



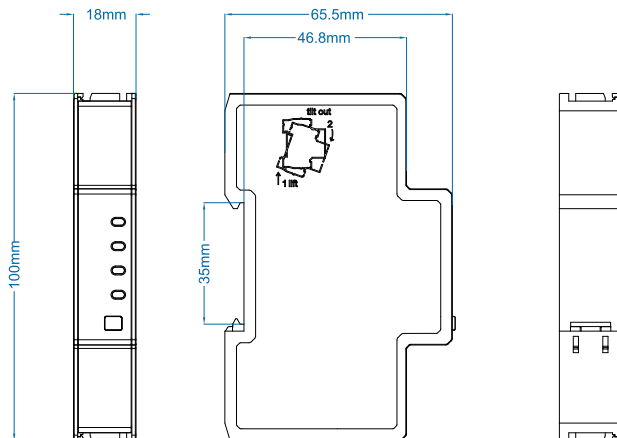
iDM411 MCT-O
Smart Power Sensor
智能功率传感器
Quick Guide
快速操作指南

Version :026-04
文档版本:026-04
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发布日期:2025-12

1 Overview

1.1 Models

Type	Width	Dimension (L*W*H)/mm	Net weight/g	Install Dimension (Rail)
iDM411 MCT-O	1P	100×18×65.5	about 76	DIN35 standard rail



NOTE

Unmarked tolerance is $\pm 1\text{mm}$;
The appearance, dimensions information
please refer to the actual product received.

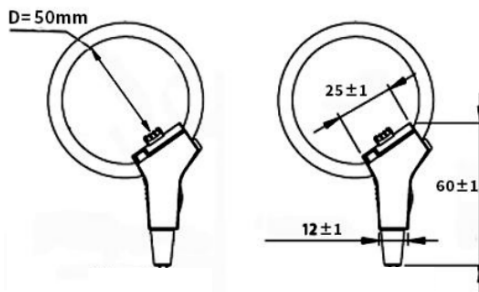
1.2 Performance and Specification

Type	iDM411 MCT-O
Nominal voltage	3×220/380V...3×240/415V
Nominal current	300A/40mA、1000A/40mA、3000A/40mA
Frequency	50/60Hz
Voltage range	0.8Un-1.15Un
Electrical energy accuracy	Class B
Rogowski Coil Position Error	1%
Power grid system	Three-phase four-wire
Baud rate	9600bps
Temperature	-25℃ to 55℃ (nominal), -40℃ to 70℃ (extreme)
Way to install	Rail installation
Certification	CE(LVD+EMC) , RCM, RoHS

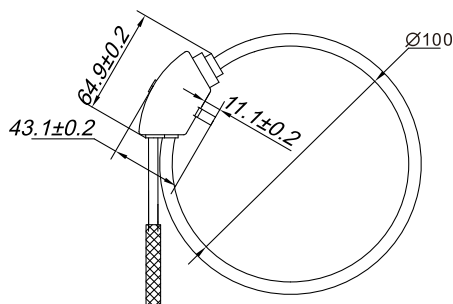
1.3 Recommended Rogowski Coil

Type	Net weight per Rogowski Coil/g
300A/40mA	Approx. 23
1000A/40mA	Approx. 67
3000A/40mA	Approx. 84

