all the wiring steps, fix the two screws on the upper cover of the combiner box with a 5mm hex wrench, and lock the upper cover.

NOTICE Screws must be tightened when fixing the cover to prevent water from entering.

2. Install LINKIT as shown below.
 - (1) Remove two screws on the LINKIT cover, and rotate the cover to its opposite side.
 - (2) Fasten LINKIT module onto LINKIT port with the two screws.



4 Display

4.1 LED Indicators



4.2 Description of LED Indicators

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		Flash	Upgrade Firmware (on for 0.05 seconds, off for 0.3 seconds)

5 Commissioning

WARNING Before the PV system is powered on, it is important to check the installation for any potential hazards.

1. Turn on AC circuit breaker. 2. Turn on external DC circuit breaker.
3. 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.
4. Users can directly scan the right-hand QR code to download APP (Support Android 4.1 and IOS 9.0 or higher version system only).
5. Set APP as shown in the flow charts and as described below. First of all, open the Bluetooth function on your phone, then open **Chint Connect APP**.



- (1) Touch **Smart Link** icon to enter smart link interface and then click **Next** to enter the **Connect to the adapter** interface.
- (2) Touch the wireless network named CPLK-XXXXXXX (XXXXXXX can be found on the LINKIT label) shown in the Bluetooth List, or touch the green QR icon under the list to scan LINKIT bar code to connect network.
- (3) Touch **OK** icon to finish initialization process during the first commissioning.
- (4) Set correct inverter parameters, such as Grid Code, PV Link Type, RS485, then click **Next** button, it will go to home interface.
- (5) 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. Touch **Settings** icon in the bottom and input password "1111", it will go to inverter parameter setting page.
- (6) You can reset or modify inverter parameters such as Grid Code, PV Link Type, RS485 or password as required.
- (7) If the inverter cannot run normally, the FAULT indicator will light up, and the fault information will be shown on the APP. Touching **Event** icon in the bottom, you can check the detailed history and current information. Troubleshoot related problems and restart.
- (8) Touch **More** icon and input password "1111" to power on/off device.