

# Three-phase Energy Storage Inverter

## ECH8/10/12/15/18/20KTL-TH-EU Series

### Quick Guide

Version: 3.0 Date: Dec., 2024 Doc. No.:9.0020.0838C0  
Shanghai Chint Power Systems Co., Ltd.

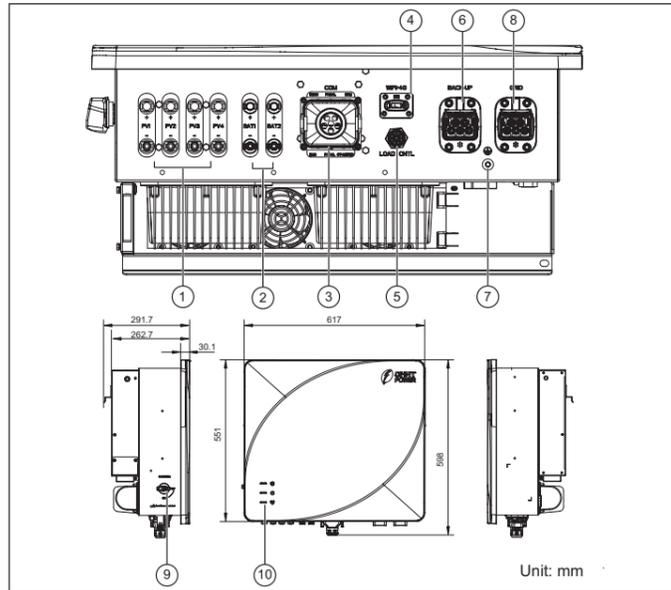
Official Site: [www.chintpower.com](http://www.chintpower.com)

Customer Service hotline: +86-21-37791222-866300

NOTICE: Before installation, please read the Quick Guide carefully. Failure to follow instructions therein will invalidate the warranty!

## 1 Product Components and Dimensions

### 1.1 Product Components

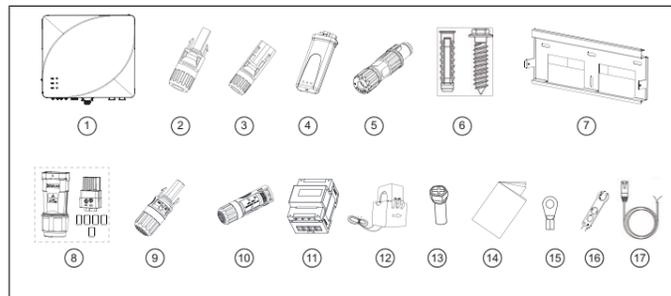


No.	Name	Function
1	PV DC input terminal	Connect DC cable
2	BAT terminal	Connect battery cable
3	COM port	External serial communication
4	WIFI/4G port	Connect communication (COM) module
5	LOAD CNTL port	Connect smart load control
6	BACK-UP port	Connect load cable
7	External grounding hole	Protective grounding point
8	GRID port	Connect grid cable
9	PV switch	Power on/off the PV power supply
10	LED indicator	Indicate the inverter status

## 2 Installation

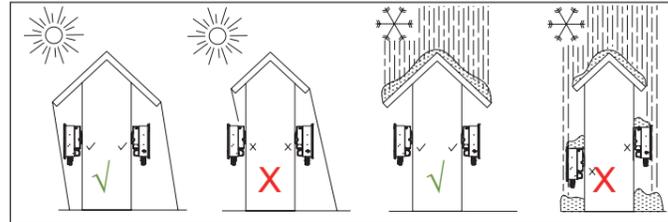
### 2.1 Scope of Delivery

Each inverter carton includes the following accessories:

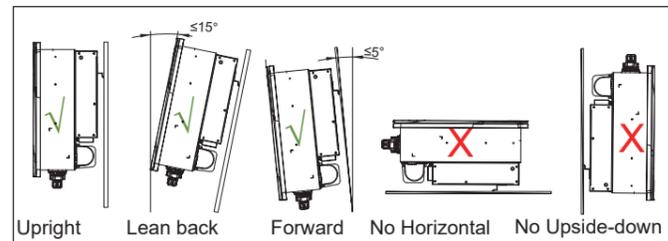
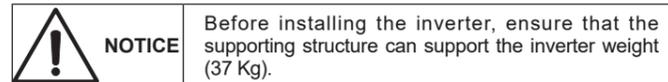


