MH series

Export Limitation Device

Single-Phase (MH-100S2-R)

User Manual



V0.0

Revision history

Version	Date	Changes
V0.0	2026-07-30	First version.

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1. Product introduction

1.1. Product overview

The MH-100S2-R export limitation device has multiple functions:

- **Energy metering**: Measures forward and reverse active energy.
- **Electrical parameter measurement**: Monitors voltage, current, frequency, power, power factor and other electrical parameters.
- **Display**: LED indicators.
- **RS485 communication**: Active power data refresh interval is about 50 ms.
- **Quick wiring design**: Current CT adopts RJ12 terminals. Voltage circuit uses screwless terminals.

The device monitors the electrical parameters on both the grid side and inverter side in real time. Then, it transmits the monitored data to the inverter through RS485 wired communication. Using such data, the inverter supports:

- Collecting statistics on power generation and consumption.
- Lowering power generation to prevent excess power from flowing back to the grid.
- Providing basic energy data for the elekeeper App to enable remote monitoring, analysis and configuration.

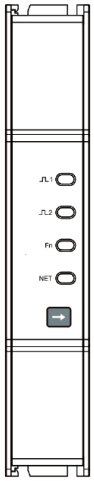
1.2. Model description

MH - 100 S2 - R
① ② ③ ④

①	The device is applicable to hybrid inverter and energy storage system.
②	The device is compatible with 100A CT.
③	Single-phase meter.
④	Supports RS485 communication.

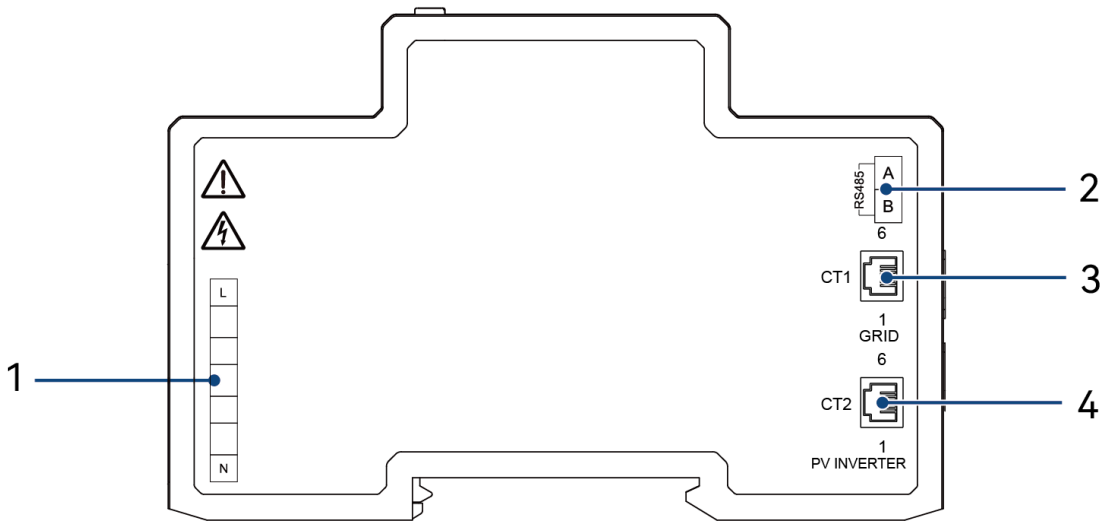
1.3. Indicators and ports

Indicators



Silkscreen	Indicator	Color	Status	Description
⎍1	Pulse light	Red	Flashing	Each flash of the pulse light corresponds to one energy pulse measured. The flashing rate reflects the power consumption speed.
⎍2	Reserved			
Fn	Function Light	Blue	Solid on	The meter is powered on.
			Flashing	During communication.
NET	Reserved			

