

CHS2 C&I ESS Quick Installation Guide

This quick installation guide is applicable for C&I energy storage system (ESS) CHS2-(29.9K-50K)-(T4-T6)-X. For more product information, refer to the CHS2 user manual.

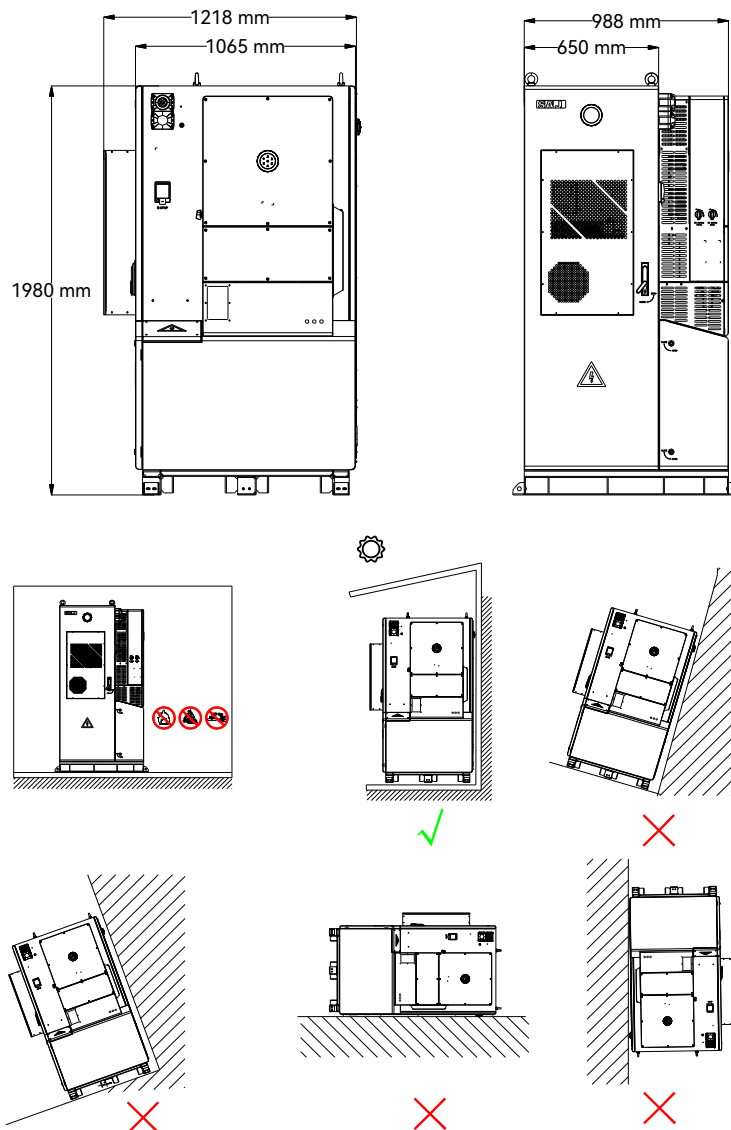
To get the latest CHS2 series user manual and quick installation guide, scan the following QR code:



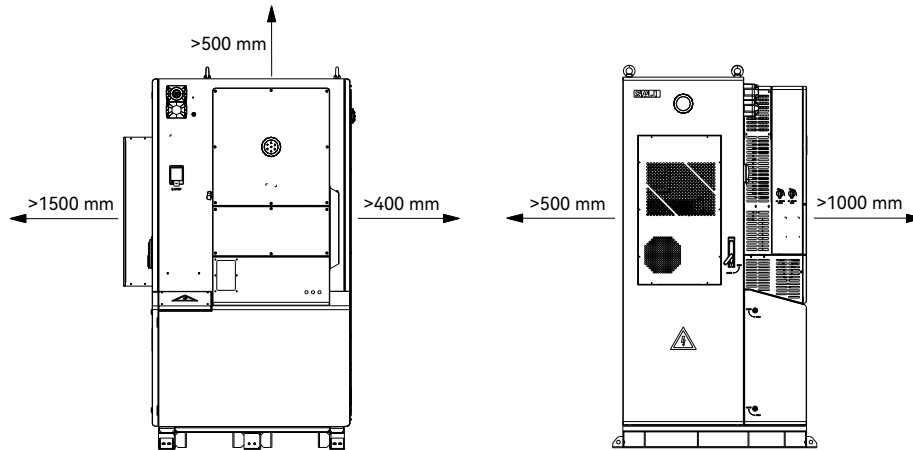
NOTICE

- Before installation and operation, read the product documentation carefully.
- ONLY qualified and trained electricians who have read and fully understood all safety regulations contained in this manual can install the equipment. The operation personnel should understand the system, its working principles, and relevant national and regional standards.
- During operations, wear personal protective equipment (PPE) and use dedicated tools.

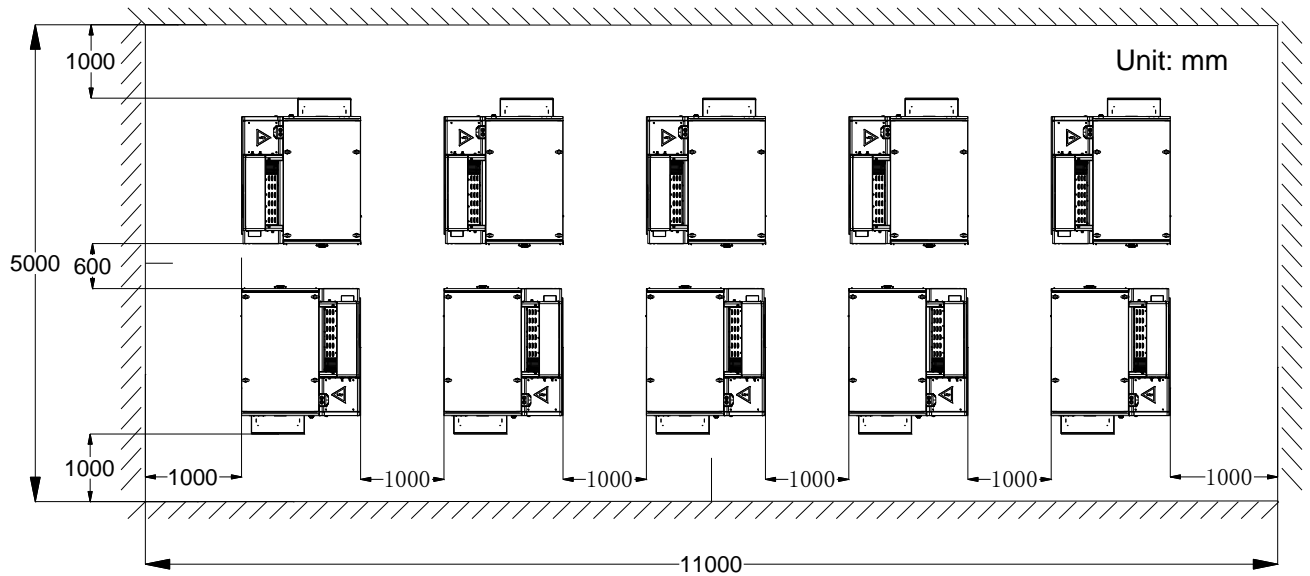
1. Prepare the installation site



Space requirement of a single cabinet:

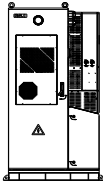
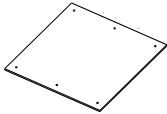
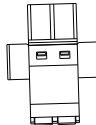
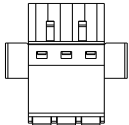
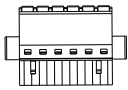


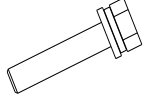



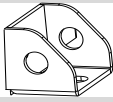


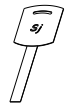
Space requirement of multiple cabinets:



2. Unpack and check the package contents

- Check the outer packing. If any serious damage is found or the model is not what you requested, do not unpack the product, and contact your dealer as soon as possible.
 - Check the outer packing package for any damage, such as holes and cracks.
 - Check the equipment model.
- Check the product package.

