

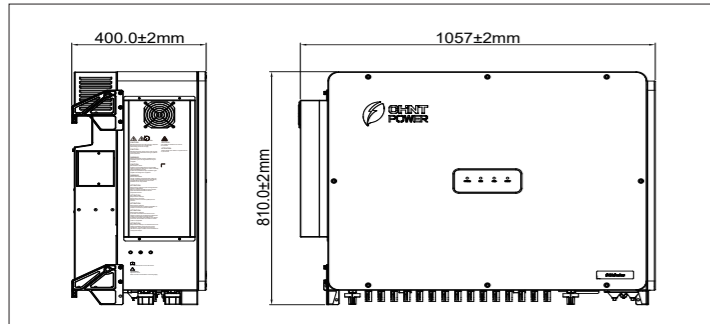
Three-phase Grid-tied PV Inverter SCH320K-T-EU/SCH333K-T-EU/ SCH350K-T-EU

Quick Installation Guide

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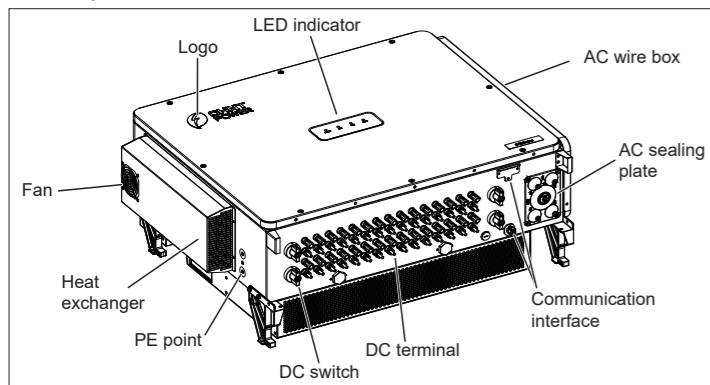
1 Product Dimensions and Main Components

1.1 Dimension



1.2 Main Components

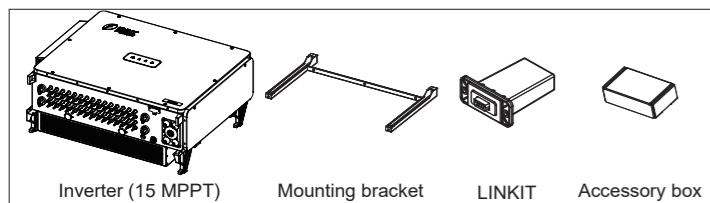
SCH320~350K-T-EU inverter with 15 MPPT (Maximum Power Point Trackers)



NOTE: Main difference between the 12 MPPT inverter and 15 MPPT inverter is that the former has 24 inputs and the latter has 30 inputs. Their mounting and electrical connection procedures are almost the same, so inverter with 15 MPPTs will be taken as instance in the following contexts. Different points will be introduced separately.

2 Installation

2.1 Scope of Supply

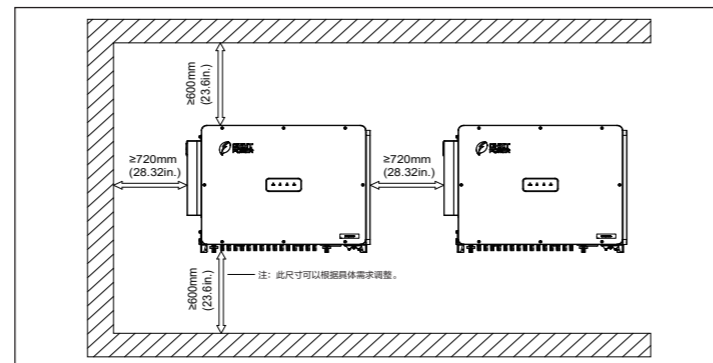


No.	Images	Accessories	Amt	Usage
1		Quick guide, Warranty card	2	For quick guidance and warranty service
2		M10 Nut	6	For mounting bracket
3		M10 Spring washer	6	
4		M10 Flat washer	6	