No.	Name	QTY	Description
1	Inverter	1	Each MPPT of 8-20KW inverter only has one input string
2	PV+ connector	4	DC quick-plug connector
3	PV- connector	4	
4	COM module	1	Used for inverter communication
5	LOAD CNTL. connector	1	Used for external smart load control
6	M8*70 Expansion bolt	4	Lock the wall-mounted bracket to wall
7	Mounting bracket	1	Support the inverter
8	AC connector	2	Including: Sleeve, tubular terminals and connector
9	BAT+ connector	2	Quick-plug connector for battery cable
10	BAT- connector	2	
11	Smart meter (DTSU666.020)	1	Measure power generation
12	Current transformer (CT, CHINT NCTK-24 250A/50mA, 6-meter cable length)	3	Measure the grid current
13	Screw M5×12	3	1 for machine earthing end; 2 for fixing mounting bracket and inverter
14	Document	1	Quick guide
15	OT terminal (RNB14-5)	1	Used for grounding cable
16	Unlock tool for PV & BAT connector	1	Uninstall the PV connector and BAT connector
17	Electric meter cable (communication cable, 10 meters, 26AWG)	1	Used for communication between smart meter and inverter

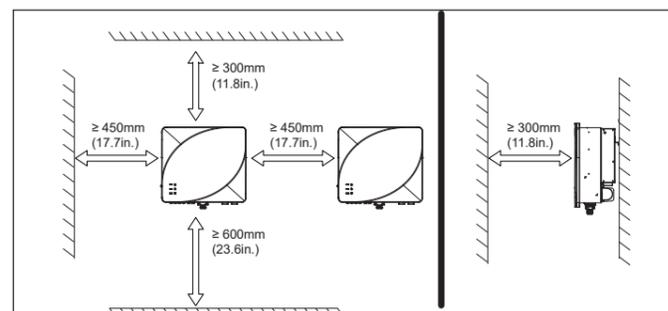
### 2.2 Installation Environment



### 2.3 Installation Angle Requirements

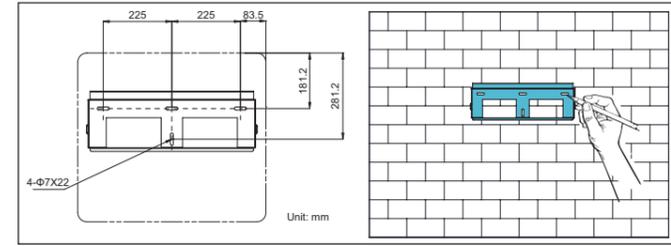


### 2.4 Installation Space Requirements

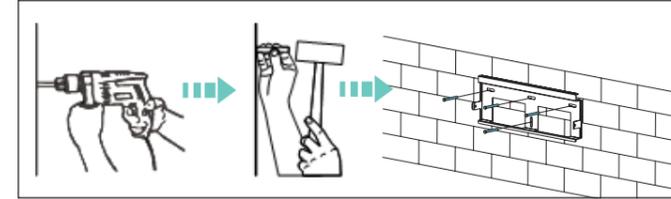


### 2.5 Inverter Installation

- Place the mounting bracket horizontally on the wall and mark the punching position with a marker pen.
- Use a percussion drill (Φ10 mm bit) to drill a hole of 70 mm depth. Use the rubber hammer to knock in the four expansion tubes.