Ports



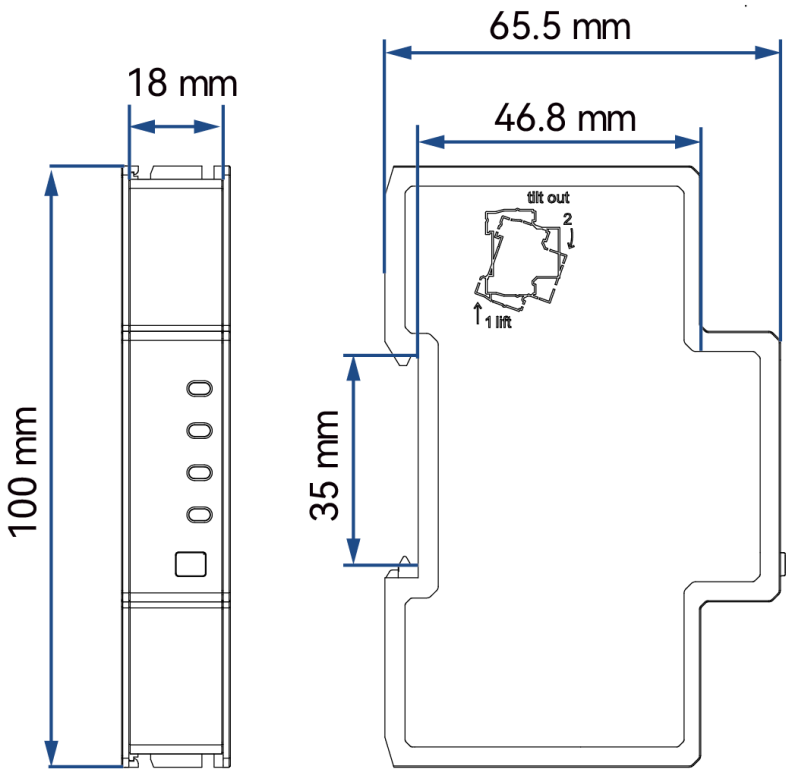
Note:

The illustrations are for reference only. The appearance is subject to the actual product you have received.

Callout	Silkscreen	Description
1	L, N	• Phase L • Neutral line
2	RS485 A, B	The RS485 port for connecting the communication cable.
3	CT1 (GRID)	The CT1 port for connecting the CT cables on the grid side.
4	CT2 (PV INVERTER)	The CT2 port for connecting the CT cables on the inverter side.

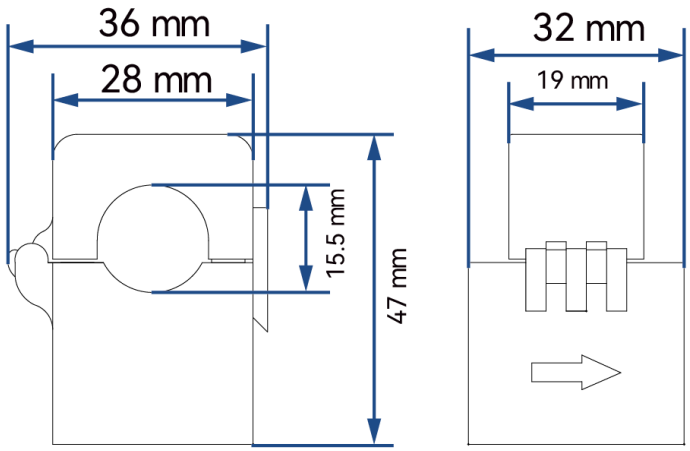
1.4. Product specification

MH-100S2-R



Model	MH-100S2-R
Dimensions (H*W*D) (mm)	100×18×65.5
Net weight (g)	76
Nominal voltage (V)	220-240
Nominal current	100 A/40 mA
Frequency (Hz)	50/60
Electrical energy accuracy	Class B
Power grid system	1P2W
Temperature	-25℃ to 55℃ (nominal) -40℃ to 70℃ (extreme)
Relative humidity (non-condensing)	≤75%
Way to install	DIN35 standard rail installation
Certification	CE, RoHS

CT-100S



Model	CT-100S
Rated Current (A)	100
Dimensions (H*W*D) (mm)	47*36*32
Net weight (g)	79
Cable length (mm)	1000±100
Maximum tensile force of CT cable (N·m)	15

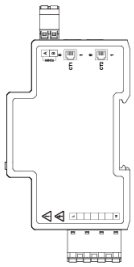
Note:

- The dimensional tolerance is ±1 mm.
- The appearance, size and information are subject to the actual objects.