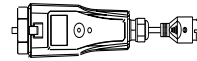
			
CHS2 ESS	Positioning cardboard	2-pin plug x4	3-pin plug x2
			
6-pin plug x4	PV positive terminal x2 PV negative terminal x2	Terminal (RNBS 38-8) x5 (RNB70-10) x12 (SC50-10) x12	M8*25 screw x8
			
M12*80 expansion bolt x6	Removal tool	RJ45 plug x9	Mounting bracket



Key1 x2



Key2 x2



Communication module



Documents

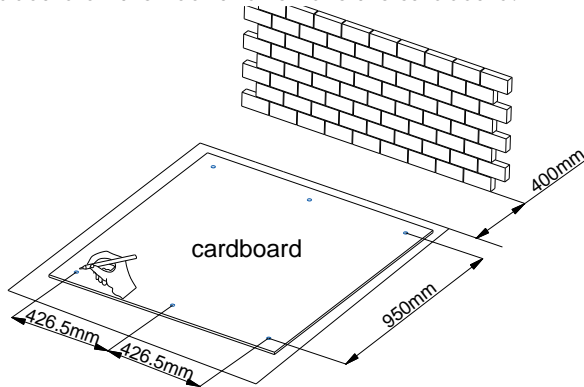
3. Mount the cabinet

Select one of the following options to secure the cabinet:

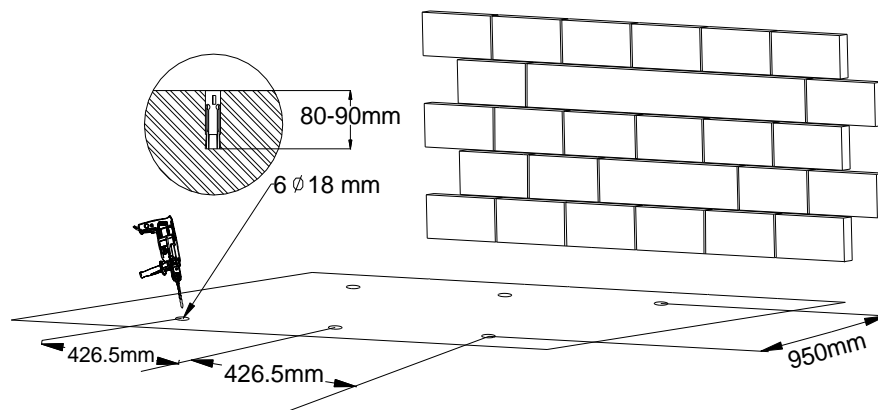
- Secure with the screw bolts.
- Secure with the mounting brackets.

To secure the cabinet with the screw bolts:

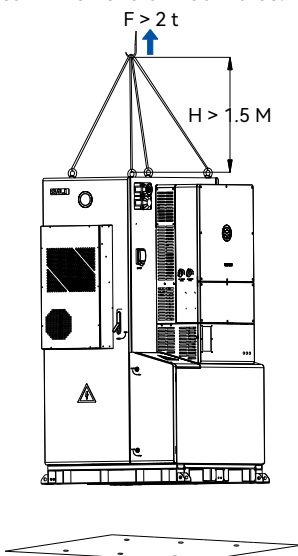
Step 1. Place the positioning cardboard on the floor where the machine is to be located. Mark six drilling holes with the cardboard on the floor and remove the cardboard.



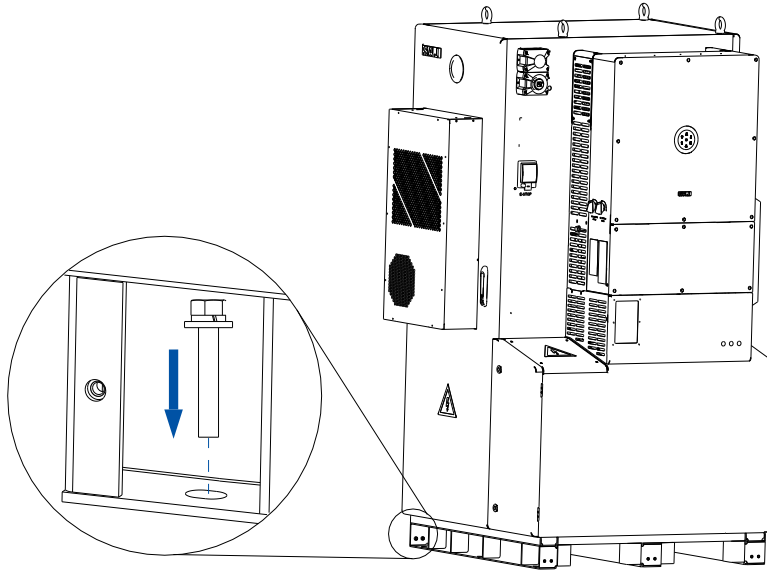
Step 2. Use an electrical drill to drill six holes on the floor at the depth of 80-90 mm. Put an M12*80 expansion tube in each hole.



Step 3. Move and place the cabinet to the installation location with a forklift or crane. Align the holes at the cabinet bottom with the drilled holes.

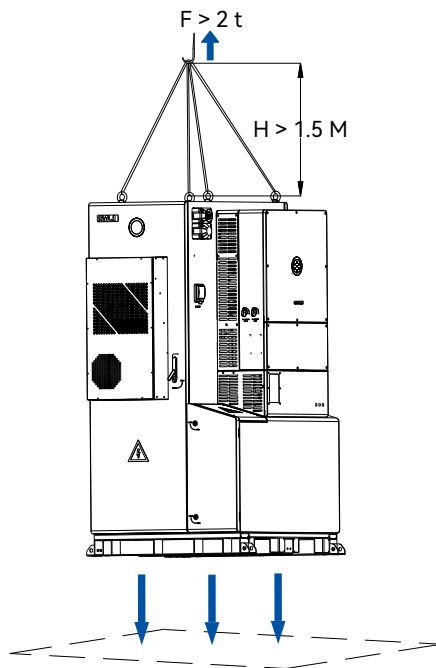


Step 4. Use a wrench to tighten the M12*80 expansion bolts at the bottom to secure the cabinet to the floor.

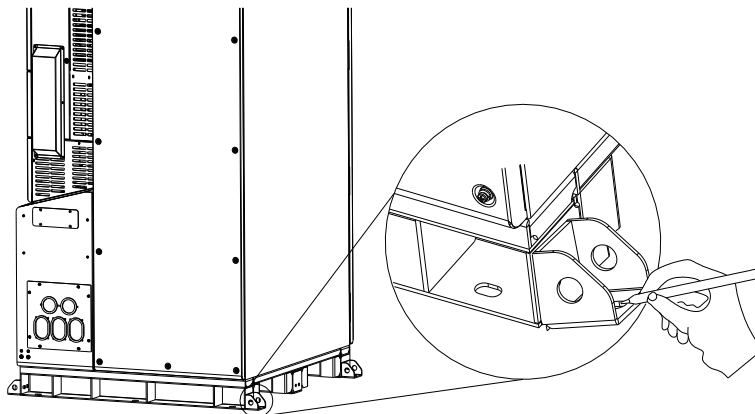


To secure the cabinet with the mounting brackets:

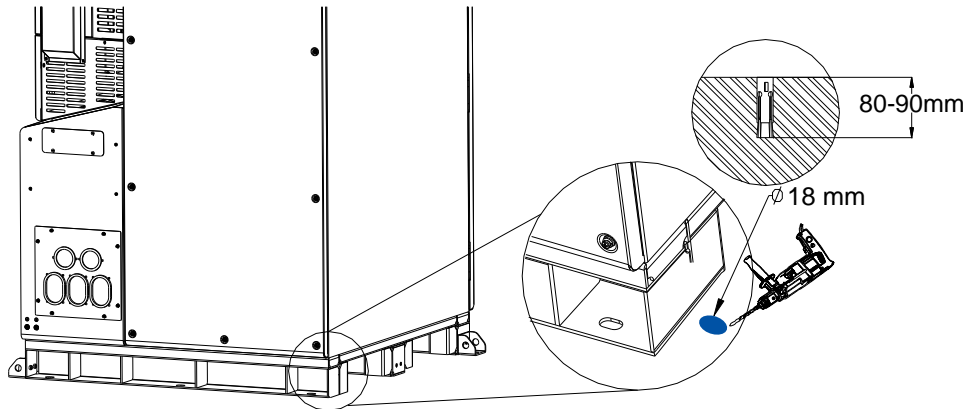
Step 1. Move and place the cabinet to the installation location with a forklift or crane.