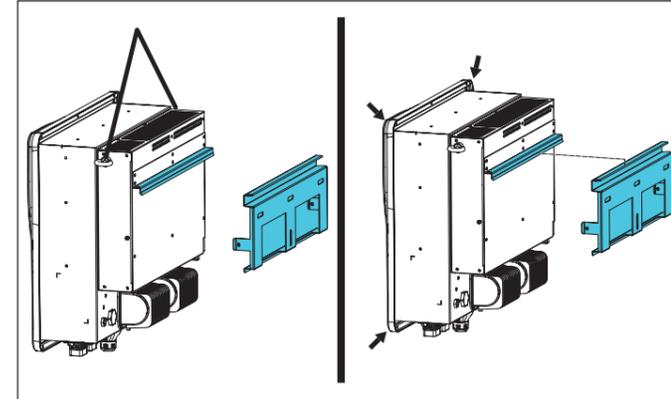
- Tighten the four expansion screws into the expansion tubes to fix the mounting bracket. Torque: 12.5 N.m. Tool: PH2 screwdriver.



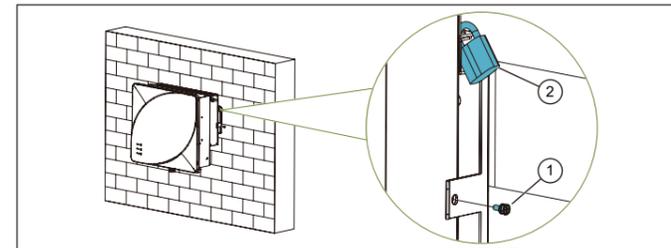
- Hang the inverter onto the mounting bracket.

**Machine mounting:** Tighten the lifting eye bolts (M10, prepared by customer), lift the inverter onto the mounting bracket.

**Manual mounting:** It is recommended to have two persons to lift the inverter safely by the four arrow positions.



- Use PH2 screwdriver to tighten the two M5x12 screws (1) to fix the mounting bracket and inverter. Torque: 2.0-2.2 N.m  
Optional-It is recommended to install an anti-theft lock (2).



## 3 Electrical Connection

### 3.1 Cable Specification

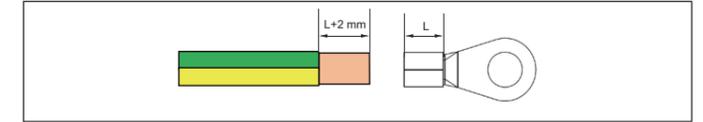
Name	Cable Type	(Material of wire: copper)		
		Outer dia. Range	Cross Section Area Range	Recommend
AC (GRID & BACK-UP)	Multi-core outdoor special cable	6.7~8.4mm	10-16 mm <sup>2</sup> 8-6 AWG	16 mm <sup>2</sup> 6 AWG
PV DC end	General PV cable in the industry (model PV1-F)	4.0~7.0mm	4-6 mm <sup>2</sup> 12-10 AWG	4 mm <sup>2</sup> 12 AWG
Protective grounding	Outdoor yellow-green special cable	6.4~7.3mm	6-10 mm <sup>2</sup> 8-6 AWG	10 mm <sup>2</sup> 8 AWG
Battery DC	Outdoor special cable	6.4~7.3mm	6-10 mm <sup>2</sup> 8-6 AWG	10 mm <sup>2</sup> 8 AWG

### 3.2 Tools and torques

No.	Tools	Usage	Torque value
1	Phillips screwdriver	Fix external grounding terminal	2.0-2.2 N.m
		Tighten the screws of AC connector	2.3-2.8 N.m
2	Diagonal pliers	Prepare cables	-
3	Wire stripper	Prepare cables	-
4	Crimping pliers	Prepare cables	-

### 3.3 Protective earthing cable connection

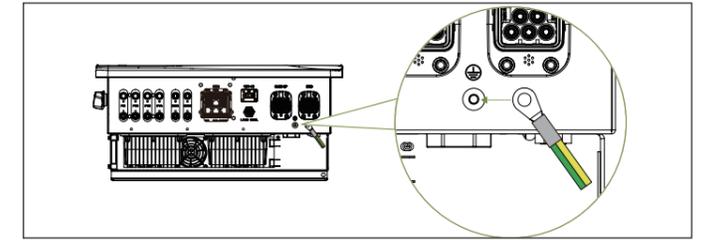
- Remove an appropriate length of insulation layer from the grounding wire.



- Insert the exposed wire core into the crimping area of the OT terminal, use crimping pliers to crimp the OT terminal. After crimping, wrap the wire crimping area with heat shrink tube and use hot air gun to seal the tubes.