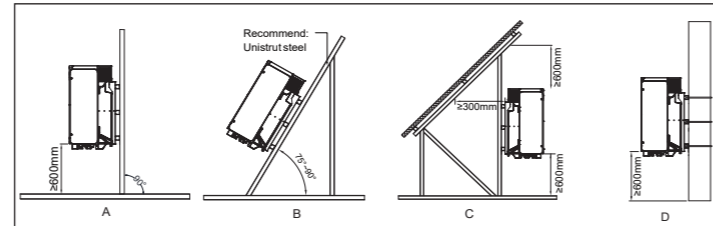
5		Screw M10X50	6	For mounting bracket
6		Screw M6X16	5	2 for mounting bracket 3 for grounding
7		Handle	4	Carry the inverter
8		Screw M6X18 with plastic flat washer	1	Spare for front cover
9		Unlock tool for DC connector	1	Unlock connector
10		M12 Tapered washer combination nut	3	For AC output terminal
11		M12 flat washer	3	
12		8 PIN connector	1	
13		DC Input Male (+) Connector	24(30)	PV DC quick connector 12 MPPTs: 24+ & 24- 15 MPPTs: 30+ & 30-
		DC Input Female (-) Connector	24(30)	
14		Plug rod	2	Plug seal ring of 8 PIN connector

2.2 Recommended Clearances

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

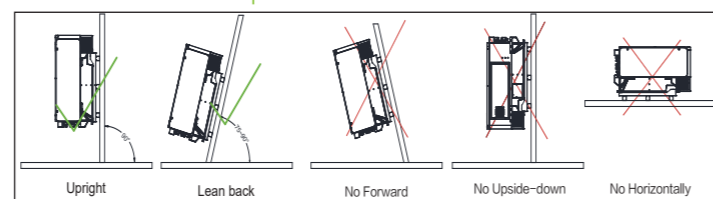


2.3 Installation Scenarios

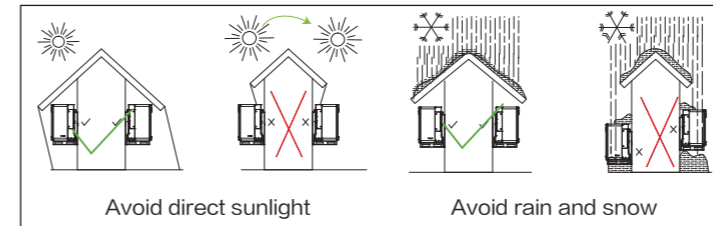


- Install inverter vertically on mounting bracket if installation conditions permit.
- The inverter can be installed at an angle of $\leq 15^\circ$ leaning back while its back shall not be shielded to ensure good ventilation.
- The inverter can be installed under the panel, while its back and top shall not be blocked to ensure good ventilation.
- The inverter can be installed on a single column holding rod and shall be checked to confirm a secure installation.