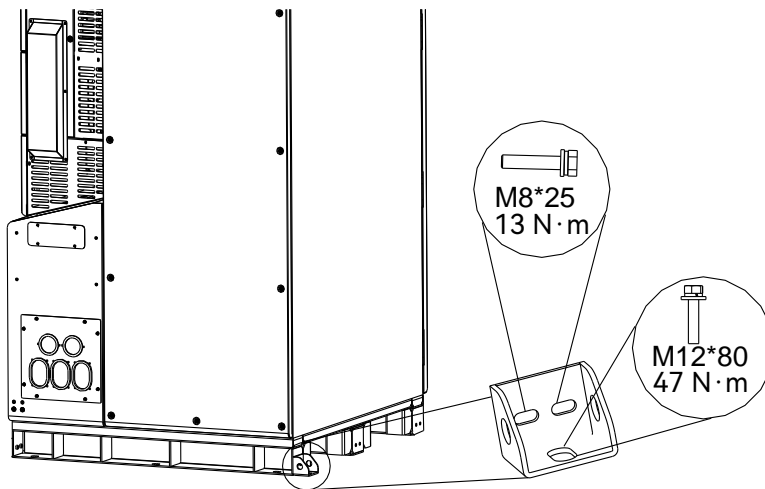
Step 2. Place the four mounting brackets at the four corners of the cabinet horizontally and mark the drilling holes.



Step 3. Remove the mounting brackets, and use an electrical drill to drill four holes on the floor at the depth of 80-90 mm. Put an expansion tube in each hole. (M12*80)



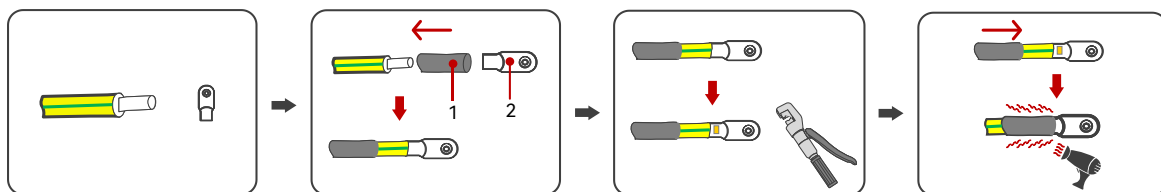
Step 4. Place the four mounting brackets back to the four corners and use a wrench to secure the brackets to the floor.



4. Connect the grounding cable

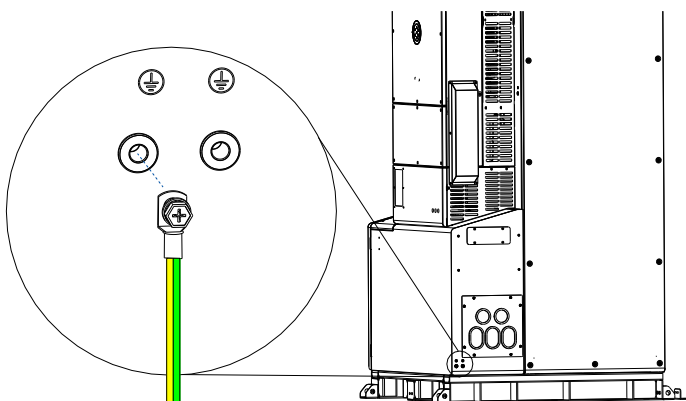
The recommended conductor cross-sectional area of the grounding cable is 6 mm^2 .

Step 1. Assemble the cables with the RNBS38-8 OT/DT terminals as follows:



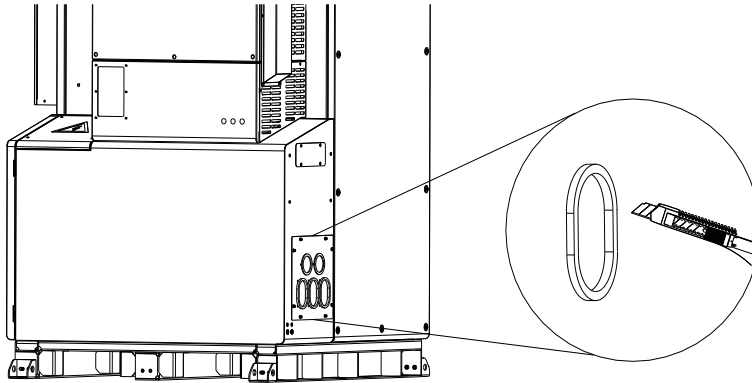
1. Heat shrink tubing 2. OT/DT terminal

Step 2. Remove the screw of the grounding terminal, insert the screw through the OT/DT terminal, and tighten the cable with the screw.

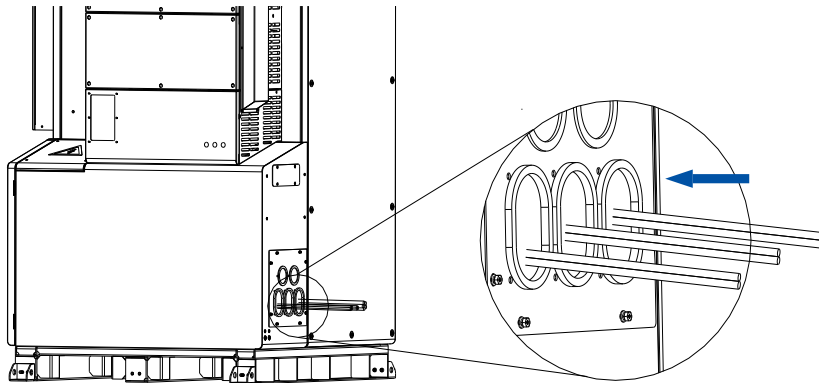


□ 5. Organize the cables and remove the covers

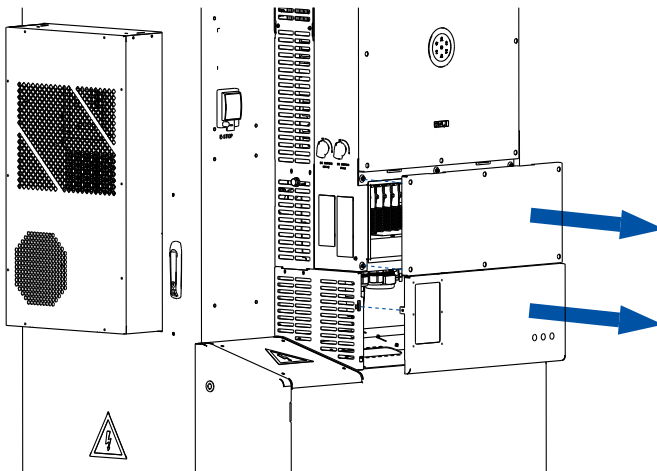
Step 1. Use a knife to cut the end of the cable sleeves at the cable outlet holes.



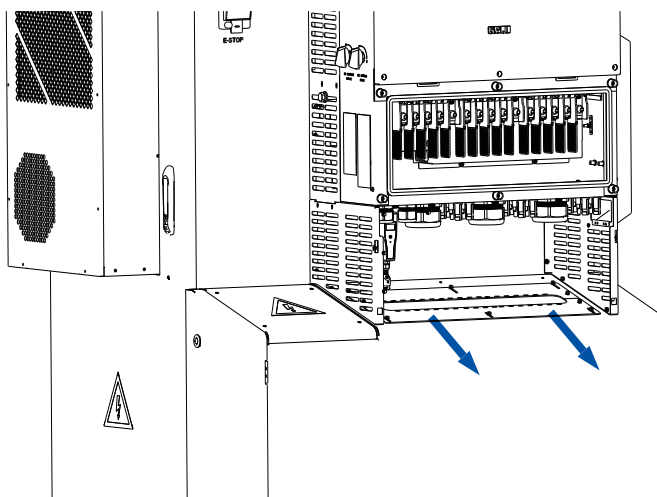
Step 2. Pass the cables through the cable outlet holes.



Step 3. Remove the decorative panel of the inverter.