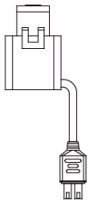
2. Installation and connection

2.1. Packing list

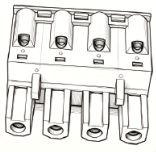
A



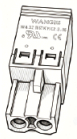
B



C



D



E



Number	Quantity	Designation
A	1	The smart meter.
B	2	The current transformers (CT) with communication cable.
C	1	The 4-pin terminal for cable connection of live and neutral lines.
D	1	The 2-pin terminal for RS485 communication cables.
E	1	The meter communication cable (10 meter).

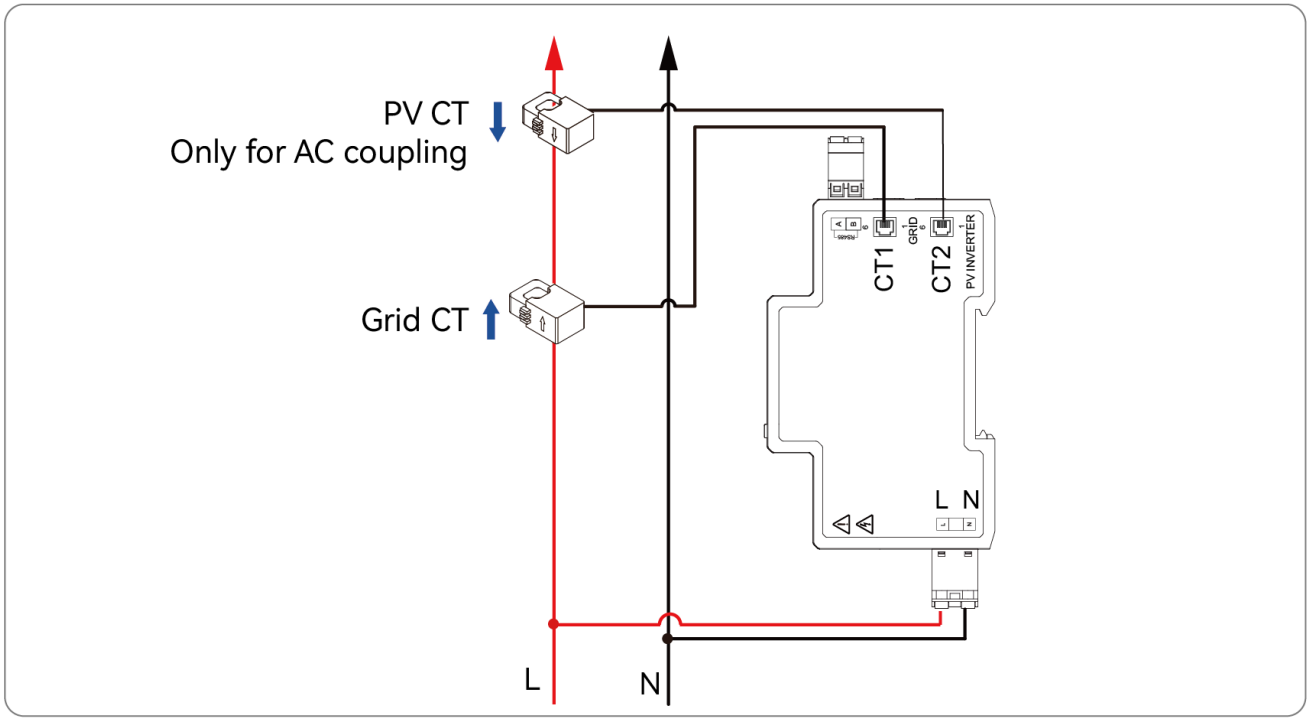
Note: The illustrations are for reference only. The appearance is subject to the actual object you have received.