2.4 Installation Mode Requirements

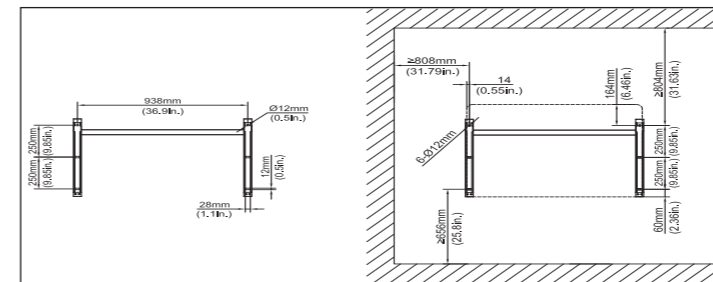


2.5 Installation Environment Requirements

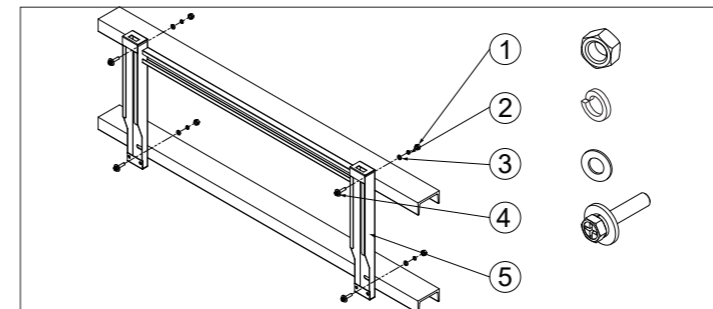


2.6 Install the Inverter onto Bracket

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

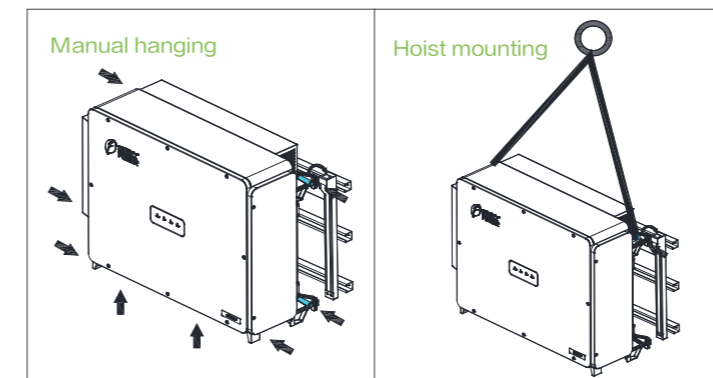


- Drill holes with $\Phi 12\text{mm}$ drill at marked position, then fix the bracket (5) with screws M10X50 (4), M10 flat washer (3), M10 spring washer (2), and M10 nut (1) included in accessory box. Tools: Electric drill (with $\Phi 12\text{mm}$ drill bit), No. 17 hex. socket wrench, torque value: 230.0 kgf.cm.

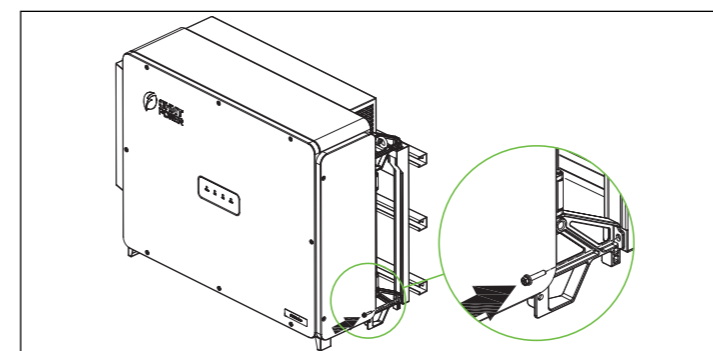


- Manual hanging: install four handles into the screw holes as indicated. Four people are needed to properly lift the inverter by the four handle positions and bottom surface, and mount the inverter onto the mounting bracket.

Hoist mounting: Screw two M12 lifting eyebolts (offered by customer) to the screw holes as indicated. Use slings or bar (inserted through both lifting eyebolts) to lift the inverter onto the mounting bracket. The minimum angle between the two slings should be less than 90 degrees.



- Use two M6X16 screws to fasten inverter on mounting bracket. Tools required: No.10 hexagon socket wrench, torque: 60kgf.cm.



3 Electrical Connection



DANGER

The cables shall be connected in accordance with the National Electrical Code and all other applicable local codes or jurisdictions.

3.1 Tools and Torques

No.	Tool	Usage	Torque
1	5mm hex. wrench	Fixing side cover of wire box	30 kgf.cm
2	4mm hex. wrench	Fixing AC sealing plate	14 kgf.cm
2	No.19 hex. socket wrench	Fixing AC output terminal	320 kgf.cm
3	No.10 hex. socket wrench	Fixing external grounding terminal & internal grounding terminal	60 kgf.cm
4	1.5mm flat-blade screwdriver	Fixing RS485 and CAN terminal	2.0 kgf.cm
5	Diagonal pliers, wire stripper, crimping tool	Handle cables	-