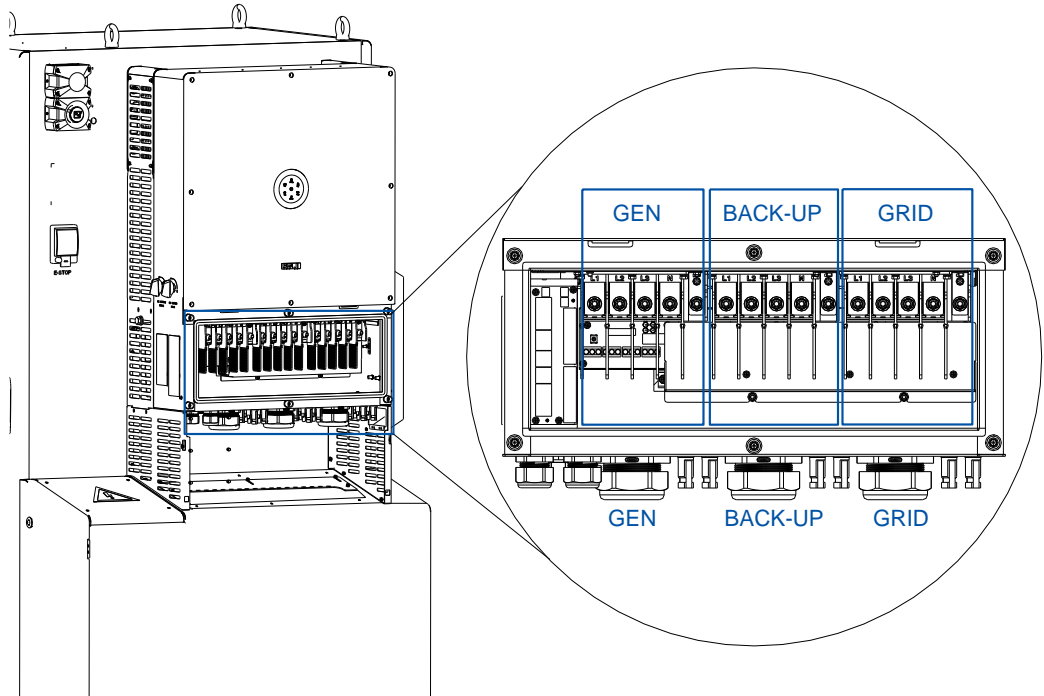
Step 4. Remove the baffle under the inverter.



6. Connect the AC cables

Prepare the GRID, GEN, and Backup cables according to different deployment scenarios of the customer. For detailed cable specifications, see Section 5.8 “System Connection Diagrams” in the *User Manual*.

- Step 1. Pass the cables through the GEN, BACK-UP, and GRID waterproof nuts of the AC cover box.
- Step 2. Secure the inner core wires of the GRID, GEN, and BACKUP cables to the terminals of L1, L2, L3, N, and PE on the inverter.



- Step 3. Install an external circuit breaker to ensure that the inverter can be disconnected from the grid safely. Prepare the circuit breaker according to the following recommended rated current (A) specification:

Model	Backup load connected	
	Yes	No
CHS2-(29.9K-50K)-T6-X	200 A	100 A
Notice: Do not connect multiple inverters to one AC circuit breaker.		

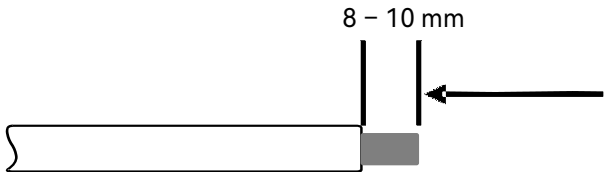
7. Connect the PV-side cables

Conductor cross-sectional area of cables (mm ²)		Conductor material
Range	Recommended value	Outdoor copper wire cable, complying with 1000 V DC
4.0-6.0	4.0	

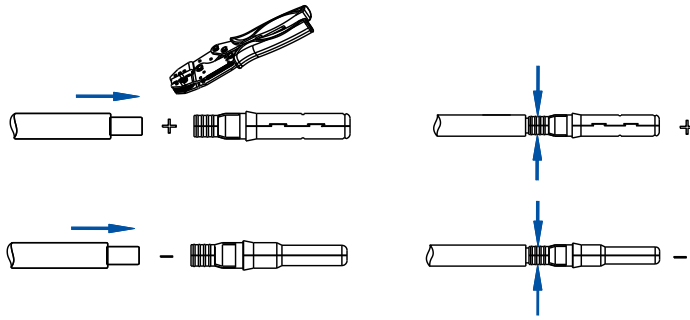
- Step 1. Loosen the lock screws on the positive and negative connectors.



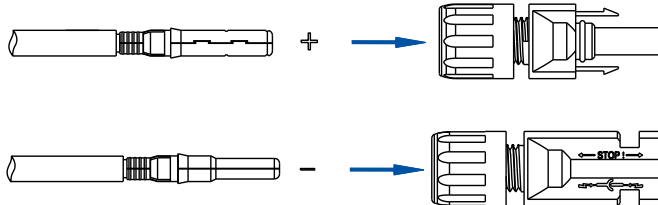
- Step 2. Use a 3-mm wide-bladed screwdriver to strip the insulation layer by 8 to 10 mm from one end of each cable.



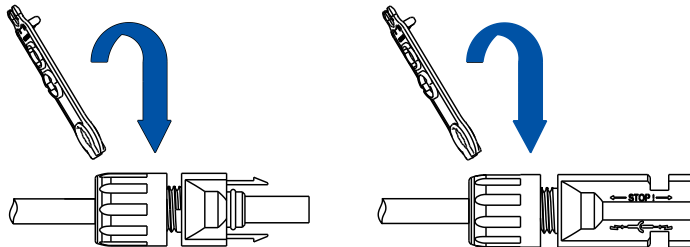
Step 3. Insert the cable ends to the sleeves. Use a crimping plier to assembly the cable ends.



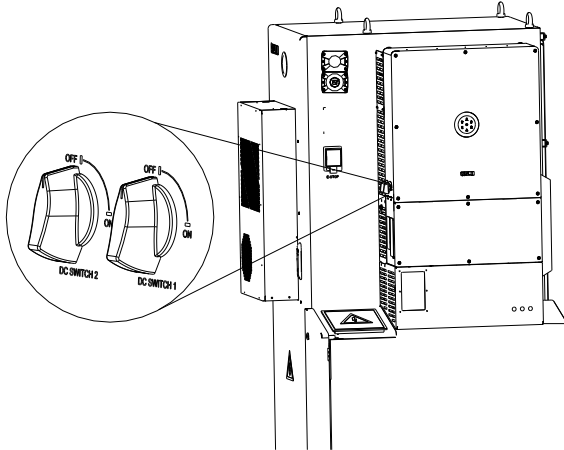
Step 4. Insert the positive and negative cables into the positive and negative connectors. Gently pull the cables backward to ensure firm connection.



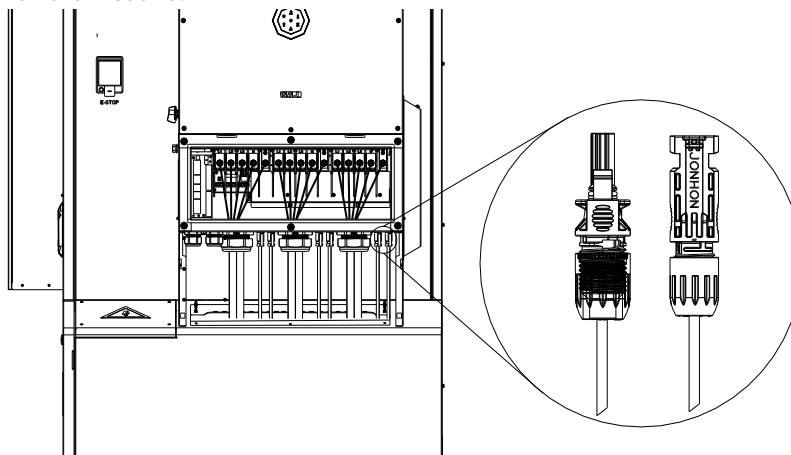
Step 5. Tighten the lock screws on the positive and negative cable connectors with the D4 assembly tool.



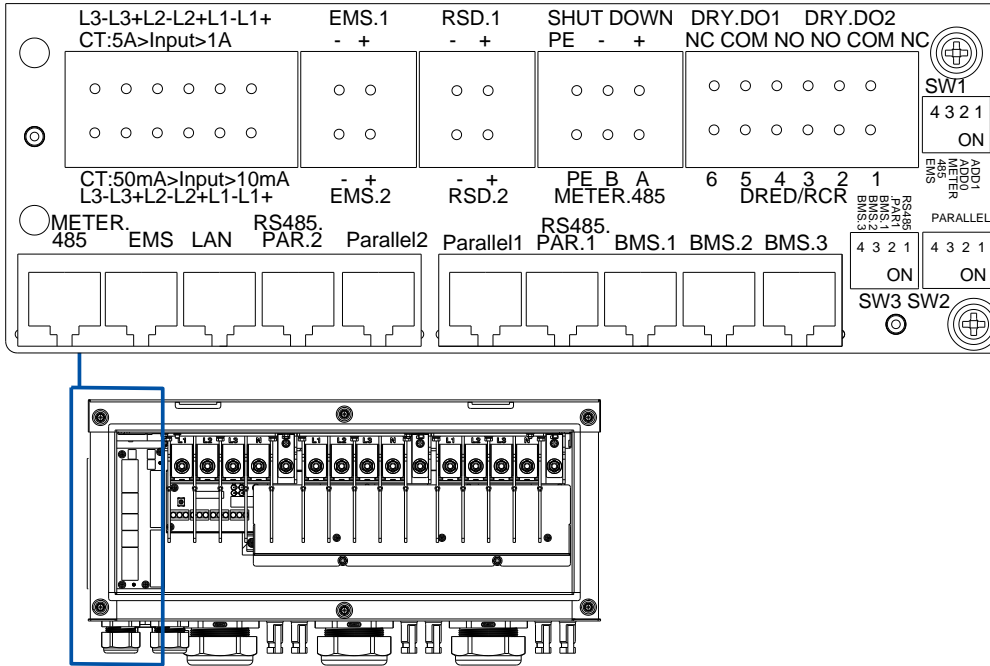
Step 6. Make sure the two DC switches are at the **OFF** position.