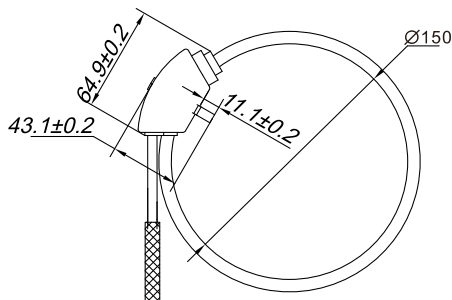
- 300A Rogowski Coil



- 1000A Rogowski Coil



- 3000A Rogowski Coil

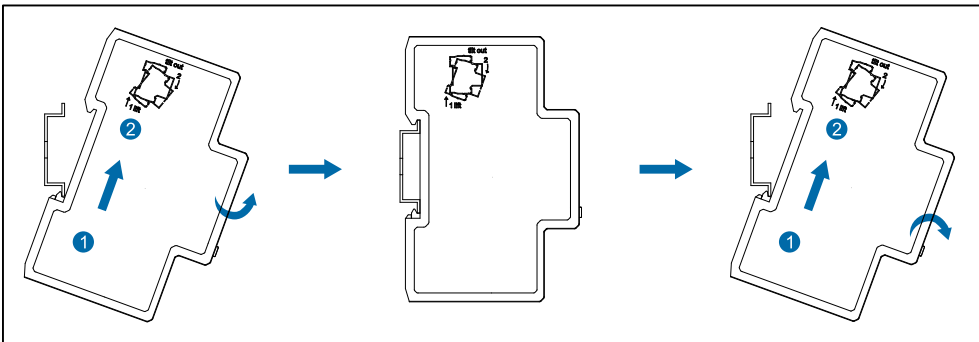


NOTE

The appearance, size and information are subject to actual objects. The maximum tensile force of each Rogowski Coil cable is 15N·m. Press the buckle of the Rogowski Coil assemble connector and pull out.

2 Install

2.1 Installation method of Power sensor& Power supply



2.2 Installation method of Rogowski Coil

• Correct installation method



- One coil samples one phase of the busbar
- The coil is secured with a cable tie
- It is recommended to select a sampling position with a busbar spacing of >10 cm

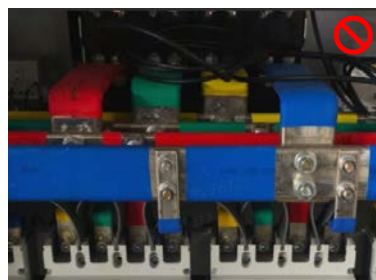
• Incorrect installation method



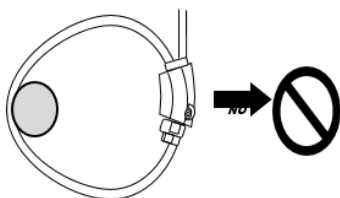
- Multiple phase conductors are prohibited from passing through the coil
- Multiple branch circuits are prohibited from passing through the coil



- Sampling positions with excessively small conductor spacing are prohibited, as magnetic field superposition can increase errors



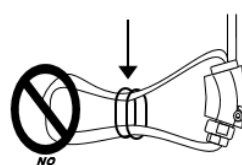
- Sampling positions near conductor bends, joints, terminals, or other areas with uneven magnetic fields are prohibited



• Prohibition of forced pulling



• Prohibit forced bending

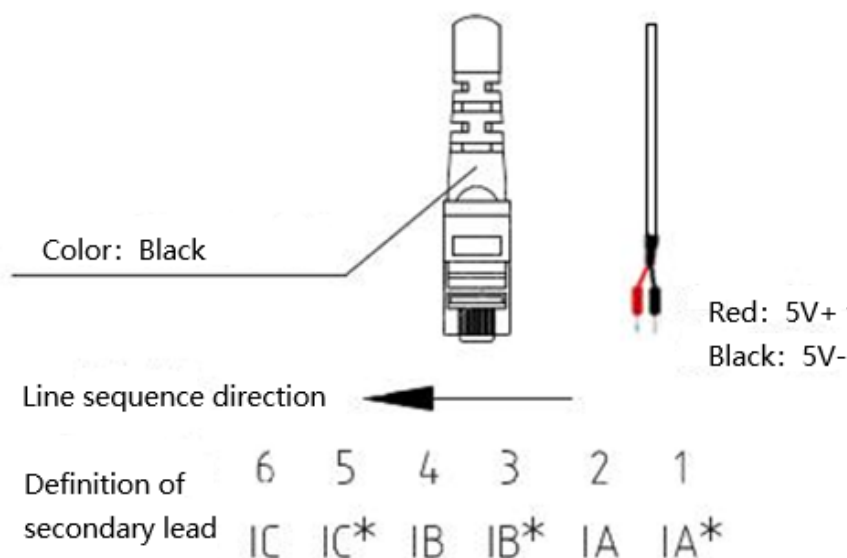


• Prohibit packaging in a bent state

⚠ CAUTION

The Rogowski Coil can only operate safely and without faults when it is correctly transported, stored, installed, as well as carefully operated and maintained. Actions such as forceful twisting, puncturing, excessive squeezing, or over-bending will significantly reduce the device's precision and service life.

