

YD2010 系列产品说明书 Series Instruction

一、安全须知 Safety Tips

为避免发生危险，在设备通电之前须确认以下几点 To avoid danger, please confirm the following points before powering on:

- ◆ 按照设备上的图检查接线。Check the wiring according to the wiring diagram on the equipment.
- ◆ 输入端子上承受的相电压低于 400V。最大电流低于 6.5A。Input terminal permitted phase voltage less than 400V. Maximum current less than 6.5A.
- ◆ 为了以后的维护方便，接线时请使用转接端子。电压回路使用有保险管的电压型端子，电流回路用电流型端子。Use circuit shifting terminal when wiring; Connect power correctly according to the label.
- ◆ 电网频率 Network frequency: 50/60Hz.

二、简介 Introduction

YD2010 系列是一款经济实用的智能电量采集模块。它采用 PIC18xxxx 单片机作控制核心，具有测量、计量、采集、监视、可编程、两路模拟量输出等功能。具有简单实用、稳定可靠、廉价、抗干扰能力强等特点，适用于复杂恶劣的环境。

YD2010 series is a multi-functional but economical intelligent transducer. Adopting the PIC18 series SCM chip as the controlling core, with the function of measure, computation, collection, monitor and programmable, Two ways AO output, etc, with the advantage of simple, reliable, cheap, strong anti-interference ability, etc, it is suitable to be used in complex environment.

三、概述 General

● 多电量测量 Measurand

- 频率; Frequency;
- 相电流、平均相电流 (RMS); Phase current, the average phase current(RMS);
- 相电压、平均相电压 (RMS); Phase voltage, the average phase voltage(RMS);
- 各相有功功率、总有功功率; Each phase Active, the total active power;
- 各相无功功率、总无功功率; Each phase reactive power, the total reactive power;
- 各相视在功率、总视在功率; Each phase apparent power, the total apparent power;
- 各相功率因数、总功率因数。 Each phase power factor, the total power factor.

● 模拟量输出 AO output: 两路模拟量输出。2 ways AO outputs.

● 电能计量 Computation

计量四象限电能，掉电不丢失。Four-quadrant power measurement, brownout not lost.

正有功电能 Import Active Energy 负有功电能 Export Active Energy
正无功电能 Import Reactive Energy 负无功电能 Export Reactive Energy

● 采集 Data Acquisition

采用 RS485 数字通讯接口采集所有数据，支持 MODBUS 规约。

RS485 digital communications interface using all data collected to support MODBUS Statute.

● 监视 Monitoring

有 3 个 LED 指示灯对工作状态进行监视：运行/电能脉冲/通讯发送接收。

There are three LED indicators monitor the status of work: running / electric pulse / communications send / receive.

● 可编程 Programmable setting

接线方式 Measuring system connection mode: 3 相 4 线 3P4L / 3 相 3 线 3P3L / 1 相 2 线 1P2L / 3 相 4 线平衡 3P4L (balanced)/

3 相 3 线平衡 3P3L (balanced)