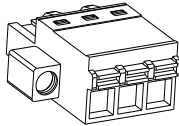
Step 7. Insert the positive and negative cable connectors into the positive and negative PV ports on the inverter until you hear a “click” sound.



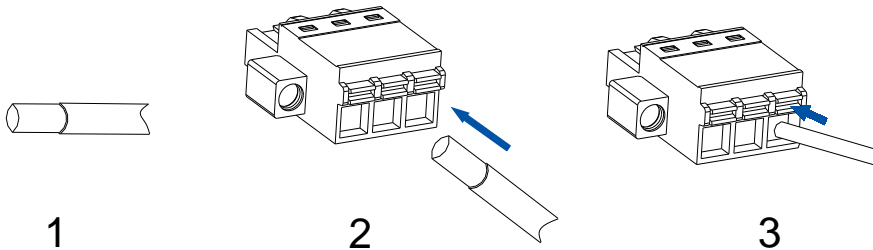
8. Communication connection



Step 1. Prepare the wires for the 2-pin, 3-pin, and 6-pin plugs depending on which communication functions are required.



Step 2. Peel off the insulation skin of the wire by proper length. Insert the wire into the plug and press the orange button to secure the cable.

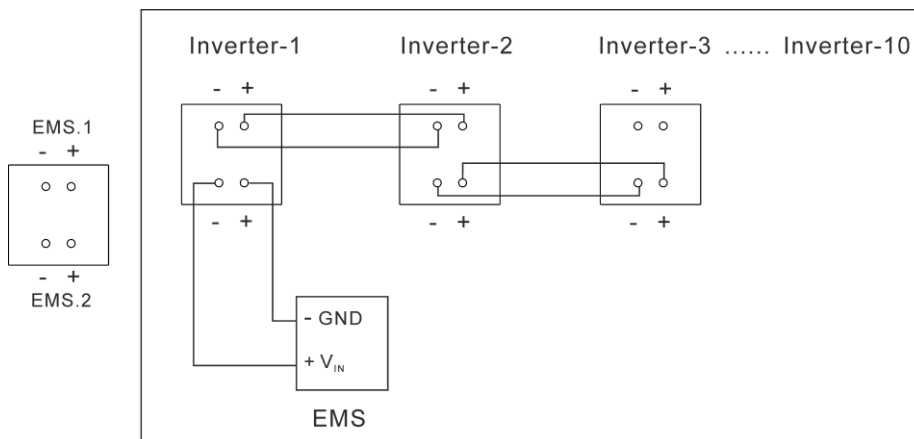


Step 3. Connect the communication plugs for the corresponding functions like grid current transformer according to the port descriptions in the following sections in this step.

EMS Connection

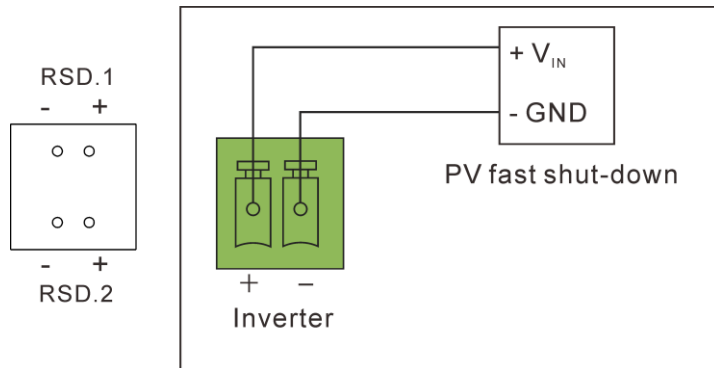
The EMS.1 and EMS.2 ports can supply power to the external energy management system (EMS) at the rated output voltage of 20 V in the parallel deployment of the inverters.

At least two inverters must provide the power supply to the EMS in parallel deployment. The length of the power supply wire to the EMS is limited to 50 meters.



PV Connection

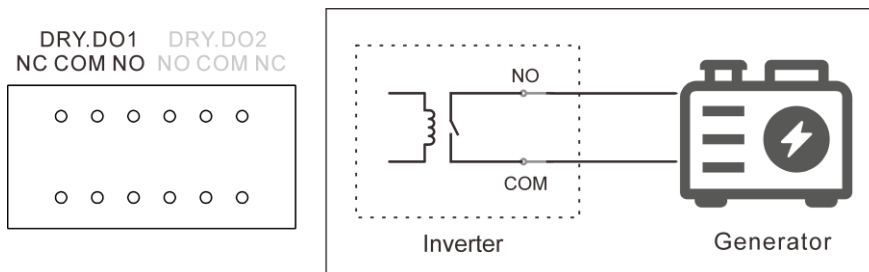
The RSD.1 and RSD.2 ports can supply power to the fast shutdown module of the photovoltaic system at the rated voltage of 12 V. The two ports control the fast shutdown and startup of the PV system by turning on or off the power supply to the fast shutdown module.



Generator Connection

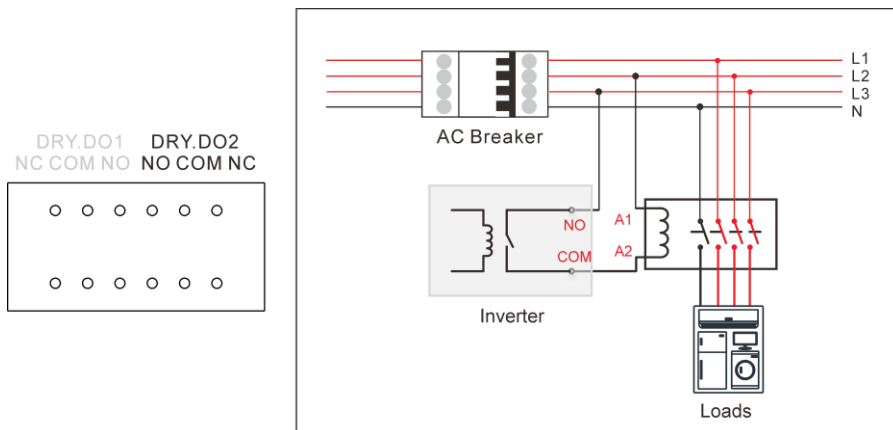
The DRY.DO1 port can connect with the generator to control the start and stop of the generator.

When the inverters are deployed in parallel, the generator needs connect to the DO4 interface of the EMS device.



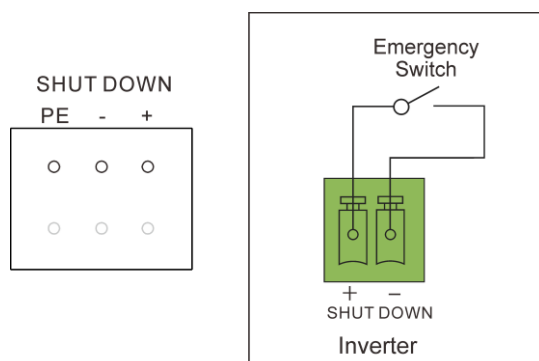
Dry Contact Connection

The DRY.DO2 ports are reserved as an output dry contact for future use.