2.2. Electrical diagrams

This section provides meter wiring diagrams for the following scenarios:

- Standard 2-wire: 1 live line with the neutral line. It is applicable to the conventional single-phase grid supplies.
- 2-live-wire: 2 live lines without the neutral line. It is applicable to a scenario where two phases tapped from a three-phase grid.

Meter wiring for standard 2-wire (1L + N)



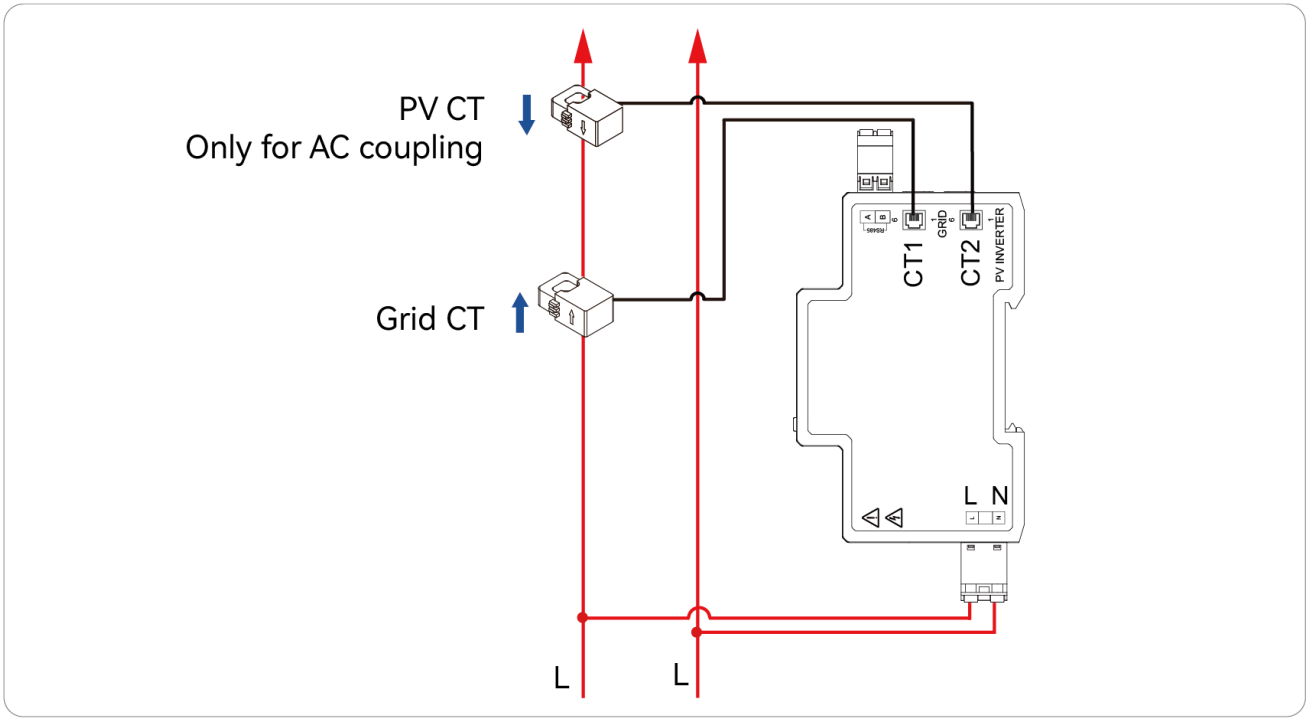
2-live-wire (L1+L2, no N)

⚠ CAUTION

Risk of equipment damage and metering inaccuracies.

Cross connection of different live phases causes system malfunction.