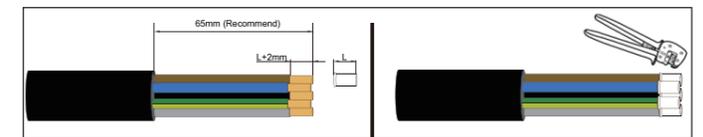
- Tighten the M5x12 screw to fix the OT terminal of grounding cable. (Note: After wiring, external grounding position needs to be coated with glue or paint).



### 3.4 GRID and BACK-UP (Load) Cable Connection

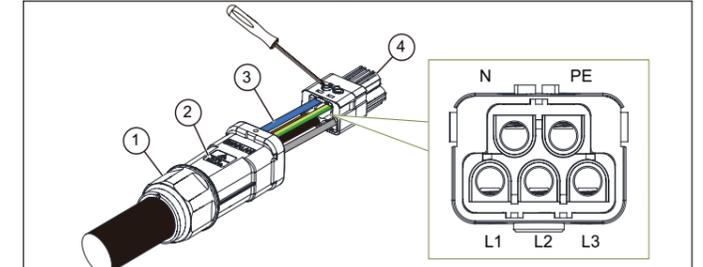
**WARNING** Never confuse load wiring ports and power grid wiring ports. Disconnect the grid-side switch and power off inverter at first, and then carry out wiring.

- Remove jacket and insulation layer from the multi-core outdoor special cable. Insert the exposed wire core into tubular terminal and crimp it.

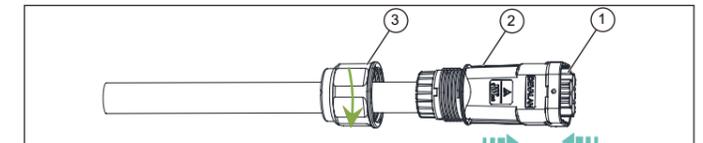


- Loosen the locking nut (1), thread the cable through the locking nut (1) and sleeve (2), insert the cables (3) into the connector (4) and tighten the screws.

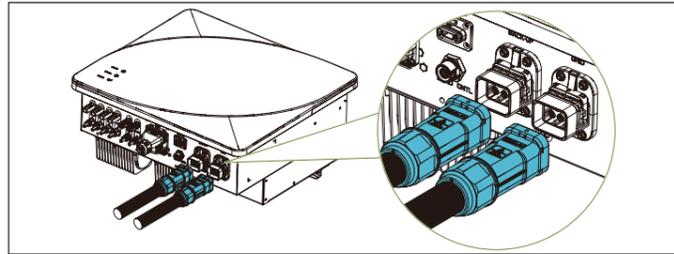
Note: Connect the wires to corresponding ports (L1, L2, L3, N and PE). Otherwise, the inverter will be damaged.



- Insert the connector (1) into the sleeve (2) until you hear a "click" sound, then tighten the locking nut (3) manually.

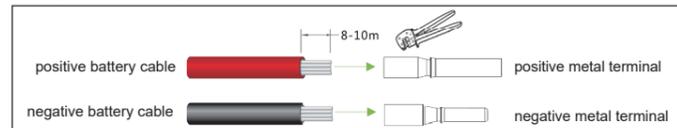


4. Insert the AC connectors to corresponding port (GRID and BACK-UP) until you hear a "click" sound.

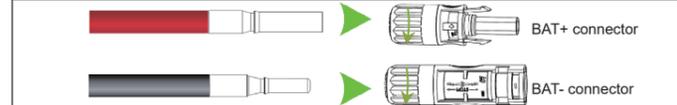


### 3.5 BAT cable connection

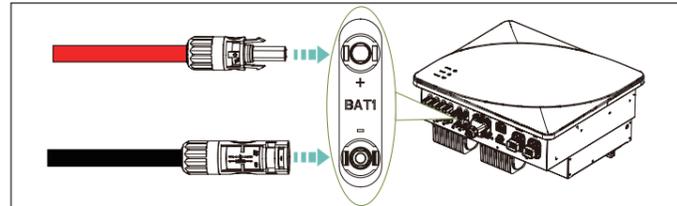
1. Remove an appropriate length of insulation layer from battery cable. Insert exposed areas of positive and negative battery cables into the metal terminals respectively and crimp them with IWS-HDM40 power pin terminal hexagonal crimping pliers recommended by connector manufacturers.