2.3 Definition of Cable



3 Installing the Cables

3.1 Prepare cables

Cable	Port	Type	Conductor Cross-sectional Area Range	Outer Diameter	Source
AC power cable	L1(Ua)	Multi-core outdoor copper cable	1.5mm ² ~2.5mm ²	3mm~5mm	Prepared by the customer
	L2(Ub)				
	L3(Uc)				
	N				
Communication Cable (recommended)	RS485	Two core outdoor shielded twisted pair	0.25mm ² ~1mm ²	4mm~11mm	Prepared by the customer
Power supply cable (recommended)	L、N	Multi-core outdoor copper cable	1.5mm ² ~2mm ²	3mm~4mm	Prepared by the customer

 **NOTE** The maximum torque of AC power and comm. terminal screws is 0.5N.m, and the recommended torque is 0.45N · m. The recommended skive wire length is 7mm.

3.2 Wiring diagram

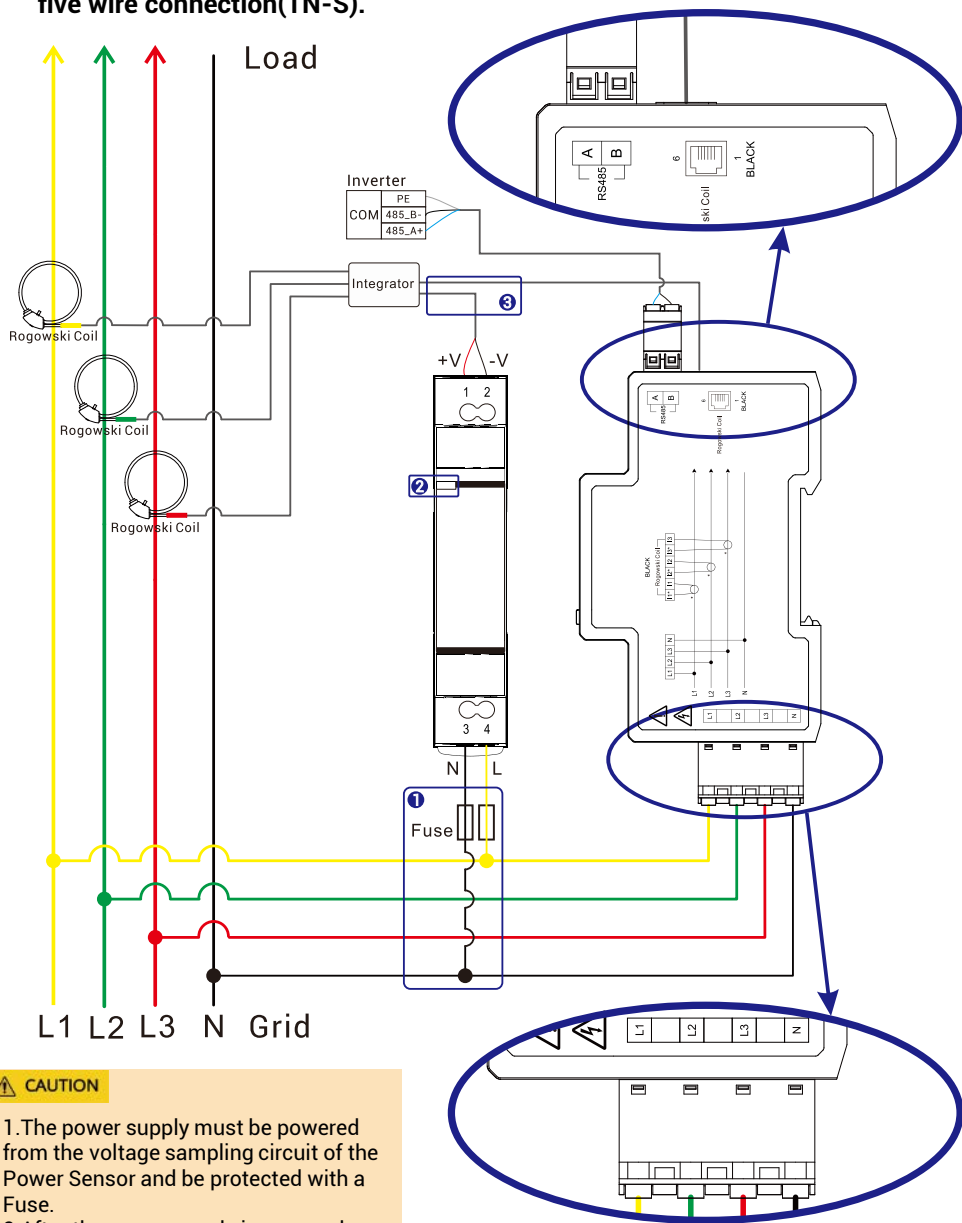
 **NOTE** Please confirm whether it meets the following usage scenarios before installation