For the 2-live-wire (L1+L2, no N) connection, ensure that all live wires connected to the L terminals on the inverter, meter and loads are tapped from the same grid live phase.



2.3. Install and connect the meter

Before you begin

DANGER

- Cut off the power supply before any operation on the meter to avoid electric shock that could result in death or severe injury.
- Use insulated tools and test for electricity before any operating.
- An overloaded current transformer accessory can lead to overheating.
- Do not expose this device to damp or rainy conditions to avoid the risk of fire or electric shock. Install the device in a location with proper ventilation.

WARNING

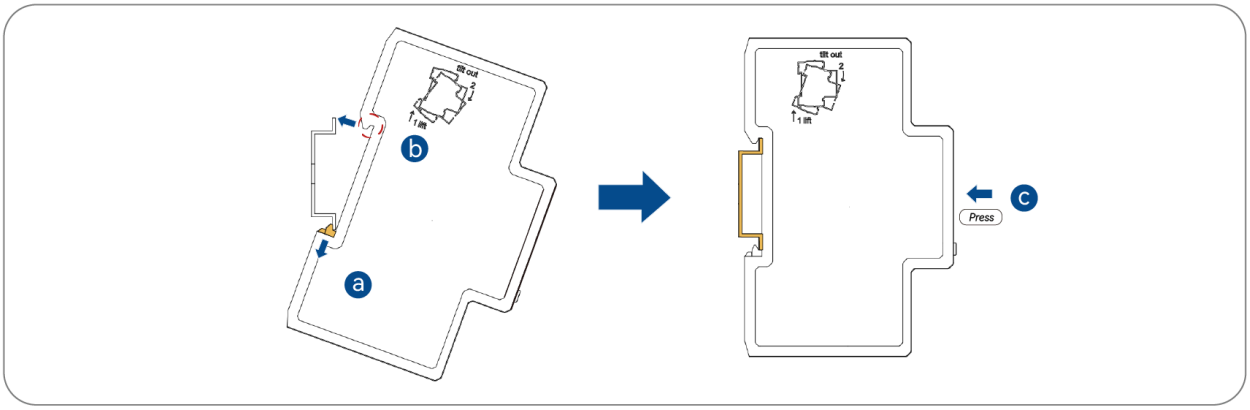
- Before connecting cables, ensure that the smart meter is not damaged in any way.
- Ensure that the grounding wire is securely installed.
- Before powering on, ensure that the wiring is correct, otherwise electric shock, damage to the smart meter, or fire may occur.

Prepare the cables as listed in the following table.

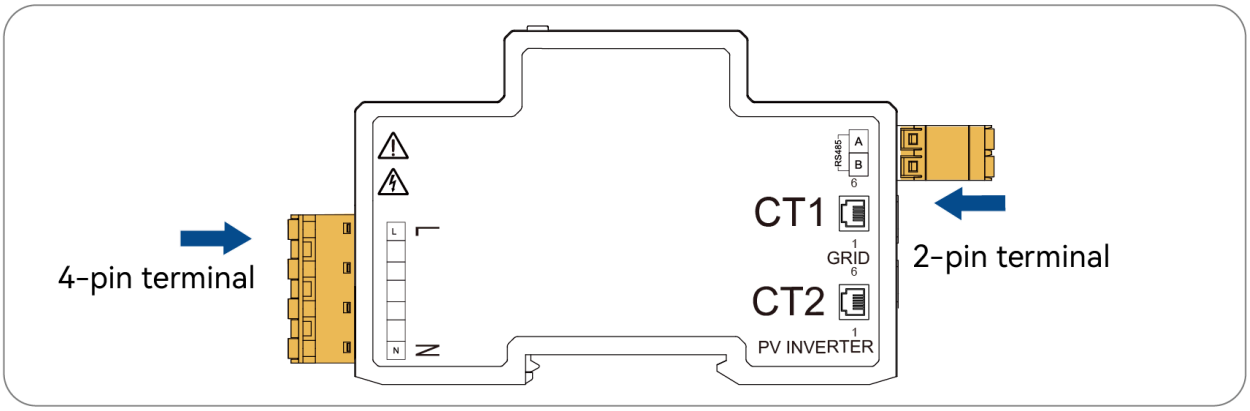
Cable	Port	Type	Conductor cross-section area range	Outer diameter	Recommended stripping length	Prepared by
AC power cable	L/N	Multi-core outdoor copper cable	1.5 mm^2 to 2.5 mm^2	3 mm to 5 mm	7 mm	Customer
Communication cable	RS485	\	\	\	7 mm	Included in the package

