YDS60-C24 智能功率传感器

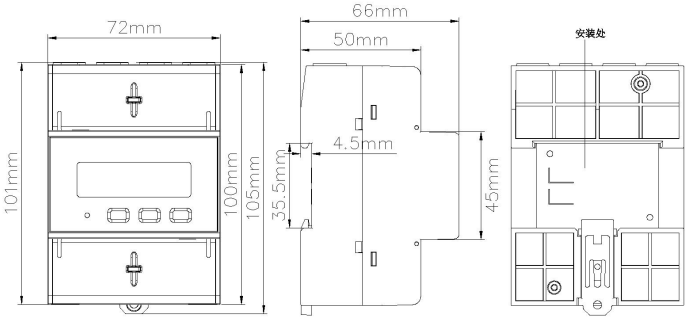
快速指南

文档版本: 01
发布日期: 2022-11-20

1 产品简介

1.1 外形及安装尺寸

YDS60-C24



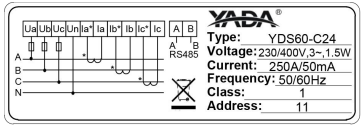
说明

尺寸公差为±1mm。

1.2 外观

前面板参数

铭牌

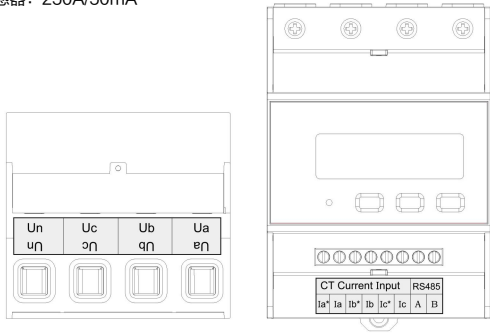


1.3 关键性能规格

类别	YDS60-C24
标称电压	230V AC/400V AC, 50Hz/60Hz
电流测量范围	0~250A
电压测量范围	线电压90V~500V
电能精度	1级（误差在±1%以内）
电网系统	三相四线或三相三线
波特率	4800bps/9600bps/19200bps/115200bps （默认9600bps）
工作温度	-25℃~+60℃
安装方式	导轨安装
认证	CE、RCM、UKCA

1.4 端口定义

- 输入电压：3×230/400V 或 3×400V
- 电流互感器：250A/50mA

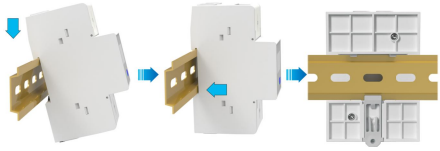


说明

铭牌的保护膜可以撕掉。

2 安装 YDS60-C24

1. 将智能功率传感器安装到DIN35mm标准导轨上。
2. 将智能功率传感器从上到下卡入标准导轨上，然后将仪器推入导轨。



3 安装电缆

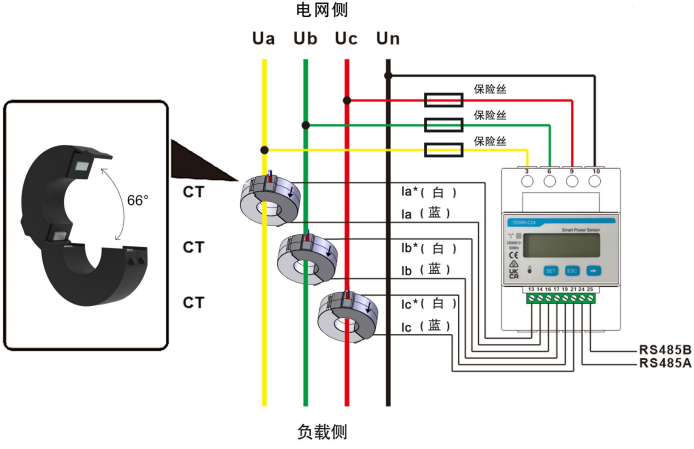
3.1 准备电缆

线缆	端口	类型	导线截面积	外径	来源
电压线缆	Ua-3	单芯 户外铜线缆	1.5~4mm^2	3mm~8mm	用户准备
	Ub-6				
	Uc-9				
	Un-10				
电流互感器线缆	Ia*-13	/	/	/	互感器自带
	Ia-14				
	Ib*-16				
	Ib-17				
	Ib*-19				
	Ic-21				
通信线缆	RS485A-24	两芯户外 双绞屏蔽线	0.25~1.5mm^2	4mm~11mm	用户准备
	RS485B-25				