3.2 Cable Specification

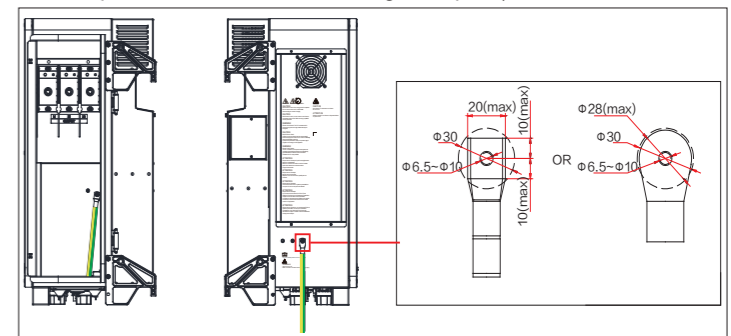
Cable	Type	Outer dia. (mm)	Conductor CSA(mm ²)
DC cable	PV cables that meet 1500V standard	6~9	4~6
PE cable	Outdoor copper core wire	/	\geq Phase wire diameter/2
AC cable	Outdoor single-core copper/ aluminum wire	16~36	Copper core cable: L1, L2, L3: 95~400;
	Outdoor three-core copper/ aluminum wire	36~75	Aluminum alloy cable: L1, L2, L3: 120~400;
	Outdoor four-core copper/ aluminum wire		PE: \geq Phase wire diameter/2
Comm	Communication cable UTP CAT-5e	4.5~6	3*0.2~0.75
	Shielded twisted pair		3*1~1.5

3.3 Cable Connection

1. Grounding(Protection earthing)

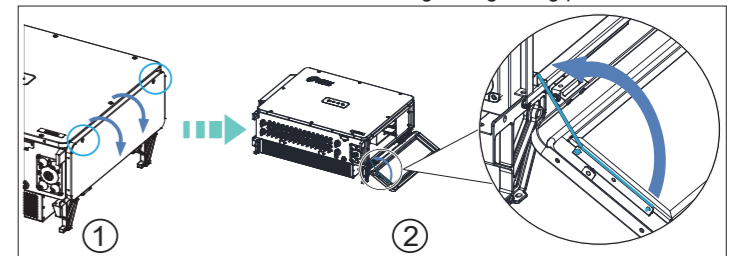
There are two kinds of grounding methods for this inverter: internal grounding and external grounding. You shall choose at least one way:

- Internal: Connect PE wire to internal grounding stud located on the lower right side of the AC terminal;
- External: Connect PE cable to external PE point located at the bottom of the machine next to the AC port (NOTE: After wiring, the external PE point needs to be coated with glue or paint).

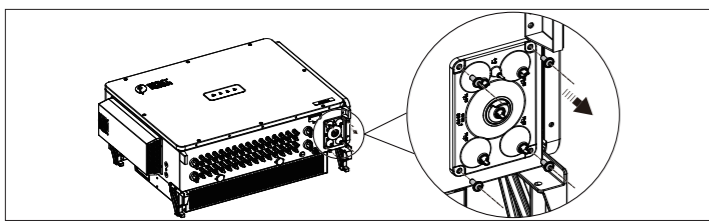


2. AC wiring

- Loosen the two captive screws to open the side cover of wire box. Then, pull out the free end of support rod, rotate and insert it into fixing hole, to ensure the side cover doesn't swing during wiring process.

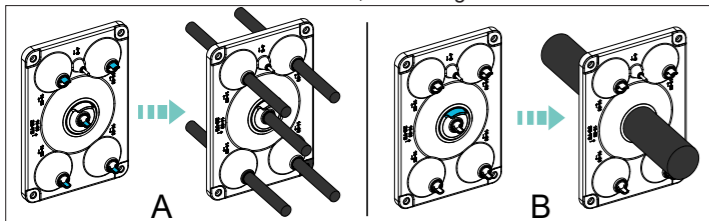


- Loosen the four screws to remove the AC sealing plate from the inverter.