2. Insert the crimped terminals into the BAT connectors until you hear a "click" sound, and tighten the locking nuts.

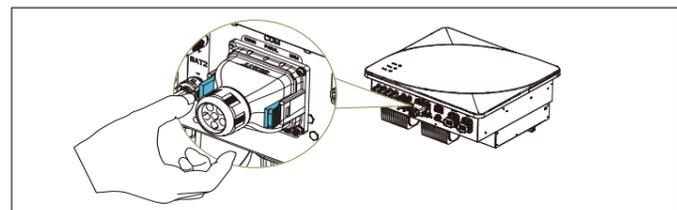


3. Connect the BAT connectors to corresponding BAT ports until you hear a "click" sound.

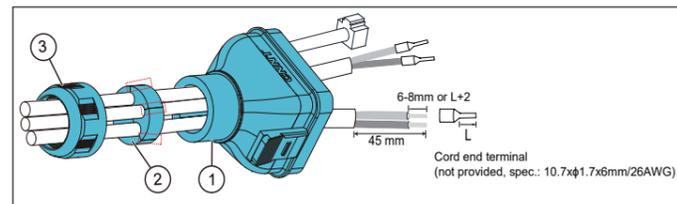


### 3.6 Communication cable connection

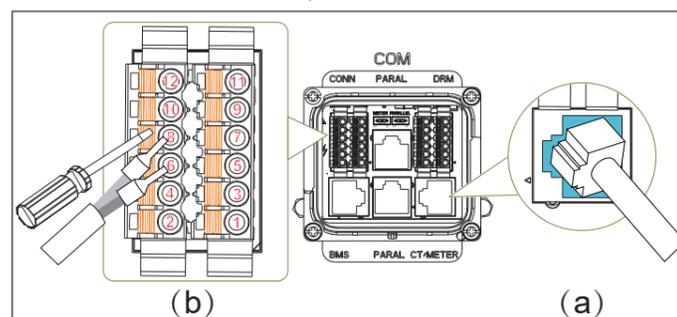
1. Press the buckles of the COM cover and take off the cover.



2. Thread communication line through nut (3), seal ring (2) and waterproof cover (1) in turn. If necessary, remove jacket and insulation layer from proper communication cable and crimp cord end terminals onto exposed wire core at first.



3. (a) Insert RJ45 connectors into corresponding ports till you hear a "click" sound. (b) Press orange buckles, insert cord end terminals into terminal holes and release buckles to crimp terminals.



PIN definitions of CONN terminal block	
12. EV Charger_RS485A (485A communication for EV Charger, optional)	11. DI- (Dry contact signal, optional)
10. EV Charger_RS485B (485B communication for EV Charger, optional)	9. DI+ (Dry contact signal, optional)
8. Meter_RS485B (485B communication for smart meter, optional)	7. DI2- (Dry contact signal, optional)
6. Meter_RS485A (485A communication for smart meter, optional)	5. DI2+ (Dry contact signal, optional)
4. / (Reserve)	3. EMS_RS485B (485B communication for battery EMS, optional)
2. / (Reserve)	1. EMS_RS485A (485A communication for battery EMS, optional)

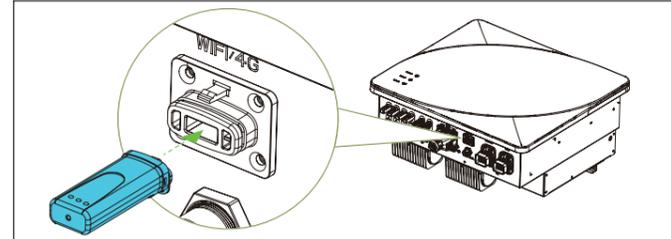
PIN definitions of DRM terminal block	
12. RSD- (RSD negative end, optional)	11. RSD+ (RSD positive end, optional)
10. RSD_POWER (power supply for RSD, optional)	9. ISOGND (Power supply to earth, optional)
8. +12VCOMM (power supply for external circuit, optional)	7. ISOGND (Power supply to earth, optional)
6. DRM1/5 (dispatch signal, optional)	5. DRM2/6 (dispatch signal, optional)
4. DRM3/7 (dispatch signal, optional)	3. DRM4/8 (dispatch signal, optional)
2. Ref/Gen (dispatch signal, optional)	1. COM/DRM0 (dispatch signal, optional)