3.2 接线场景

三相四线接入

1. 将Ua、Ub、Uc、Un电压线连接到传感器的3、6、9、10端子上。
2. 将用于A相的电流互感器Ia*（白色线）、Ia（蓝色线），连接到传感器的13、14端子；用于B相的电流互感器Ib*（白色线）、Ib（蓝色线），连接到传感器的16、17端子；用于C相的电流互感器Ic*（白色线）、Ic（蓝色线），连接到传感器的19、21端子。
3. 连接RS485A和RS485B到通信主机。



说明

- CT方向必须与上图中所示的箭头方向相一致。
- 3、6、9和10个端子螺钉的最大扭矩为1.7N.m，建议扭矩为（1.0 ± 0.1）N.m；13、14、16、17、19、21、24和25个端子螺钉的最大扭矩为0.4N.m，建议扭矩为（0.20 ± 0.05）N.m。
- 接线图的保险丝推荐使用2A。

三相三线接入

1. 将Ua、Uc电压线连接到传感器的3、9端子上，将Ub电压线连接到传感器的6和10端子上。
2. 将用于A相的电流互感器Ia*（白色线）、Ia（蓝色线），连接到传感器的13、14端子；用于B相的电流互感器Ib*（白色线）、Ib（蓝色线），连接到传感器的16、17端子；用于C相的电流互感器Ic*（白色线）、Ic（蓝色线），连接到传感器的19、21端子。
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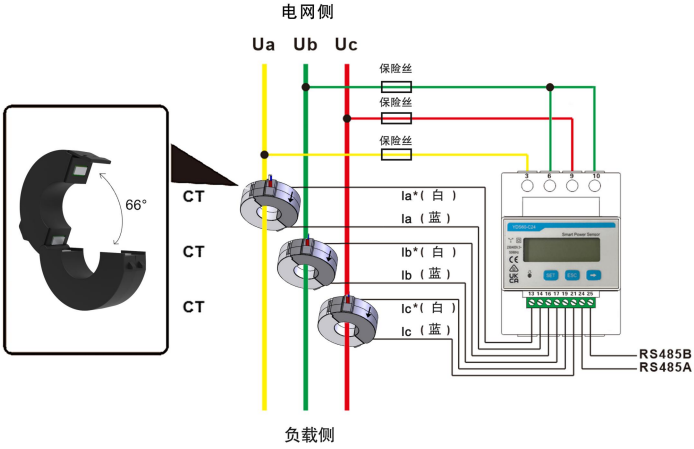

说明

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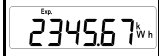
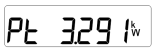
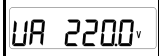
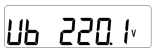
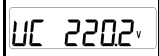
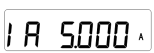
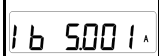
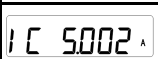
- 接线图的保险丝推荐使用2A。

4 显示项目及参数设置

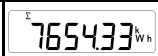
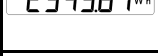
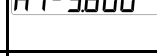
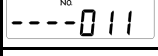
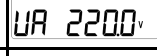
4.1 显示项目（自动循环）

自动循环每页停留时间= 5s。

序号	显示界面	说明	序号	显示界面	说明
1		正向有功电能 =10000kWh	2		反向有功电能 =2345.67kWh
3		合相有功功率 =3.291kW	4		A相电压 =220.0V
5		B相电压 =220.1V	6		C相电压 =220.2V
7		A相电流 =5.000A	8		B相电流 =5.001A
9		C相电流 =5.002A	10		频率=50.00Hz

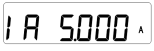
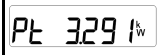
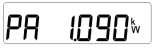
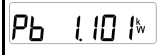
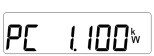
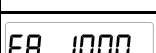
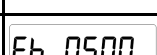
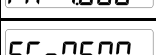
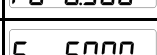
4.2 显示项目（按键切换）

通过短按“ESC”或“→”按键，可在下述显示界面之间切换。

序号	显示界面	说明	序号	显示界面	说明
1		组合有功电能 =7654.33kWh	2		正向有功电能 =10000kWh
3		反向有功电能 =2345.67kW	4		无校验位，8个数据位，1个停止位； 波特率 9600bps(默认值)
5		表地址=011 （默认值）	6		A相电压 =220.2V
7		B相电压 =220.1V	8		C相电压 =220.2V