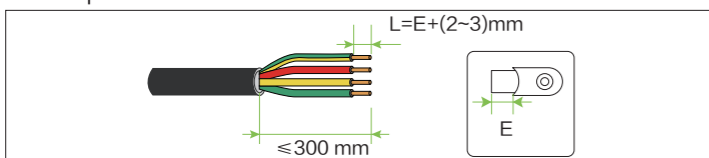
(3) According to cable types, pull off ring tab with hand or plier, and then route cable through the seal ring.

- For single-core outdoor wire, refer to figure A. NOTE: When using the middle seal ring for routing, route grounding wire through it rather than L1, L2, or L3 wire.
- For 3-core and 4-core outdoor wire, refer to figure B.



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

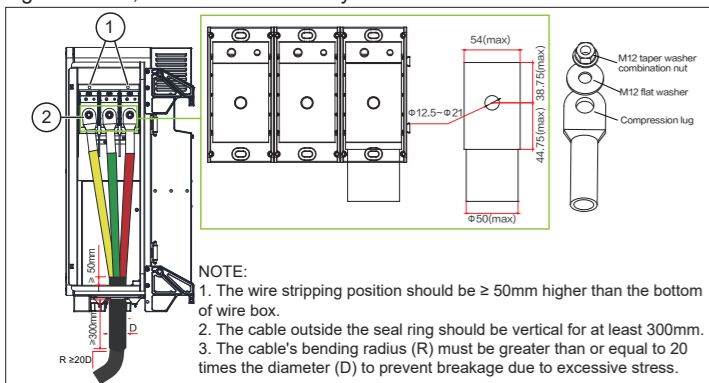
(4) Remove an appropriate length of the jacket and insulation layer from the AC output cable. Insert the exposed core wires into crimping area of the OT terminal, crimp them using hydraulic plier, then wrap the wire crimp area with heat shrink tubing or insulation tape. Here takes 4-core wire as an example.



(5) Unplug the rubber plug (1) of transparent protection cover above the AC terminal block, to remove the transparent protection cover.

Connect the OT terminals (2) of AC wires to L1, L2, L3 terminal and fasten them with M12 flat washer and M12 tapered washer combination nut. Note 1: 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.

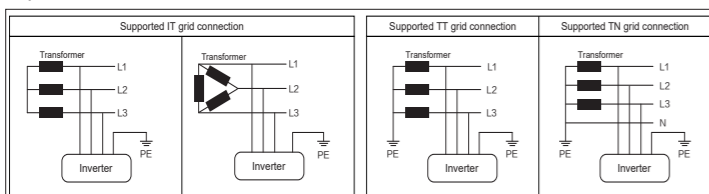
Note 2: M12 flat washer shall be used if inner hole diameter of compression lug is >14mm; while it's unnecessary if inner hole diameter is ≤14mm.



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

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

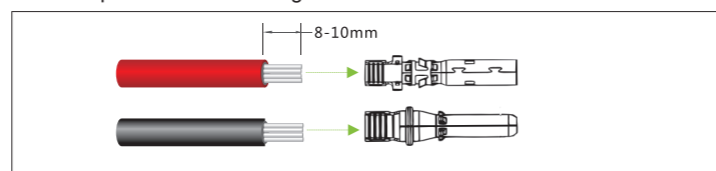
After completing all wiring steps, restore the support rod of side cover to its original position, and recover the side cover of wire box and tighten its captive screws.



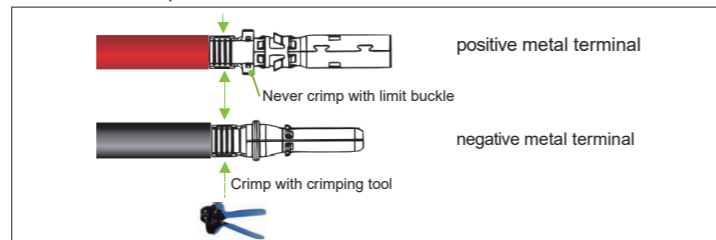
For IT power grid, neutral point at transformer low-voltage side can be ungrounded. PID and SVG functions can be enabled, but PidNight and SVG functions can't be enabled at the same time. For TT or TN power grid, neutral point at transformer low-voltage side shall be grounded. Only SVG function can be enabled, PID can't be enabled.