4. Insert the cover again till you hear a "click" sound.

Note: For parallel communication of multiple inverters, please refer to inverter user manual.

### 3.7 COM Module Connection

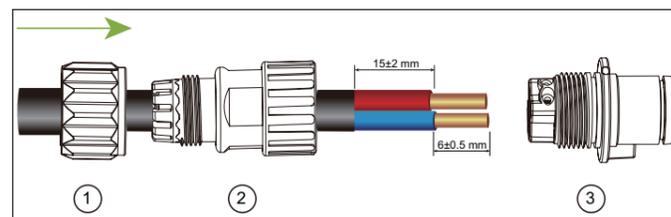
Insert the COM module into the WIFI/4G port of the inverter until you hear a "click" sound. Note: The indicators of COM module face towards front cover.



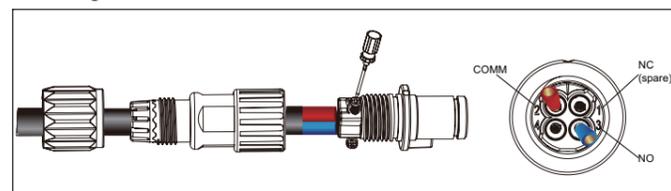
### 3.8 LOAD CNTL Connection (Optional)

This feature is aimed to help users manage the powering ON/OFF of household loads by APP remotely and distribute energy in a rational way.

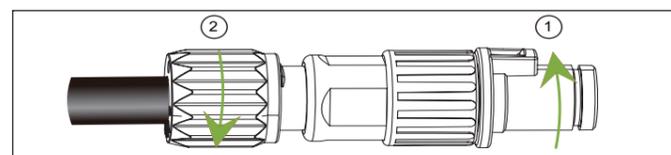
1. Loosen locking nut (1), sleeve (2) and connector (3). Thread load control cable through locking nut and sleeve. Strip off wires by referring to AC cable stripping.



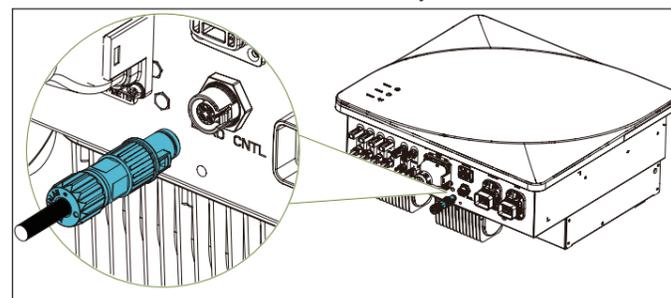
2. Connect COMM (common load) wire to port 2; connect NO (normally open) wire to port 3. Tighten the crimping screws with a screwdriver. Note: Connect the wires to corresponding ports. Otherwise, the inverter will be damaged.



3. Tighten connector (1). Then adjust cable length, tighten locking nut (2).

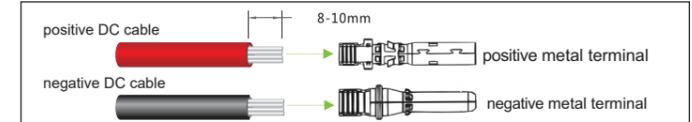


4. Align positioning bar on LOAD CNTL connector with slot on the LOAD CNTL interface, and insert the connector until you hear a "click" sound.