说明

组合有功电能 = 正向有功电能 − 反向有功电能

序号	显示界面	说明	序号	显示界面	说明
9		A相电流 =5.000A	10		B相电流 =5.001A
11		C相电流 =5.002A	12		合相有功功率 =3.291kW
13		A相有功功率 =1.090kW	14		B相有功功率 =1.101kW
15		C相有功功率 =1.100kW	16		合相功率因数 =0.500
17		A相功率因数 =1.000	18		B相功率因数 =0.500
19		C相功率因数 =0.500	20		频率=50.00Hz

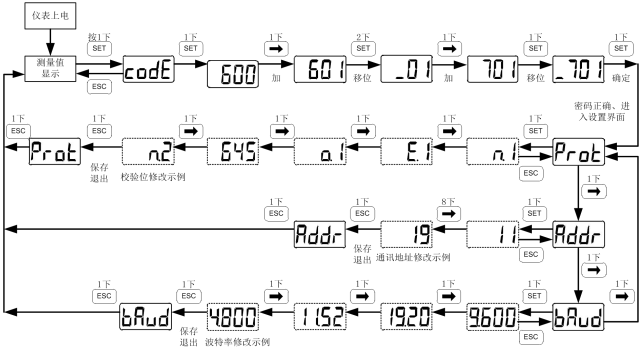
4.3 参数设置

序号	参数	数值范围	描述
1		0：n.1 1：n.2 2：E.1 3：o.1 4：645	设置通讯协议，校验位和停止位: 0：n.1；无校验、1位停止位； 1：n.2；无校验、2位停止位； 2：E.1；偶校验，1位停止位； 3：o.1；奇校验，1位停止位； 4：工厂模式。
2		2：4.800 3：9.600 4：19.20 5：115.2	通讯波特率: 2：4800bps； 3：9600bps（默认值）； 4：19200bps； 5：115200bps。
3		11~19	Modbus通讯地址。

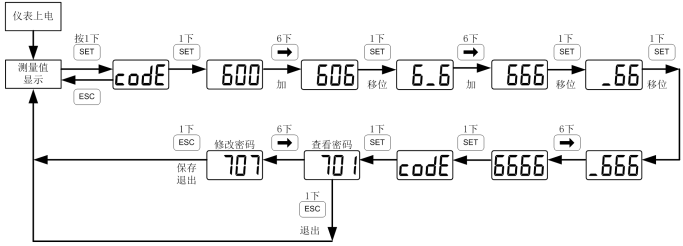
4.4 参数设置操作

按键说明：“SET”表示“确认”或“光标移动”（输入数字时），“ESC”表示“退出”，“→”表示“add”。默认情况密码为701。

设置通信地址、校验位和波特率：



用户密码修改：



5 常见故障的诊断、分析、排除方法

故障现象	原因分析	排除方法
上电不显示	1、接线不正确； 2、供电电压异常；	1、若接线不正确，则请按正确的接线方式（见接线图）接线； 2、若供电电压异常，则请按传感器规格提供电压。
RS485通信异常	1、RS485通信线缆开路，短路，接反； 2、通信地址、波特率、数据位校验位与主机不符；	1、若通信线缆有问题，则请重新接线或更换通信线缆； 2、通过按键设置通信地址、波特率、数据位校验位与主机相同，按键设置操作参见“参数设置”。
电能计量不准确	1、接线错误，电压与电流对应的相序是否正确； 2、电流互感器进线的高端与低端是否接反，请观察功率，如出现负值则表明不正常；	1、若接线不正确，则请按正确的接线方式（见接线图）接线； 2、如果显示为负值，请更改电流互感器的电缆连接方式，以确保高低两端连接正确。