Note: For AC power and communication terminal screws, the maximum torque of is 0.5 N·m, the recommended torque is 0.45 N·m.

1. Install the meter on the DIN35 standard rail.
   a. Pull down the spring clip at the bottom rear of the meter.
   b. Hook the upper slot of the meter onto the top edge of the DIN35 rail.
   c. Press the meter firmly toward the rail, until the spring clip snaps into place with a click sound.

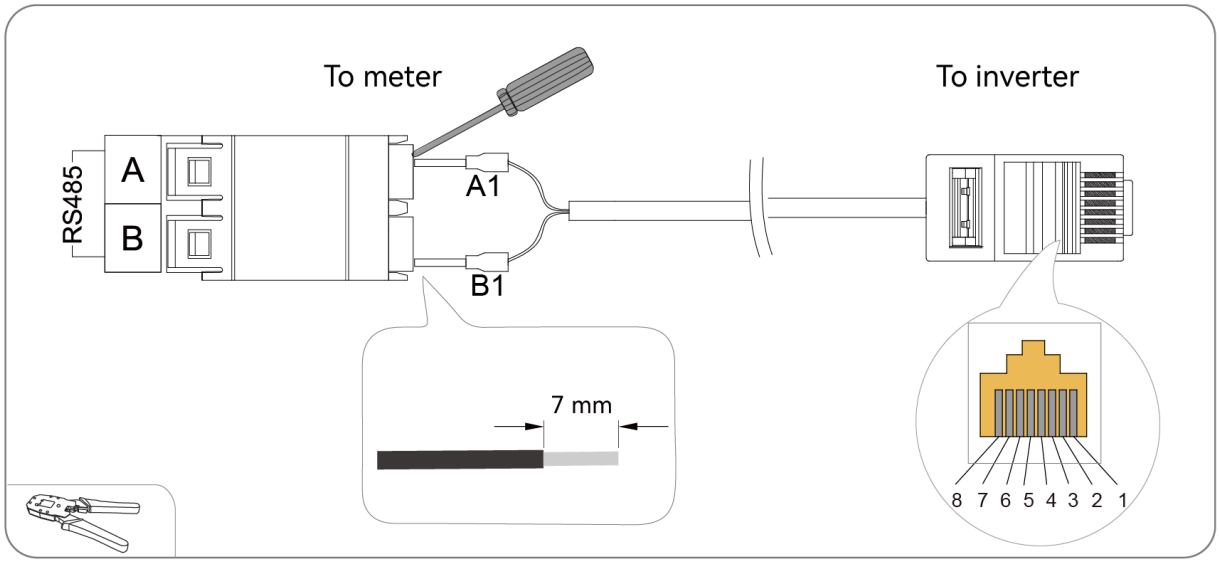


2. Insert the terminals onto the smart meter.

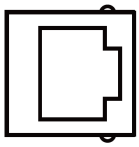


3. Connect the RS485 communication cable.

   a. On the meter, connect one end of the communication cable to the **RS485** port.