3. DC wiring

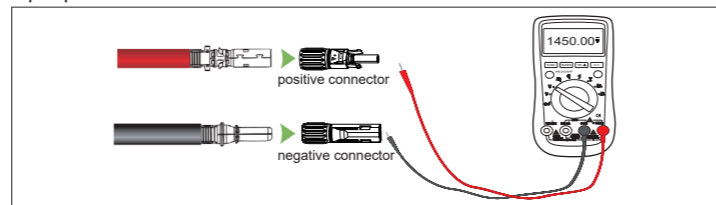
(1) Remove an appropriate length of the jacket and insulation layer from the DC input cable of PV strings.



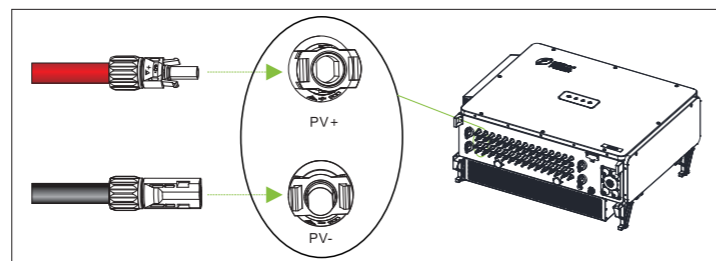
(2) Insert the exposed areas of positive and negative power cables into the metal terminals respectively and crimp them using a professional crimping tool, such as Amphenol H4TC0002 or Devalan D4ZCY001.



(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. Measure the cable ends of PV strings with a multi-meter. Make sure the polarities of the DC input power cables are correct.



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

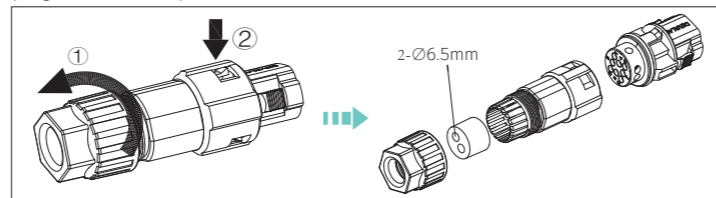


3.4 Communication Connection (optional)

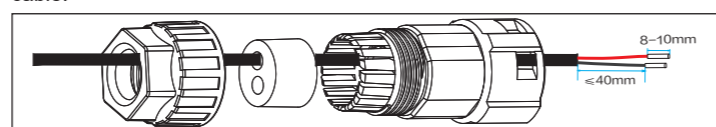
The inverter supports industry standard PLC, Modbus RS485, as well as CAN communication modes. We will introduce most commonly used RS485 and CAN communication methods in detail.

1. Install the 8-pin connector

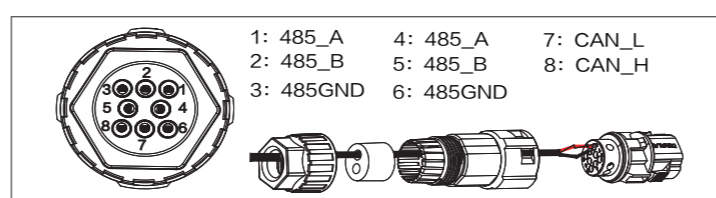
(1) Unscrew the locking nut (1) of 8-pin connector and press down both buckles (2) of connector to separate the cable seal ring and the crimping plug from the adaptor.



(2) Route cable through locking nut, seal ring and adaptor. Remove an appropriate length of the jacket and insulation layer from communication cable.

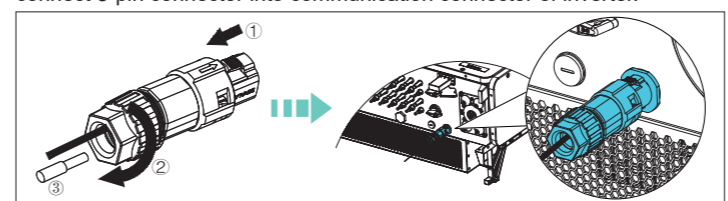


(3) Connect RS485 and/or CAN cables to correct crimping ports according to their definitions.