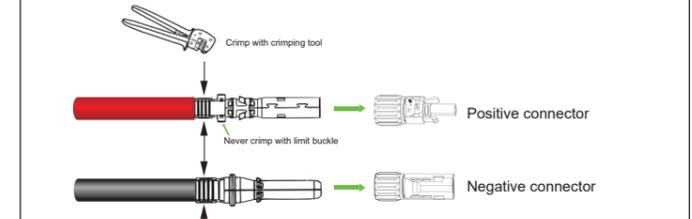
### 3.9 DC Cable Connection

1. Use wire stripper to remove an appropriate length of insulation layer from the DC cables as follows.

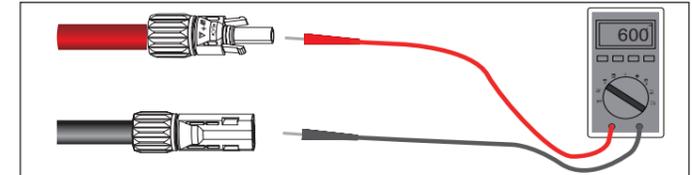


2. Insert the exposed areas of the positive and negative power cables into the metal terminals of the positive and negative connectors respectively and crimp them by crimping pliers, such as Amphenol H4TC0002 or Devalan D4ZCY001.

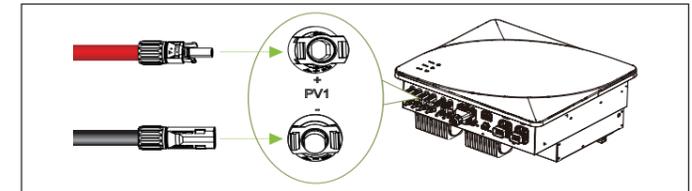
3. Insert the crimped positive and negative power cables into the corresponding positive and negative connectors until a "click" sound is heard. Tighten the locking nuts of the positive and negative connectors.



4. Measure the voltage of every route string by using a multimeter. Ensure that the polarities of the DC input power cables are correct.



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



**NOTICE** Before connecting the connectors to the device, confirm that grounding cable is connected properly and PV switch is in OFF state. Bind cables at positions 300 ~ 350mm away from cable connectors. Otherwise, sagging or swaying cables may loosen the connectors, which may affect the protection degree of the inverter.

### 4 LED Display

Indicator	Name	Status	Description
AC output light	AC output light	On (Green)	On-grid operation
		On (Yellow)	Bypass operation*
		Flash (Green)	Off-grid operation
		Off	Abnormal internal communication
System light	System light	On (Red)	No output
		On (Red)	Failure occurred
		On (Yellow)	Standby
		Flash (Yellow)	Module fault/Derating operation
Communication light	Communication light	On (Green)	In normal running
		Flash (Green)	Pre-inspection
		Off	Abnormal internal communication
		On (Red)	Abnormal internal communication
Communication light	Communication light	Flash (Red)	Abnormal BMS communication
		Flash (Yellow)	Abnormal parallel CAN communication
		On (Yellow)	Abnormal meter communication
		On (Green)	All communication is normal

Bypass operation\*: The inverter is in standby state, and power grid supplies power to loads.

### 5 System Wiring Diagram & Commissioning

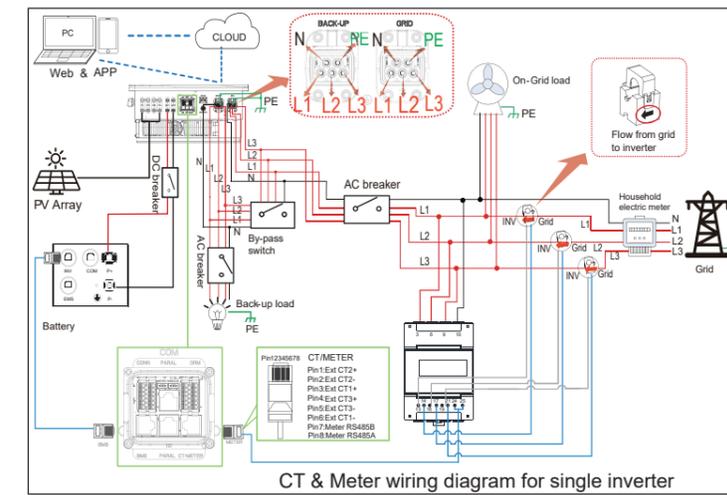
#### 5.1 System wiring diagram

For single inverter, please refer to CT&Meter wiring diagram on top-right side. For CT&Meter wiring diagram of parallel inverters, refer to user manual.