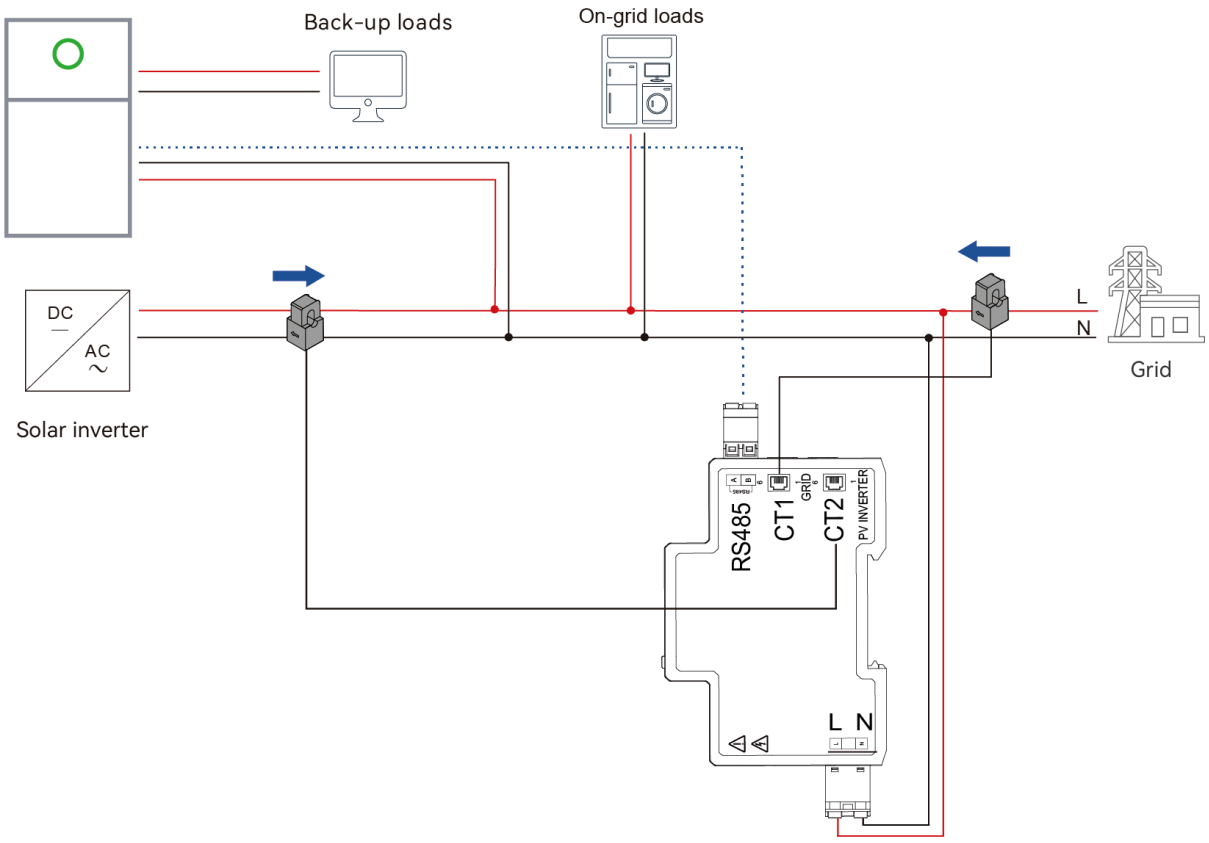
b. On the inverter, connect the other end of the communication cable to the corresponding port. For details on port definitions, see the inverter's user manual. The following table describes the port definition of HS2/AS2 series as an example.

Product series	Inverter silkscreen	Terminal type	Pin number	Pin definition
HS2-(3K-6K)-S2 AS2-(3K-6K)-S-X	EMS/METER		1	RS485-A1+
			2	RS485-B1-

4. Clip the CTs on the grid and inverter sides, and connect the CT cables to the meter.
   - On the grid side, connect the CT cable to the **CT1 (GRID)** port.
   - (Optional) On the inverter side, connect the CT cable to the **CT2 (PV INVERTER)** port.
5. Connect the AC power cables to the 4-pin terminal on the meter.

