

YDS70-C16 智能功率传感器

快速指南

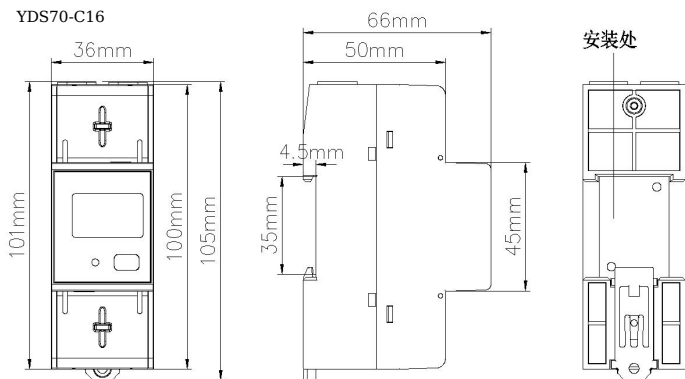
文档版本: 01

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1 产品简介

1.1 外形及安装尺寸

YDS70-C16



说明

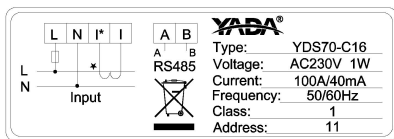
尺寸公差为 $\pm 1\text{mm}$ 。

1.2 外观

前面板参数



铭牌

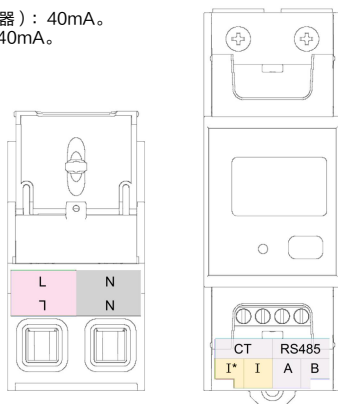


1.3 关键性能规格

类别	YDS70-C16
标称电压	230V AC, 50Hz/60Hz
电流测量范围	0~100A
电压测量范围	176V~288V
电能精度	1级 (误差在±1%以内)
电网系统	单相2线L-N
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: 230V。
- 输入电流 (电流互感器): 40mA。
- 电流互感器: 100A/40mA。



说明

铭牌的保护膜可以撕掉。

2 安装 YDS70-C16

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。



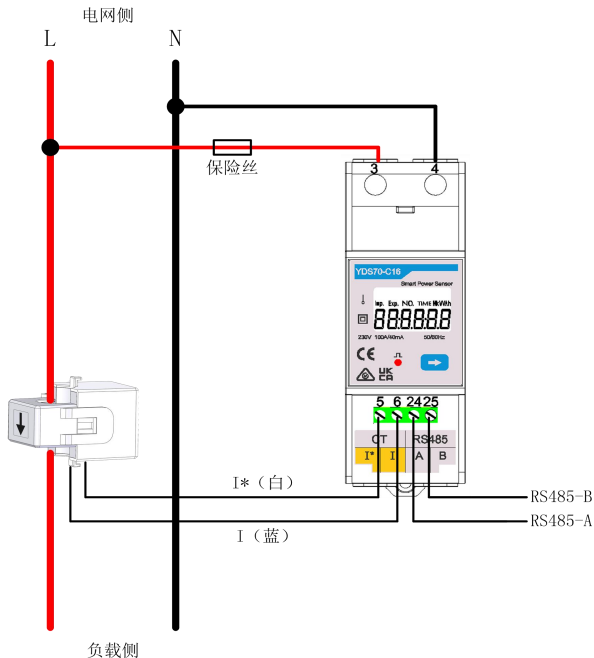
3 安装电缆

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	L - 3	双芯 户外铜线缆	1.5-4mm ²	7-13mm	用户准备
	N - 4				
电流互感器 线缆	I* - 5	/	/	/	互感器自带
	I - 6	/	/	/	
通讯线缆	RS485A - 24	两芯户外双 绞屏蔽线	0.25-1mm ²	4-11mm	用户准备
	RS485B - 25				

3.2 连接图

1. 将L、N电压线连接到传感器的3、4端子上。
2. 将电流互感器出线I*（白色线）、I（蓝色线）连接到传感器的5、6端子上。
3. 连接RS485A和RS485B到通信主机。



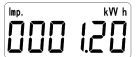

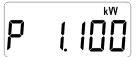



说明

- 端子螺丝3、4最大扭矩为1.7N.m，推荐扭矩为 (1.0 ± 0.1) N.m；端子螺丝5、6、24、25最大扭矩为0.4N.m，推荐扭矩为 (0.20 ± 0.05) N.m。
- 接线图中保险丝推荐使用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 =1.2kWh	2		反向有功电能 =1.00kWh
3		有功功率 =1.1kW	4		电压 =220.0V
5		电流 =5.000A	6		频率 =50.00Hz