Scenarios	TN-C	TN-S	TT
Applicability	Available	Available	Available
Remark	Must be connected strictly according to the wiring diagram . The Power sensor & Power supply must be connected to PEN .	Must be connected strictly according to the wiring diagram . The Power sensor & Power supply must be connected to N .	

CAUTION

Before connecting cables, ensure that the Power Sensor is not damaged in any way; Please ensure that the grounding wire is securely installed; Before powering on, please ensure that the wiring is correct, otherwise electric shock, damage to the Power Sensor, or fire may occur.

- Applicable for three-phase four wire (TN-C or TT) and for three-phase five wire connection(TN-S).



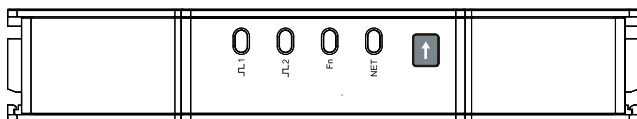
⚠ CAUTION

1. The power supply must be powered from the voltage sampling circuit of the Power Sensor and be protected with a Fuse.

2. After the power supply is powered on, the indicator light should illuminate.

3. The cable (RJ12) from the integrator to the Power Sensor is 1m long, and can be extended with an additional cable of no more than 9m (total length ≤10m).

3.3 Communication Connection



- **Button Function**

Hold the "↗" key for 10 seconds to restore the Modbus address to the default value of 1, while the "Fn" LED lights up in purple for 1 second.

- **Indicator light description**

No.	LED lights	Description
1	JL1	The red light flashes when there is a pulse
2	JL2	Reserve
3	Fn	Function light the blue light stays on when powered on, flashes during communication turns purple when restoring the default Modbus address, lasting for 1 second
4	NET	Reserve

4 Diagnosis , analysis and elimination for common faults

Fault phenomenon	Reason analysis	Elimination
No display after the instrument being powered on	1.Incorrect wiring mode. 2.Abnormal voltage supplied for the instrument.	1.If the wiring mode is incorrect, please connect based on the correct wiring mode (see the wiring diagram). 2.If the supplied voltage is abnormal, please supply the voltage on the instrument specification.

Fault phenomenon	Reason analysis	Elimination
Power metering inaccuracy	1. Wrong wiring, please check whether the corresponding phase sequence of voltage and current is correct. 2. Check whether the CT specification is correct. Note : Pa, Pb, and Pc are abnormal if the values are negative. (except for some special equipment).	1. For wrong wiring, please connect based on the correct wiring mode (see the wiring diagram). 2. If a negative value is displayed, change the cable connection mode of the current transformer to ensure that the high and low ends are connected properly.
Abnormal RS485 communication	1. The RS485 communication cable is disconnected, short circuit or reversely connected. 2. The address, baud rate, data bit and parity bit of the instrument is not in accordance with the inverter. 3. The RS485 communication cable is not equipped with a matching resistor at the end (usually when the distance exceeds 150 meters); 4. Check whether external devices are reliably grounded; Note: The communication protocol command between the instrument and the host does not match.	1. If any problems for the communication cable, please change the cable. 2. Set the address, baud rate, data bit and parity bit of the instrument to be the same as the inverter through buttons and so as the "parameter setting". Note: If the communication distance exceeds 150 meters and the communication parameters between the instrument and the host are the same, but communication still cannot be achieved, please reduce the communication baud rate or add a 120 Ω resistor at the beginning and end of the communication cable (the resistance value can be adjusted according to the on-site conditions).