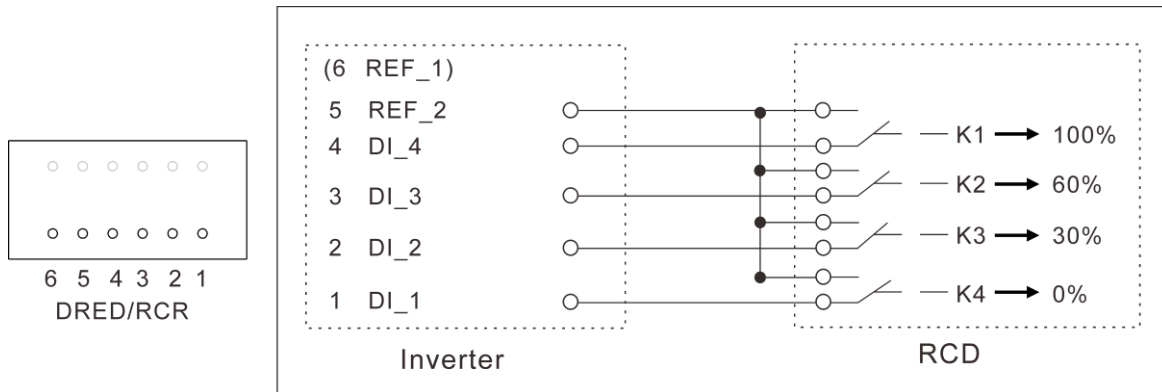
Emergency Stop Switch Connection

The SHUT DOWN port can connect with an external switch to stop the inverter immediately in emergent situations.



RCD Connection

The DRED/RCR ports can connect with external residual current devices (RCD) or demand response enabling devices (DRED) to provide the RCR signal control function. This function meets the power grid dispatching requirements in Germany and other countries and regions.



Meter Connection in Single Deployment

The METER.485 port can connect with meter CHINT's DTSU666 to provide RS485 communication.

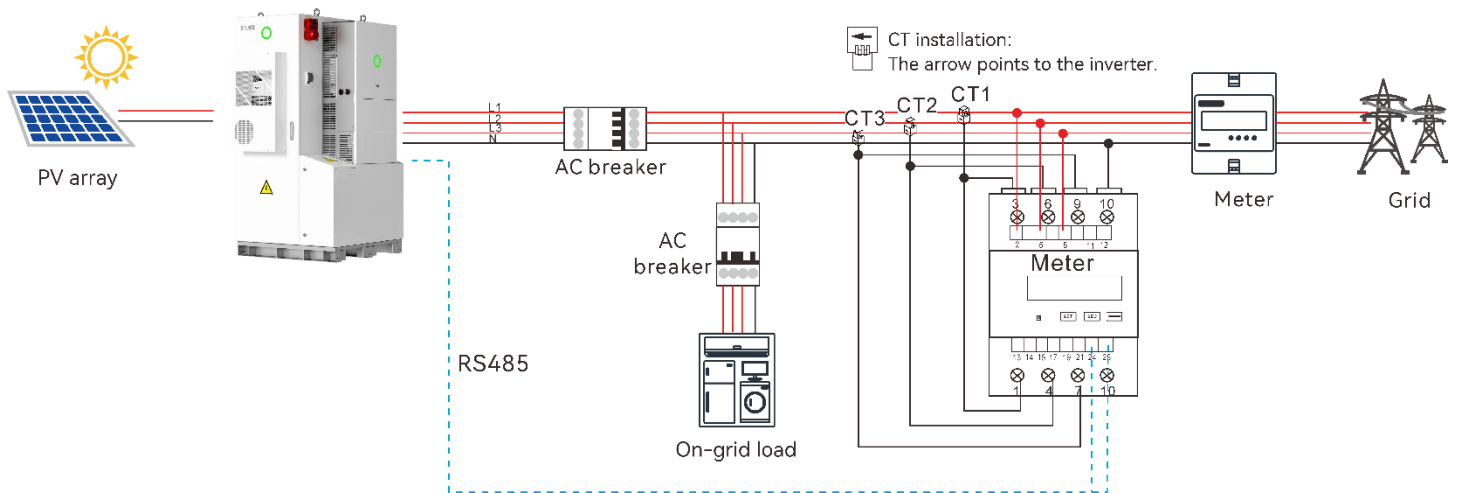


Figure 8.1. System diagram – one meter

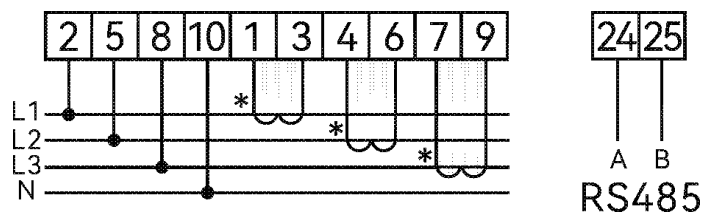


Figure 8.2. Meter connection

When two meters are used, set the address of the inverter-side meter to 2. Do NOT change the default address 1 of the grid-side meter. The CT arrow direction points to the CHS2 inverter.

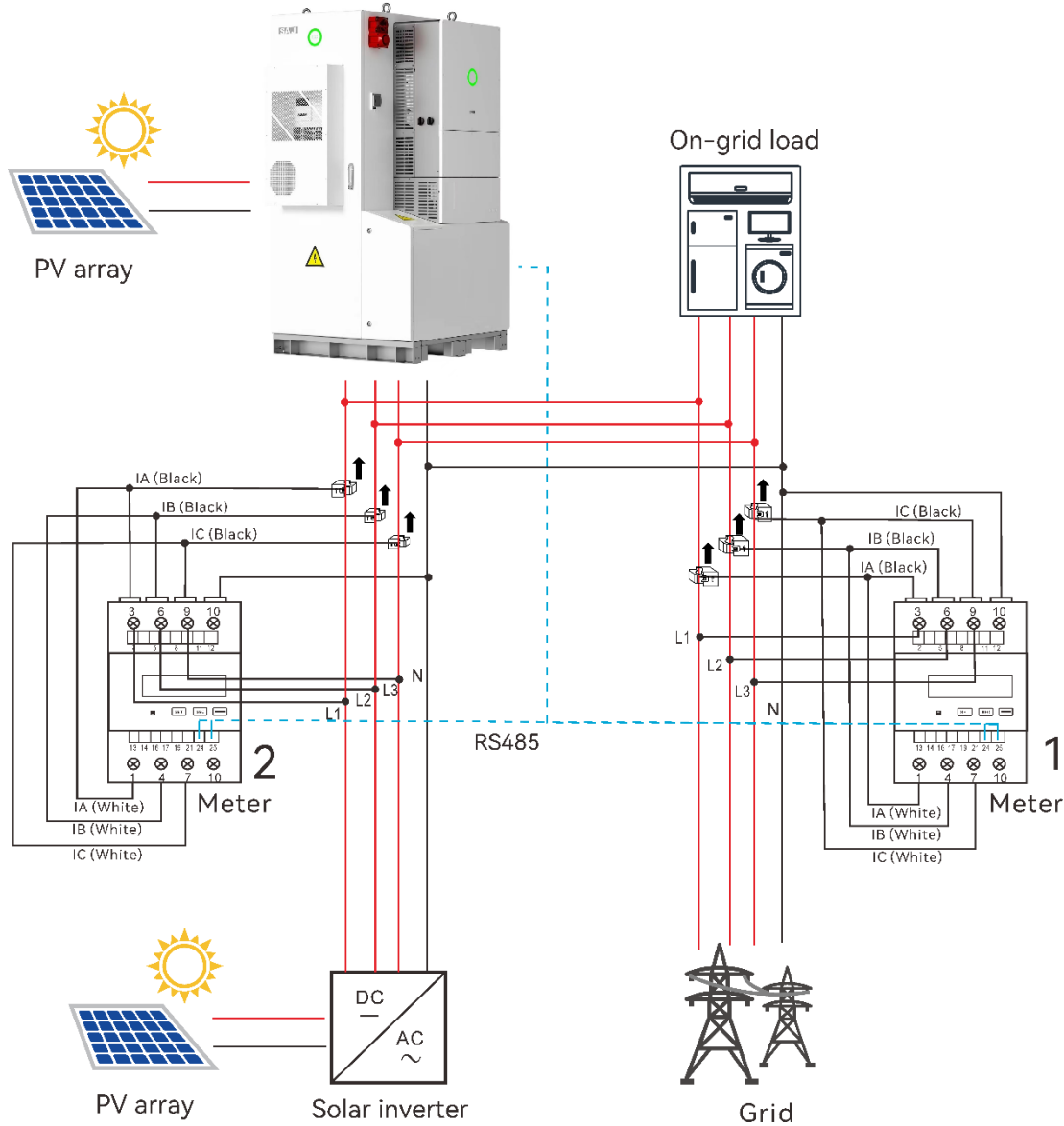
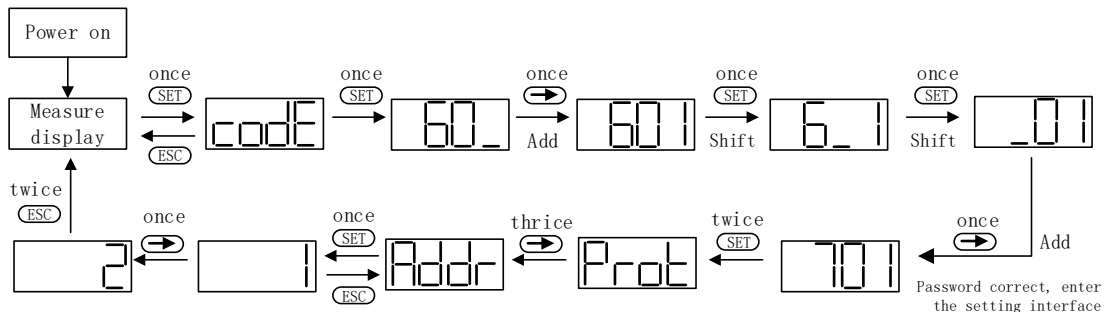