4.2 显示项目（按键切换）


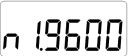
通过短按“→”按键，可在下述显示界面之间切换。

序号	显示界面	说明	序号	显示界面	说明
1		组合有功电能 =0.20kWh	2		正向有功电能 =1.2kWh
3		反向有功电能 =1.00kWh	4		无校验位，8个数据位，1个停止位； 波特率为9600bps (默认值)
5		通信地址 =11	6		电压 =220.0V
7		电流 =5.000A	8		有功功率 =1.1kW
9		功率因数 =1.000	10		频率 =50.00Hz

说明

组合有功电能 = 正向有功电能 - 反向有功电能

4.3 参数设置

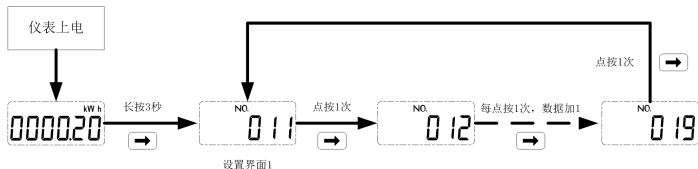
序号	参数	数值范围	描述
1		11~19	Modbus通讯地址
2		2: n1.4800; 3: n1.9600; 4: n1.19200; 5: n1.115200;	通讯波特率: 2: 4800bps; 3: 9600bps; 4: 19200bps; 5: 115200bps;

4.4 参数设置操作

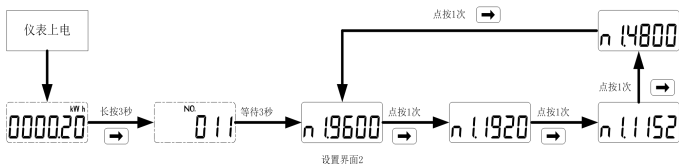
智能功率传感器可通过按键设置通讯地址和波特率。

设置方法如下图：长按按键3s,传感器自动进入通讯地址设置界面，通讯地址（设置界面1）与波特率（设置界面2）设置显示界面循环显示，需要设置通讯地址或者波特率时，按下按键即可，按键无操作20秒退出设置通讯地址和波特率。

设置通信地址：



设置通信波特率：



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	<ol style="list-style-type: none"> 1、接线不正确； 2、供电电压异常； 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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； 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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； 	<ol style="list-style-type: none"> 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。

YDS70-C16 Smart Power Sensor

Quick Guide

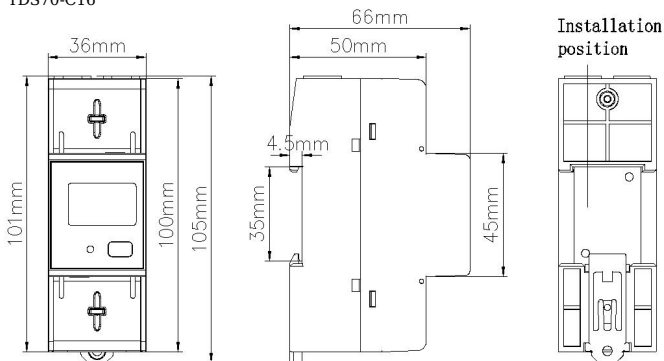
Issue: 01

Date: 2022-10-20

1 Overview

1.1 Model Naming Conventions

YDS70-C16



NOTE

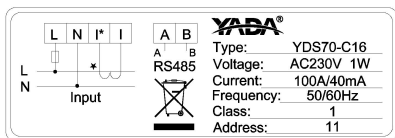
The dimensional tolerance is ± 1 mm.

1.2 Appearance

Specifications on the front panel



Nameplate

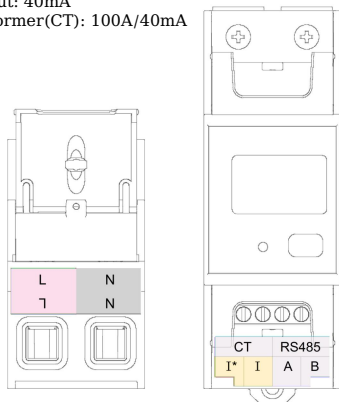


1.3 Key Specifications

Category	YDS70-C16
Nominal voltage	230 V AC, 50 Hz/60 Hz
Current measurement range	0~100A
Voltage measurement range	176V~288V
Electricity metering accuracy	Class 1 (error within $\pm 1\%$)
Power grid system	Single-phase 2-wire L-N
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: 230V
- CT Current Input: 40mA
- Current Transformer(CT): 100A/40mA

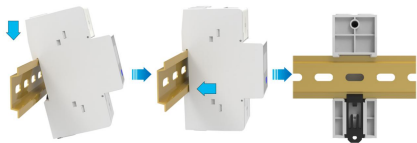


NOTE

The protective film of the nameplate can be tear off.

2 Installing the YDS70-C16

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.