6 安装完成后检查

1. 检查所有安装支架是否牢固安装并拧紧所有螺钉。
2. 检查所有电缆是否可靠连接，正确的极性和无短路。

YDS60-C24 Smart Power Sensor

Quick Guide

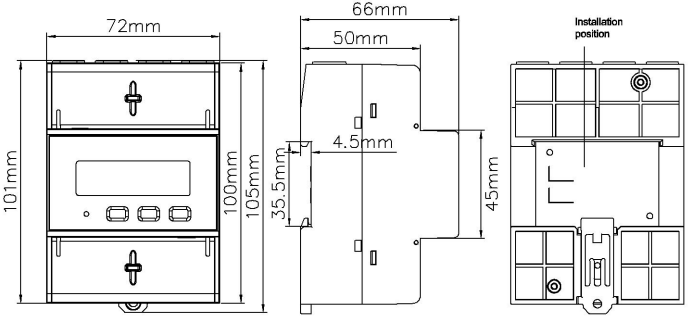
Issue: 01

Date: 2022-11-20

1 Overview

1.1 Model Naming Conventions

YDS60-C24



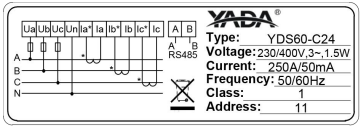
NOTE

The dimensional tolerance is ± 1 mm.

1.2 Appearance

Specifications on the front panel

Nameplate

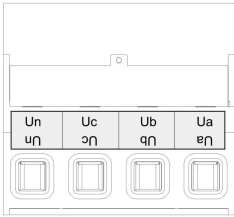


1.3 Key Specifications

Category	YDS60-C24
Nominal voltage	230V AC/400V AC, 50Hz/60Hz
Current measurement range	0~250A
Voltage measurement range	line voltage 90V~500V
Electricity metering accuracy	Class 1 (error within ±1%)
Power grid system	Three -phase four-wire or three-phase three-wire
Baud rate	4800/9600/19200/115200 bps (default value: 9600 bps)
Operating temperature	–25°C to +60°C
Installation mode	Guide rail-mounted
Certification	CE, RCM, and UKCA

1.4 Port Definition

- Voltage Input: 3×230/400V or 3×400V
- Current Transformer(CT): 250A/50mA

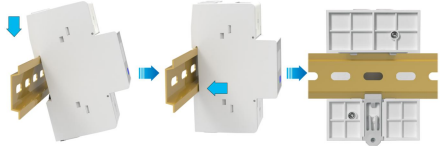


NOTE

The protective film of the nameplate can be tear off.

2 Installing the YDS60-C24

1. Install the Smart Power Sensor on the standard guide rail of DIN35mm.
2. Press the Smart Power Sensor downwards onto the guide rail, and then push it in place along the guide rail.



3 Installing Cables

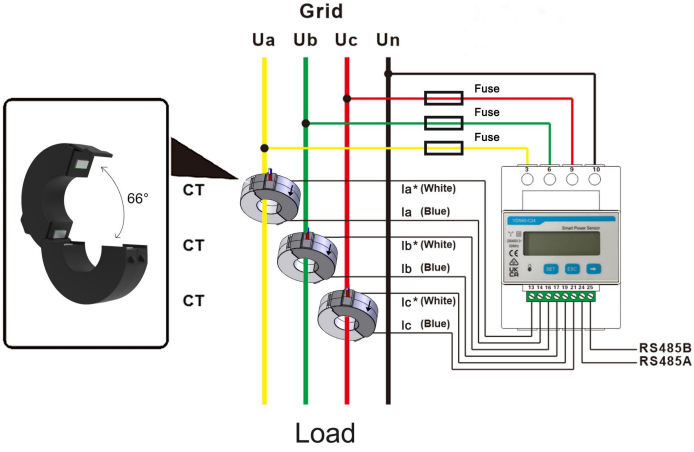
3.1 Prepare cables

Cable	Port	Type	Conductor Cross-sectional Area Range	Outer Diameter	Source
voltage cable	Ua-3 Ub-6 Uc-9 Un-10	Single-core outdoor copper cable	1.5~4mm²	3~8mm	Prepared by the customer
current transformer cable	Ia* - 13 Ia - 14 Ib* - 16 Ib - 17 Ic* - 19 Ic - 21	/	/	/	Supplied with current transformers
Communications cable	RS485A - 24 RS485B - 25	Two-core outdoor shielded twisted pair copper cable	0.25~1mm²	4~11mm	Prepared by the customer

3.2 Connecting Diagram

Three-phase four-wire connection

1. Connect the Ua, Ub, Uc, and Un voltage cables to terminals 3, 6, 9, and 10 of the sensor.
2. Connect the current transformer Ia* (white wire) and Ia (blue wire) used for phase A to terminals 13 and 14 of the sensor; Current transformer Ib* (white wire) and Ib (blue wire) for phase B connected to terminals 16 and 17 of the sensor; Current transformer Ic* (white line) and Ic (blue line) for phase C connected to terminals 19 and 21 of the sensor.
3. Connect RS485A and RS485B to the communication host.