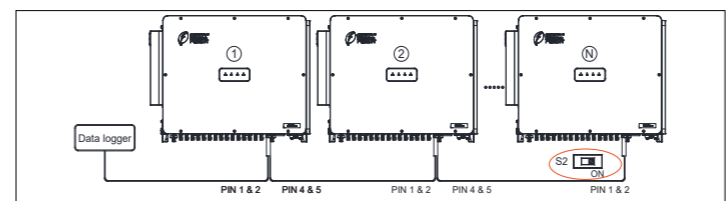
(4) Adjust the cable length, insert crimping plug (1) into adaptor and lock the locking nut (2). Plug any spare seal hole with watertight plug (3).

(5) Remove watertight cover from communication connector of inverter and connect 8-pin connector into communication connector of inverter.

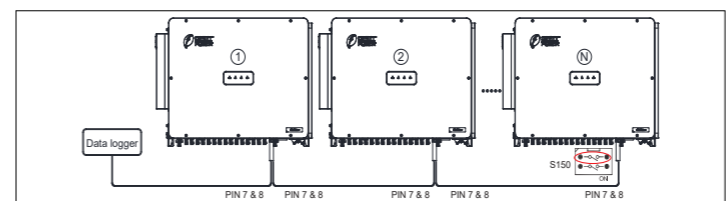


2. RS485/CAN Network Connection

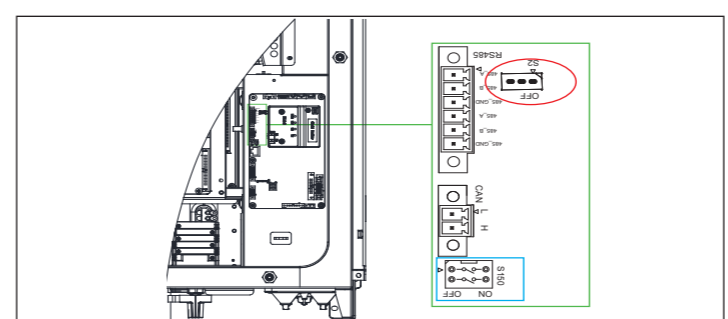
(1) If there are multiple inverters in the RS485 network (daisy chain) and the last inverter is more than 200m and less than 1000m distant from data logger, the DIP switch S2 of the last inverter should be set to ON position to enable the 120ohm terminal resistance. While the DIP switches S2 of all other inverters should keep as OFF position to disable the terminal resistance.



(2) If there are multiple inverters in the CAN network (daisy chain) and the last inverter is more than 200m and less than 1000m distant from data logger, the left switch S150 of the last inverter should be set to ON position to enable the 120ohm terminal resistance. While the left switches S150 of all other inverters should keep as OFF position to disable the terminal resistance.



(3) To achieve network connection, you need to open the front cover of the inverter. Then find the DIP switch S2 or left switch S150 on the communication board in the lower right corner of the inverter, as showed as below.

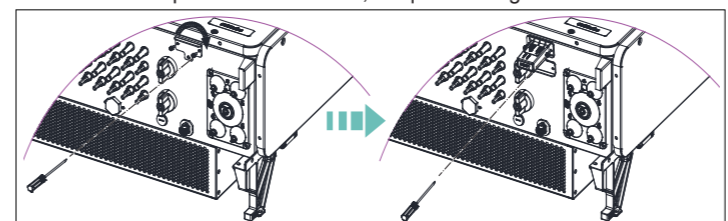


3. Install LINKIT

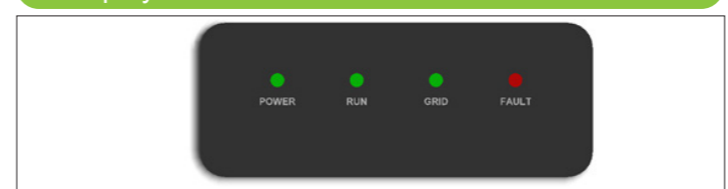
(1) Remove two screws on the LINKIT cover, and rotate the cover to its opposite side.