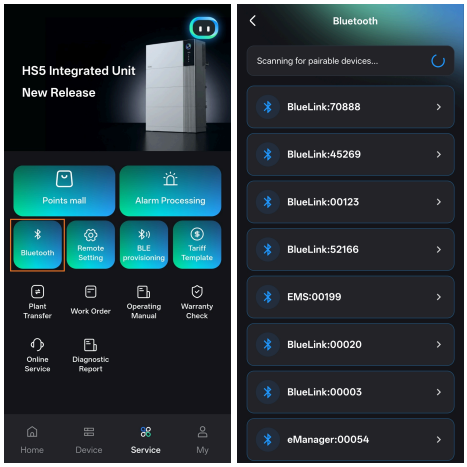
   The following figure takes HS2 as an example to illustrate the AC coupling scenario for one single-phase meter (2CTs).

   Example:

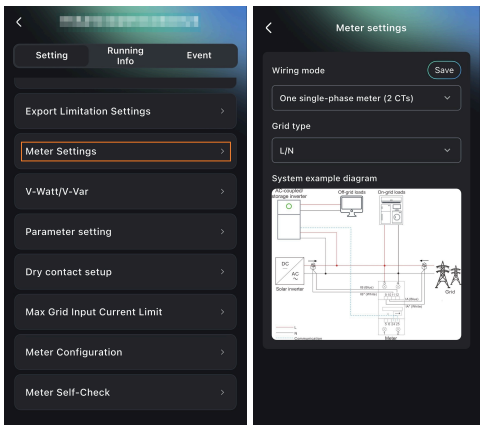


3. Configure meter connection

1. On page **Service**, tap **Bluetooth**. Select the communication module, inverter or EMS according to the last five digits of the serial number (SN).
   Example:
   - **BlueLink: 45269** for a communication module or inverter.
   - **EMS: 00199** for EMS units.



2. On the **Setting** page, tap **Meter Settings** to configure the wiring method according to your networking scenario.
   For example, select **One single-phase meter (2CTs)** when one single-phase meter with 2CTs is connected.
   Example:



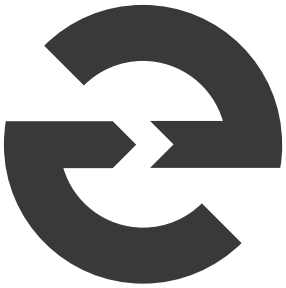
4. Troubleshooting

WARNING

The troubleshooting operations must be performed by authorized technicians only.

For the errors reported as below, contact the service support for further assistance.

Faults	Possible cause	Solutions
No display after the device being powered on	Incorrect wiring.	Check that the L and N power supply wires are connected properly. Reconnect based on the correct wiring method.
	Abnormal voltage supplied for the device.	Provide the voltage as specified in 1.4. Product specification *(on page 4)*.
Power metering inaccuracy	Incorrect wiring.	Check that the L and N power supply wires are connected properly. Reconnect based on the correct wiring method.
	The CT current direction is reversed. **Note:** Pa, Pb, and Pc are abnormal if the values are negative.	Reinstall the CT to match the required current flow direction and correct the wiring.
Abnormal RS485 communication	The RS485 communication cable is disconnected, short-circuited or reverse-wired.	1. Check the RS485 communication cable connections on both the inverter and the meter sides. 2. If the fault persists, replace the cable.
	No matching terminating resistor is installed at the end of the RS485 communication cable (typically required for cable lengths over 150 meters) .	If the communication distance exceeds 150 meters, add a 120 Ω resistor at the beginning and end of the communication cable. The resistance value can be adjusted according to actual site conditions.
	External devices lack a reliable earthing connection.	Connect external devices to a reliable protective earth.



SAJ | elekeeper

GUANGZHOU SANJING ELECTRIC CO., LTD
Tel: (86) 20 66608588 **Fax:** (86) 20 66608589 **Web:** www.saj-electric.com
Add: No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone, Guangdong, P.R.China

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