通讯参数 Communication: 本机地址 ADD: 1~247 波特率 Baud: 1200/2400/4800/9600/19200

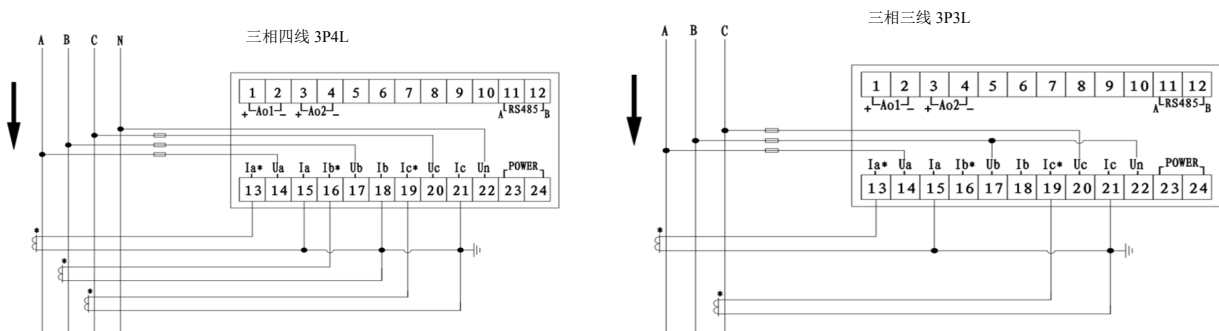
校验位 Parity bit: 奇/偶/无 Odd/Even/None

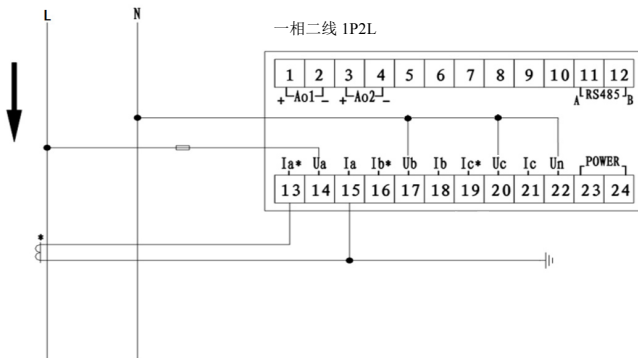
四、安装 Installation

● 端子定义 Terminals

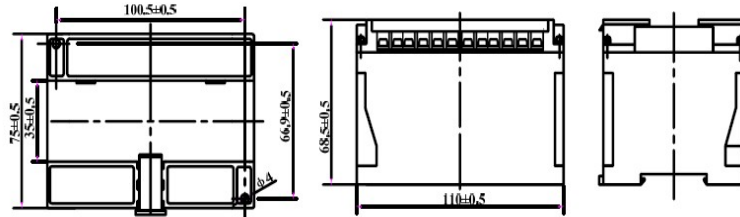
13,15	A 相电流 A phase current	16,18	B 相电流 B phase current	19,21	C 相电流 C phase current
1,2,	AO1+, AO1-	3,4	AO2+, AO2-	14	A 相电压 A phase voltage
17	B 相电压 B phase voltage	20	C 相电压 C phase voltage	22	电压零线 Zero-voltage line
23,24	工作电源 Working power	11,12	RS485		

● 接线图 Connecting Diagram





● 产品结构图 External Dimensions (单位 Units: mm)



● 导线 Wire

- 电流回路应采用 2.5mm² 以上的多股铜导线。Current loop should be used more than 2.5mm² multiple copper conductors.
- 电压回路应采用 1.5mm² 以上的多股铜导线。Current loop should be used more than 1.5mm² multiple copper conductors.
- RS485 可采用细些的双绞线，最好有屏蔽。RS485 can use finer twisted pairs, preferably shielded.

五、技术指标 Technology indexes

外形 External

尺寸 Dimensions: 110±0.5mm×75±0.5mm×68.5±0.5mm

测量 Measured: 数据刷新 Data update: 1s

电压 Voltage

测量范围 Measurement range:

20~400V(相电压 Phase voltage)

连续过载 Overload capacity: 800V

电流 Current:

测量范围 Measurement range: 0~6A

连续过载 Overload capacity: 10A

冲击过载 Surge Overload: 100A/1s

功率 Power:

测量范围 Measurement range:

单相功率 Single phase power: 0~2400W/var/VA

总功率 Total power: 0~7200W/var/VA

频率 Frequency:

测量范围 Measurement range: 45~60Hz

功率因数 Power factor:

测量范围 Measurement range: -1~1

模拟量输出 AO output:

输出范围 Range of output: 4~20mA

超量程 Over range : 1.2 倍 Times

响应时间 response time: ≤400ms

带载能力 load capacity: 500Ω

精度 Accuracy:

电流 Current: 0.2%(0.5~6A);

电压 Voltage: 0.2%(20~400V);

功率 Power: 0.2% (U*I);

模拟量 AO: 0.2%;

频率 Frequency: 0.1%(45~60Hz);

电源 Power supply:

电压范围 Range of voltage: ①AC85~265V or DC85~330V;
②DC20~60V;

功耗 Power consumption: ≤5W

工作条件 Working condition:

工作温度 Working temperature: -10~+50℃

储存温度 Storage temperature: -25~+75℃

相对湿度 Relative Humidity: 20~95% 无凝露 Without condensation

绝缘强度 Dielectric strength:

输入/其它 Input/Other: 2.0kV/min·2mA

电源/其它 Power/Other: 2.0kV/min·2mA

RS485/其它 RS485/Other: 2.0kV/min·2mA

通讯 Communication:

接口 Serial port: RS485 地址 ADD: 1-247

波特率 Baud: 1200/2400/4800/9600/19200

数据位 Data bit: 8bits

停止位 Stop bit: 2bits

校验位 Parity bit: 奇/偶/无 Odd/Even/None

通讯规约 Communication rules: ModBus RTU

电磁兼容 Electromagnetic compatibility:

浪涌 Surge:

电源 Power supply: 4kV I/O 线 I/O line: 2kV

快速脉冲串 Quick transient pulse series:

电源 Power supply: 4kV,5kHz I/O 线 I/O line: 2kV, 5kHz

静电放电 Static discharge:

接触放电 Contact discharge: 6kV

气隙放电 Contact discharge: 8kV

注: 以上图片仅供参考, 产品以实物为准,

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