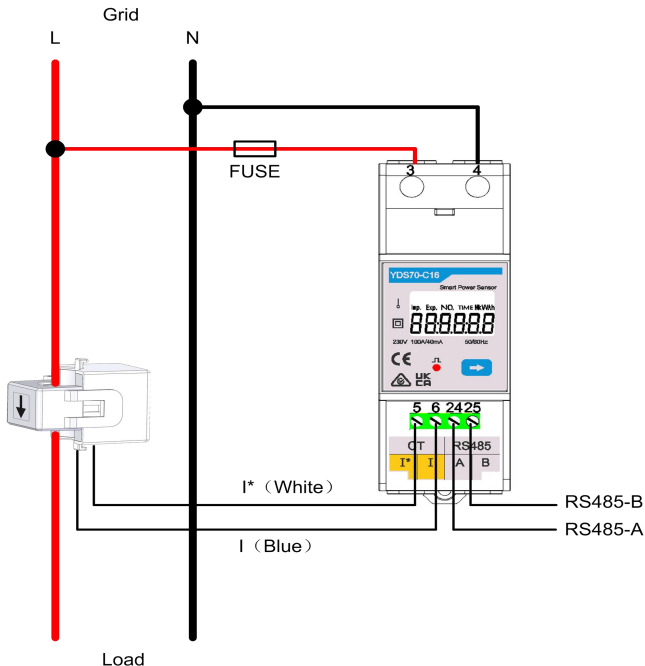
3 Installing Cables

3.1 Prepare cables

Cable	Port	Type	Conductor Cross-sectional Area Range	Outer Diameter	Source
voltage cable	L - 3	Two-core (L and N) outdoor copper cable	1.5-4mm ²	7-13mm	Prepared by the customer
	N - 4				
CT cable	I* - 5	/	/	/	Supplied with current transformers
	I - 6	/	/	/	
Communications cable	RS485A - 24	Two-core outdoor shielded twisted pair copper cable	0.25-1mm ²	4-11mm	Prepared by the customer
	RS485B - 25				

3.2 Connecting Diagram

1. Connect the L,N voltage lines to the 3, 4 terminals of the collector.
2. Connect current transformer outlets I*(white line) and I (blue line) to terminals 5, 6 of the collector.
3. Connect RS485A and RS485B to the communication host.



NOTE

- The maximum torque of 3 and 4 terminal screws is 1.7N.m, and the recommended torque is (1.0 ± 0.1) N.m; The maximum torque of 5, 6, 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 = 1.2kWh	2		Exp. active energy = 1.00kWh
3		active power = 1.1kW	4		Voltage = 220.0V
5		Current = 5.000A	6		Freq. = 50.00Hz

4.2 Display(Key switch)

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


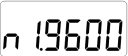
No.	Display interface	Description	No.	Display interface	Description
1		Comb. active energy = 0.20kWh	2		Imp. active energy = 1.2kWh
3		Exp. active energy = 1.00kWh	4		None parity, 8 data bits, 1 stop bit, baud=9600bps The default value
5		Comm.Add = 11	6		Voltage = 220.0V
7		Current = 5.000A	8		active power = 1.1kW
9		Power Factor = 1.000	10		Freq. = 50.00Hz



NOTE

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

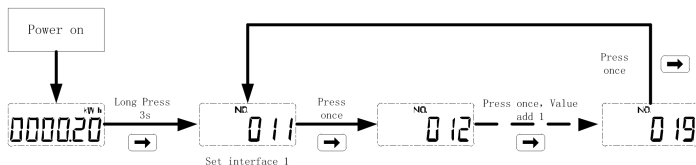
4.3 Parameter Setting

No.	Parameter	Value Range	Description
1		11~19	Modbus communication address
2		2: n1.4800; 3: n1.9600; 4: n1.19200; 5: n1.115200;	Communication baud rate: 2: 4800bps; 3: 9600bps 4: 19200bps; 5: 115200bps

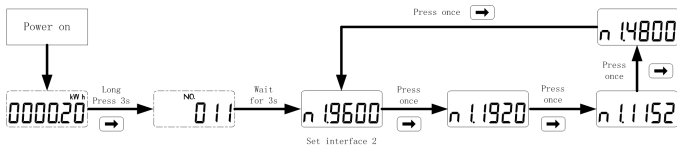
4.4 Parameter Setting Operations

The Smart Power Sensor can set up the communication address and the baud rate through the key : Long press the button 3s, The Power Sensor automatically enters into the setting interface of communication address, while the setting & display interface of communication address (set interface 1) and baud rate (set interface 2) circularly displays. Please press the button once required settings for communication address or baud rate , and it will exit the communication address and baud rate without button operation for twenty seconds.

Set communication address:



Set baud rate:



5 Troubleshooting

Symptom	Cause Analysis	Troubleshooting Method
No display after power-on	<ol style="list-style-type: none"> 1. The cable connection is incorrect. 2. The voltage supplied to the meter is abnormal. 	<ol style="list-style-type: none"> 1. Connect the cables correctly (see wiring diagrams). 2. Supply the correct voltage based on the specifications.
Abnormal RS485 communication	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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.