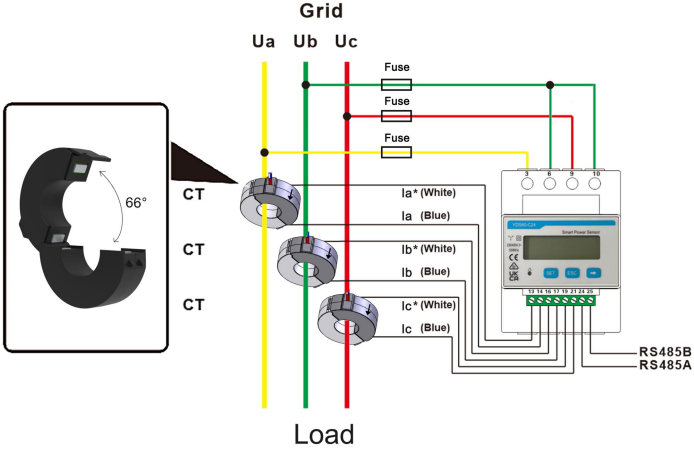


NOTE

- The CT direction must be consistent with the arrow direction as shown in the preceding figure.
- The maximum torque of 3, 6, 9 and 10 terminal screws is 1.7N.m, and the recommended torque is (1.0 ± 0.1) N.m; The maximum torque of 13, 14, 16, 17, 19, 21, 24 and 25 terminal screws is 0.4N.m, and the recommended torque is (0.20 ± 0.05) N.m.
- 2A is recommended for FUSE in the wiring diagram.

Three-phase three-wire connection

1. Connect the Ua and Uc voltage cables to terminals 3 and 9, and connect the Ub voltage cables to terminals 6 and 10 of the sensor.
2. Connect the current transformer Ia* (white wire) and Ia (blue wire) for phase A to terminals 13 and 14 of the sensor; Current transformer Ib* (white wire) and Ib (blue wire) for phase B connected to terminals 16 and 17 of the sensor; Current transformer Ic* (white line) and Ic (blue line) for phase C connected to terminals 19 and 21 of the sensor.connected to terminals 19 and 21 of the sensor.
3. Connect RS485A and RS485B to the communication host.



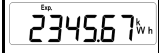
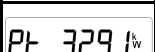
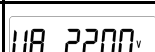
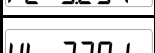
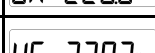
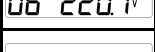
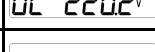
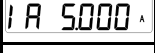
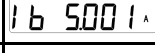
NOTE

- The CT direction must be consistent with the arrow direction as shown in the preceding figure.
- The maximum torque of 3, 6, 9 and 10 terminal screws is 1.7N.m, and the recommended torque is (1.0 ± 0.1) N.m; The maximum torque of 13, 14, 16, 17, 19, 21, 24 and 25 terminal screws is 0.4N.m, and the recommended torque is (0.20 ± 0.05) N.m.
- 2A is recommended for FUSE in the wiring diagram.

4 User Interface

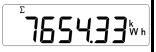
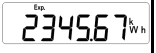
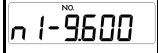
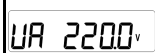
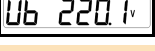
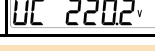
4.1 Model Display (Auto loop)

Auto loop per page hold time = 5s.

No.	Display interface	Description	No.	Display interface	Description
1		Imp. active energy =10000kWh	2		Exp. active energy =2345.67kWh
3		active power =3.291kW	4		Phase A voltage = 220.0V
5		Phase B voltage = 220.1V	6		Phase C voltage = 220.2V
7		Phase A current = 5.000A	8		Phase B current = 5.001A
9		Phase C current = 5.002A	10		Frequency Freq = 50.00 Hz

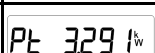
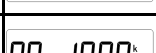
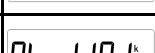
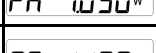
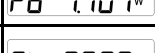
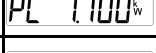
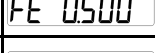
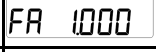
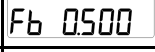
4.2 Display(Key switch)

Press “ESC” or “→ ”to switch between the following display interfaces.