#### 5.2 Power on/off steps

The power on steps and power off steps are the same as follows:

1. Turn on/off On-Grid breaker;
2. Turn on/off Back-up breaker;
3. Turn on/off PV switch;
4. Turn on/off BAT breaker.

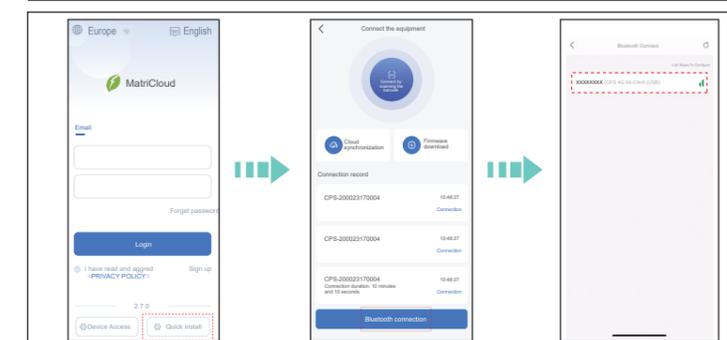


CT & Meter wiring diagram for single inverter

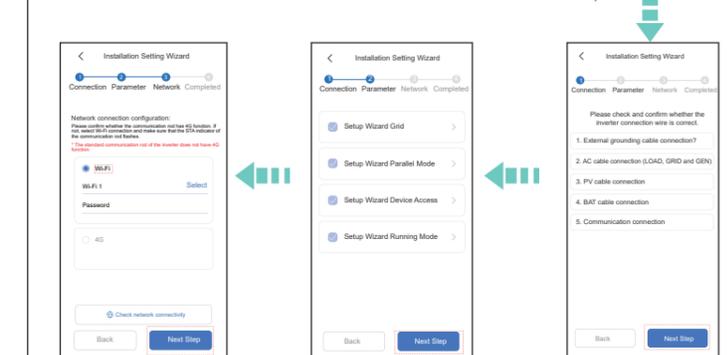
### 6 App Setting

1. Download Matricloud App from Apple Store or Google Store or directly download it by scanning the right-hand QR code. (Android 4.4 and iOS 11.0 or higher phone system)
2. Open Bluetooth function on your phone, then open App to perform the following procedures.

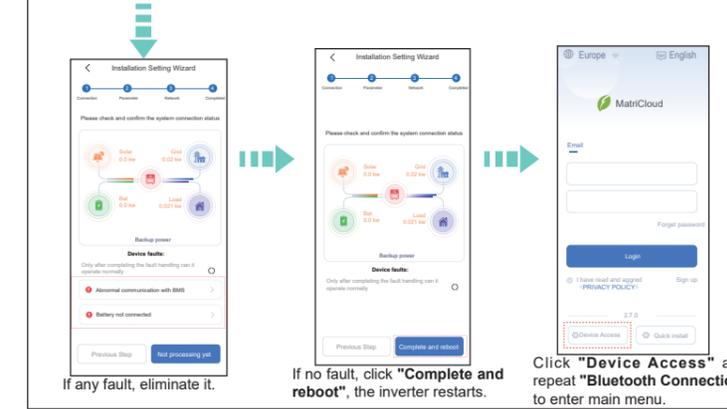
**NOTICE** Register parameters must be modified according to the communication protocol under the guidance of the engineer. Please contact our service personnel if any problem.



Click "Quick Install". Click "Bluetooth connection". Click "XXXXXXXX" (the last 8 digits of SN on COM module).



Set Network configuration and click "Next Step". Set the four types of parameters and click "Next Step". Check all cable connections. Then click "Next Step".



If any fault, eliminate it. If no fault, click "Complete and reboot", the inverter restarts. Click "Device Access" and repeat "Bluetooth Connection" to enter main menu.