Figure 8.3. Meter connection – two meters

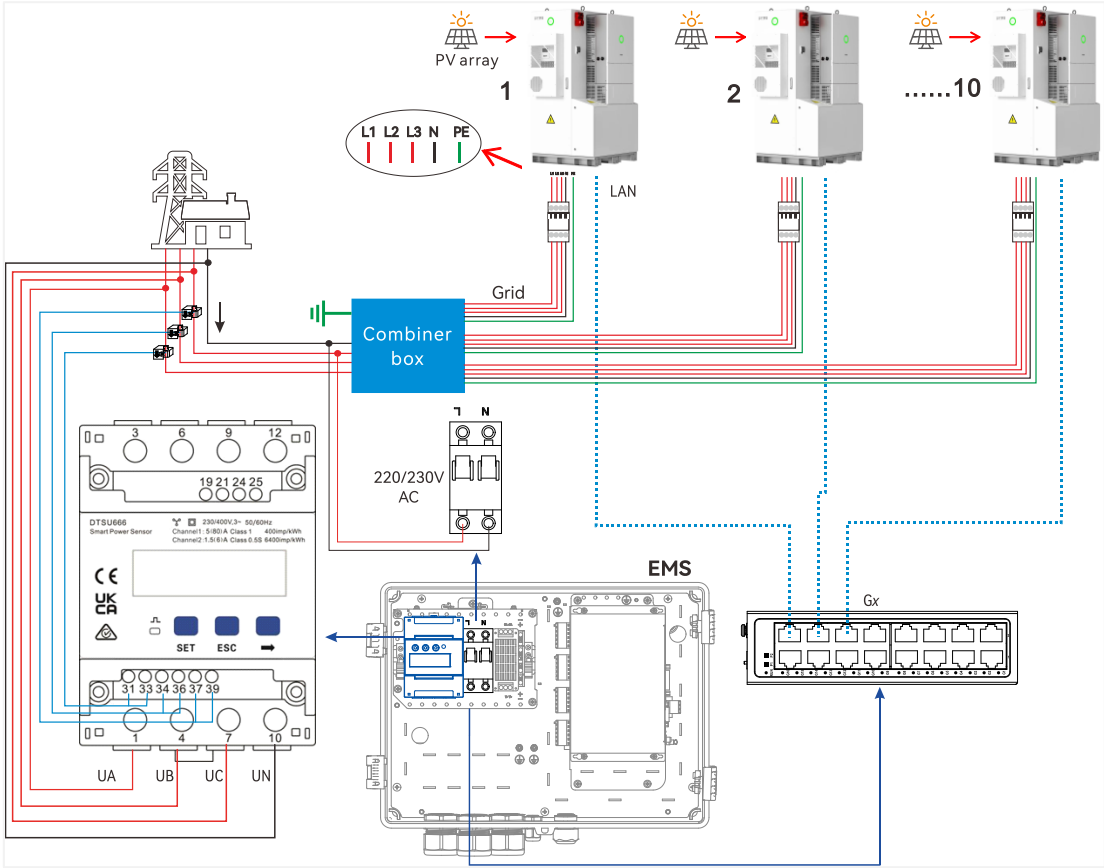
To set a three-phase meter, perform the following operations:



- Power on the meter and enter **Measure display**, and then press **SET** twice to enter the password 701.
- Press the → button to adjust the value of the first digit. One increment per pressing.
- Press **SET** once to shift to the second digit and adjust the value in the same way. Set the default password to **701**.
- When the password is entered correctly, press **SET** twice to enter the port interface and press the → button three times to enter the address page. Then, press **SET** once to start the meter address setting.
- Press the → button to adjust the value of the address. One increment per pressing.
- After the address is set successfully, press **ESC** twice to exit **Measure display** for the meter to start working.

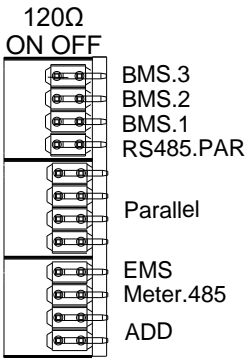
Meter Connection in Parallel Deployment

In parallel deployment, follow the diagram below to connect to the meter integrated in the EMS communication box. During commissioning, configure the export limit control function on the elekeeper App according to local grid requirements and regulations.



DIP Switch Connection

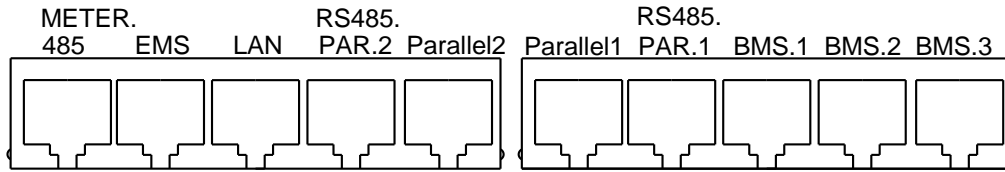
The SW1/2/3 dual inline package (DIP) switches are provided to control the activation of 120 Ω terminal resistors to ensure the communication stability of the corresponding communication functions.



Switch	Function
BMS.3, BMS.2, BMS.1	Provide the 120 Ω terminal resistors for the CAN communication between battery management systems (BMS). Turn the switch on as needed.
RS485.PAR	Provide the 120 Ω terminal resistors for RS485 PAR1 communication. Turn the switch on as needed.
Parallel	Provide the 120 Ω terminal resistors when multiple inverters are deployed in parallel. Turn the switches to the ON position on the two inverters that are physically farthest apart.
EMS	Provide the 120 Ω terminal resistors for RS485 communication with the EMS. Turn the switch on as needed.
METER.485	Provide the 120 Ω terminal resistors for RS485 communication with the external meters. Turn the switch on as needed.
ADD	Reserved for future use.

RJ45 Ports Connection

The inverter provides the following RJ45 ports for communication connections:



Port	Function
METER.485	For meter RS485 connection.
EMS	For RS485 communication with the SAJ EMS or the third-party EMS.
LAN	For LAN communication with the SAJ EMS or the third-party EMS.
RS485.PAR.1	RS485 communication ports reserved for future use.
RS485.PAR.2	
Parallel1	For CAN communication connection between CH2 inverters in parallel deployment with the backup loads connected.
Parallel2	
BMS.1	For CAN communication connection from the SAJ CB2 battery system.
BMS.2	CAN communication port reserved for future use.
BMS.3	For CAN communication connection from the third-party battery system.