No.	Display interface	Description	No.	Display interface	Description
1		Comb. active energy =7654.33kWh	2		Imp. active energy = 10000kWh
3		Exp. active energy =2345.67kWh	4		None parity, 8 data bits, 1 stop bit, Baud =9600bps (default)
5		011 represents address （default)	6		Phase A voltage = 220.0V
7		Phase B voltage = 220.1V	8		Phase C voltage = 220.2V

NOTE

Comb. active energy = Imp. active energy - Exp. active energy

No.	Display interface	Description	No.	Display interface	Description
9		Phase A current = 5.000A	10		Phase B current = 5.001A
11		Phase C current = 5.002A	12		Phase active power = 3.291kW
13		Phase A active power = 1.090kW	14		Phase B active power = 1.101kW
15		Phase C active power = 1.100kW	16		Power factor PFt = 0.500
17		Phase A power factor PFa = 1.000	18		Phase B power factor PFb = 0.500
19		Phase C power factor PFc = 0.500	20		Frequency Freq = 50.00 Hz

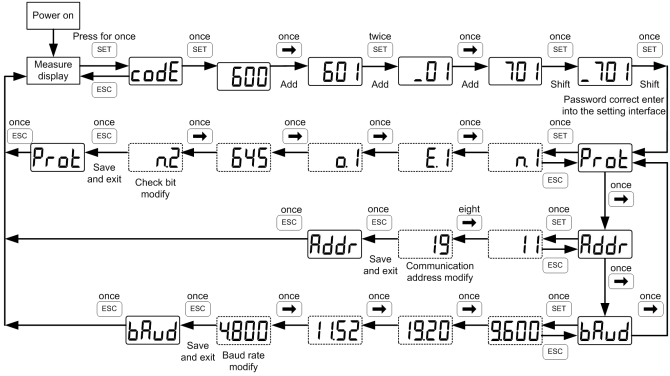
4.3 Parameter Settings

No.	Parameter	Value Range	Description
1		0: n.1 1: n.2 2: E.1 3: o.1 4: 645	Settings for communication stop bit and Parity bits: 0: None parity, 1 stop bit, n.1; 1: None parity, 2 stop bits, n.2; 2: Even parity, 1 stop bit, E.1; 3: Odd parity, 1 stop bit, O.1; 4: Factory mode
2		2: 4.800 3: 9.600 4: 19.20 5: 115.2	Communication baud rate: 2: 4800bps; 3: 9600bps (default); 4: 19200bps; 5: 115200bps.
3		11~19	Modbus communication address.

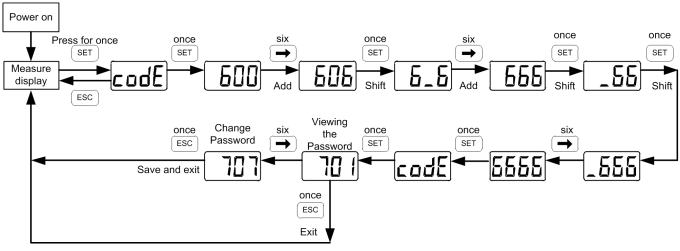
4.4 Parameter Setting Operations

Key description: "SET" represents "confirm" or "cursor shift" (when entering digits), "ESC" represents "exit", and "→" represents "add". The password is 701.

Set communication address, check bit, and baud rate:



Modify user password:



5 Troubleshooting

Symptom	Cause Analysis	Troubleshooting Method
No display after power-on	1. The cable connection is incorrect. 2. The voltage supplied to the meter is abnormal.	1. Connect the cables correctly (see wiring diagrams). 2. Supply the correct voltage based on the specifications.
Abnormal RS485 communication	1. The RS485 communication cable is disconnected, short-circuited, or reversely connected. 2. The communication address, baud rate, data bit, and parity bit of the meter do not match those of the inverter.	1. If the communication cable is faulty, replace it. 2. Set the communication address, baud rate, data bit, and parity bit of the meter to be the same as those of the inverter by pressing buttons. For details, see "Parameter Settings".
Inaccurate metering	1. The cable connection is incorrect. Check whether the corresponding phase sequence of voltage and current is correct. 2. Check whether the high and low ends of the current transformer inlet are reversely connected. If the values Pa, Pb, and Pc are negative, the high and low ends are connected incorrectly.	1. Connect the cables correctly (see wiring diagrams). 2. If a negative value is displayed, change the cable connection for the current transformer to ensure that the high and low ends are connected correctly.

6 Installation Verification

1. Check that all mounting brackets are securely installed and all screws are tightened.
2. Check that all cables are reliably connected in correct polarity without short circuit.