(2) Fasten LINKIT module onto LINKIT port with its original two screws (Indicators face front cover).

Tool: No.2 Phillips head screwdriver, Torque: 16.0 kgf.cm



4 Display

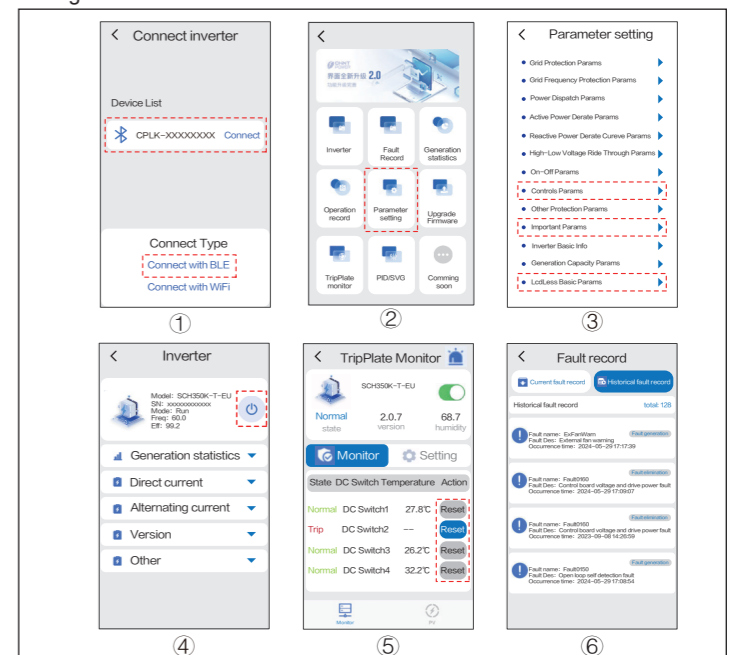


LED Icon	Name	Status	Meaning
POWER (Green)	Working Power Indicator	ON	Has working power
		OFF	No working power
RUN (Green)	Grid Operation Indicator	ON	In the state of grid-connected power generation
		Flash	Derating operation status (on for 0.5 seconds, off for 1.6 seconds)
		OFF	In other running state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

5 Commissioning

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

- Turn on AC circuit breaker.
- 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.
- Users can directly scan the QR code to download APP (Support Android 4.4 and IOS 11.0 or higher version system only).
- Turn on the phone's Bluetooth and make the following settings.



- Open APP and click "Connect inverter" to enter connect inverter interface. Select the wireless network "CPLK-XXXXXXX" created by the system (see the label on the side of the LINKIT module for "X"), click the "Connect" button on the right side, select "Connect with BLE" to start connecting to the network to enter the main interface.
- Click "Parameter setting" and insert the password 1111 to view parameter settings.
- Click "Important Params" to confirm the right grid regulations. Click "Lcdless Basic Params" to confirm the right system time, baud rate, ModbusAddr and etc. You can change the settings when necessary. Click "Controls Params", then click "Power on". When the "RUN" led indicator is on, the inverter is successfully connected to grid and starts to generate power.
- Click "Inverter" in main menu to view generation statistics, direct current, alternating current, version and other. Click the button in the upper right corner to power on/power off the inverter.
- When the DC switches trip, click "Trip Plate Monitor" for more information. If the DC switch state shows "Trip", do not reset the DC switch by yourself, please contact after-sales for support. Click the "Setting", you can set every tripping protection parameter. Click "PV" menu to view the current and voltage of every string.
- If the inverter cannot run, the "FAULT" indicator will light up and the fault information will be displayed on APP. Click "Fault record" in main menu to view current fault record and historical fault record. After eliminate the fault, repeat inverter commissioning. If there still exists fault, please contact after-sales service.