Prepare the RJ45 cables according to the following specification for the corresponding functions as needed:

Port	Cable type	Maximum length (m)
METER.485	Standard CAT6 outdoor shielded network cable.	300
EMS		300
LAN		100
Parallel1, Parallel2		100
BMS.1		20
BMS.3		20

Crimp the cable ends with the RJ45 plugs in the delivery package according to the pin definitions below:



EMS	
1	NC
2	NC
3	NC
4	NC
5	NC
6	NC
7	RS485-A
8	RS485-B

RS485.PAR.1/RS485.PAR.2	
1	NC
2	NC
3	NC
4	NC
5	NC
6	NC
7	RS485-A
8	RS485-B

METER.485	
1	RS485-1B
2	RS485-1A
3	NC
4	RS485-2B
5	RS485-2A
6	NC
7	RS485-3A
8	RS485-3B

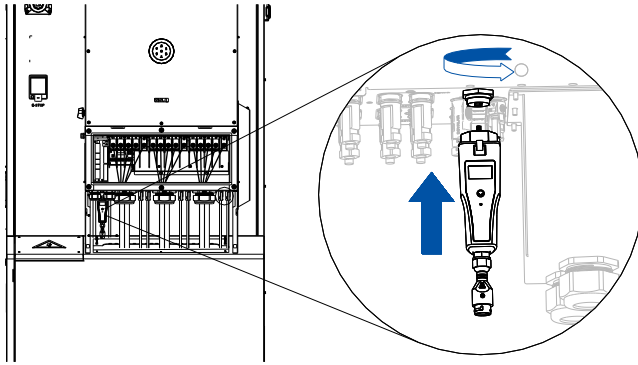
BMS.1/ BMS.2/ BMS.3	
1	Shut down—BMS
2	GND_S
3	NC
4	CANH
5	CANL
6	NC
7	NC
8	NC

Parelle1/ Parelle2	
1	SYN B
2	SYN A
3	SYN B
4	SYN B
5	SYN A
6	SYN A
7	CANL
8	CANH

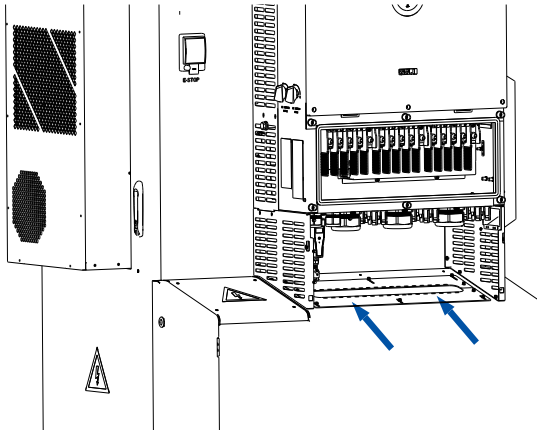
LAN	
1	TX_D1+
2	TX_D1-
3	RX_D2+
4	BI_D3+
5	BI_D3-
6	RX_D2-
7	BI_D4+
8	BI_D4-

9. Install the communication module

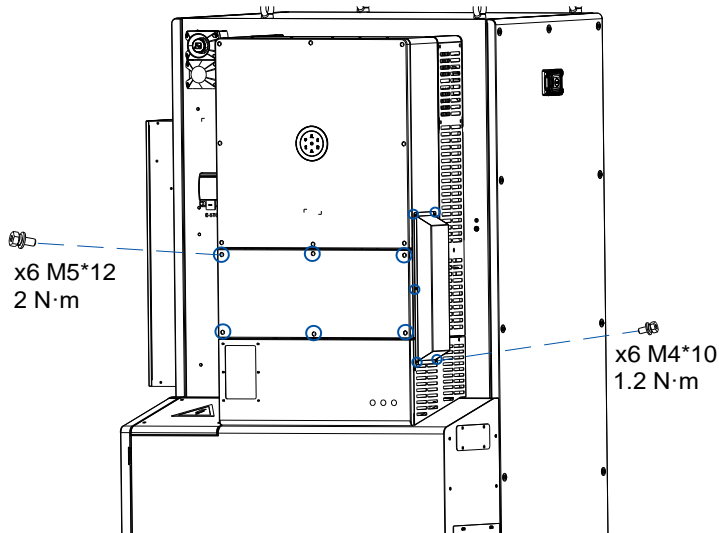
Step 1. Plug in the communication module to the 4G/WIFI port and rotate the module to secure it.



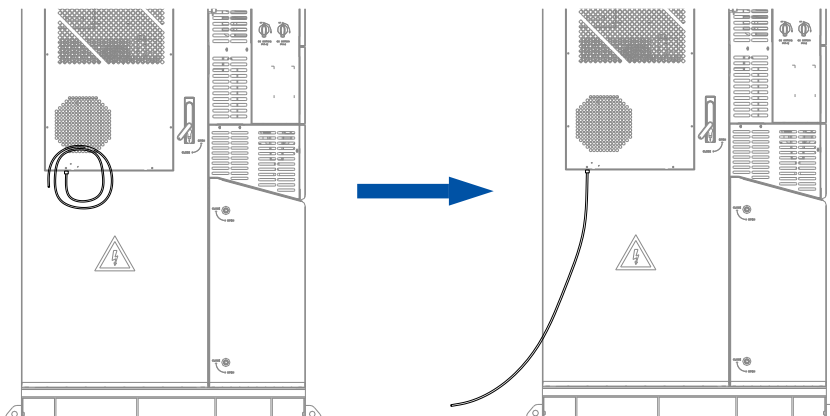
Step 2. Install the baffle back inside the inverter.



Step 3. Install back the decorative panel on the front of the inverter.

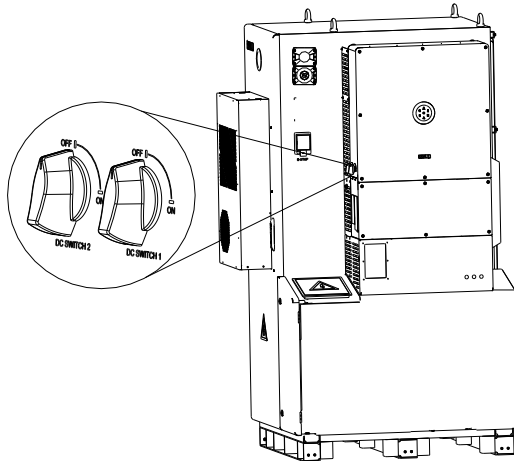


Step 4. Loosen the AC drain pipe to ensure proper draining of the AC condensate. Avoid blocking the pipe which can cause water backflow into the cabinet.



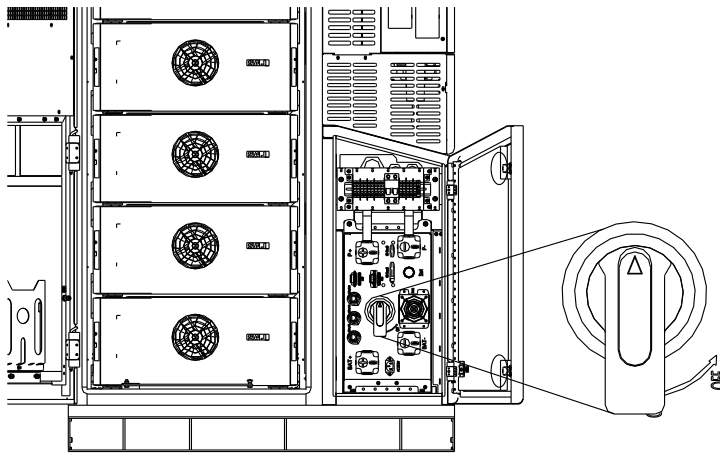
□ 10. Start up the system

Step 1. Turn the two DC switches to the **ON** position on the inverter to enable the PV side connection.



Step 2. Turn on the external AC circuit breaker to enable the connection to the grid.

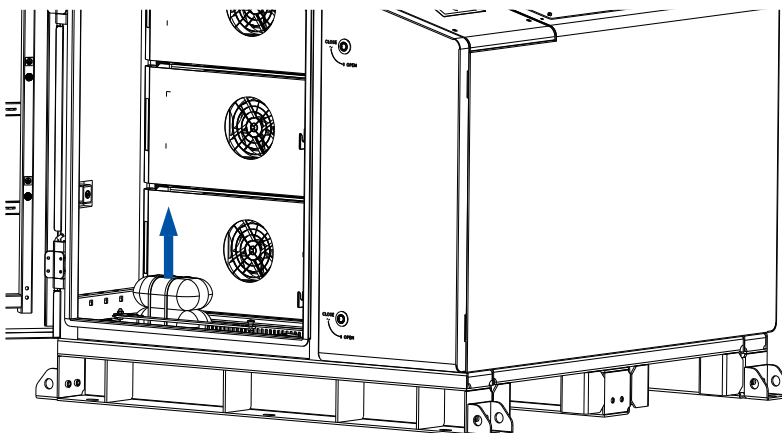
Step 3. Rotate the main switch on the battery control unit to the **ON** position.



Step 4. Press and hold the START button on the battery control unit for 3 seconds until the LED light flashes in green. It indicates that the CHS2 system starts up.

Note: If the main switch suddenly trips while the machine is running, reset the main switch and rotate the main switch to the **ON** position again.

Step 5. Remove the drying agent from inside the cabinet.



Step 6. Close the cabinet doors and keep the keys at a safe place.

Step 7. Log in to the elekeeper App and complete the initialization. For detailed instructions, refer to the *User Manual*.

Installer: _____