5 Warranty and Service

The manufacturer implements three guarantees for product quality. Within 18 months from the date of delivery, if the user fully complies with the provisions of this manual and the factory seal is still intact, the instrument is found damaged during use, and the company is responsible for free repair or replacement.

6 Environmental protection

Dear customer:

Please help us do one thing, when this product at the end of its life, in order to protect our environment, please do a good job of recycling the product or its parts and materials. Please also dispose of materials that cannot be recycled. Thank you very much for your cooperation and support.

7 Statement

1. The products, services or features purchased by you are subject to the commercial contracts and terms signed with the Company, and all or part of the products, services or features described in this manual may not be included in the products purchased by you.
2. Except as otherwise agreed in the contract, the Company makes no representations or warranties, express or implied, about the contents of this specification.
3. The information in this brochure is subject to change without prior notice.
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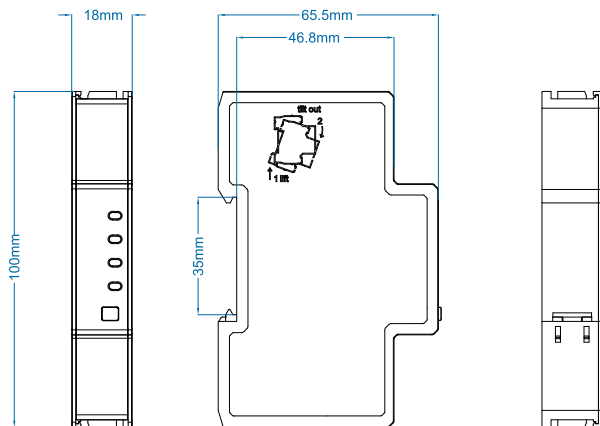
8 Manufacturer Information

Manufacturer	Zhejiang Chint IoT Technology Co.,Ltd.
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Service Hotline	+86-400-8177777
Website	http://aiot.chint.com
E-mail	services@chint.com

1 产品简介

1.1 外形及安装尺寸

型号	模数	外形尺寸 (长×宽×高)mm	净重(g)	安装尺寸(导轨)
iDM411 MCT-O	1P	100×18×65.5	约76	DIN35标准导轨



说明 未注公差为±1mm；
外形、尺寸、信息请以实物为准。

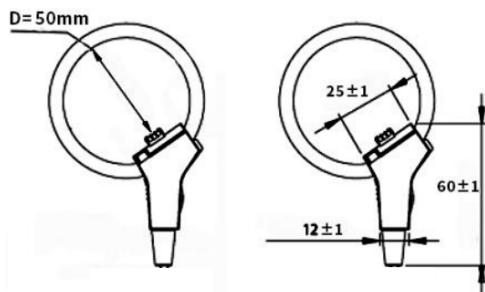
1.2 产品性能规格

产品型号	iDM411 MCT-O
标称电压	3×220/380V…3×240/415V
电流规格	300A/40mA或1000A/40mA或3000A/40mA
频率	50/60Hz
电压测量范围	0.8Un-1.15Un
电能精度	有功B级(1级)
罗氏线圈位置误差	1%
电网系统	三相四线
波特率	9600bps
工作温度	-25℃~+55℃(标称)、-40℃~+70℃(极限)
安装方式	导轨安装
认证	CE(LVD+EMC)，RCM，RoHS

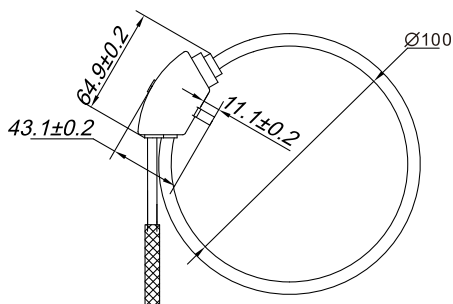
1.3 推荐的电流互感器

型号	单个互感器净重(g)
100A/40mA	约 23
300A/40mA	约 67
600A/40mA	约 84

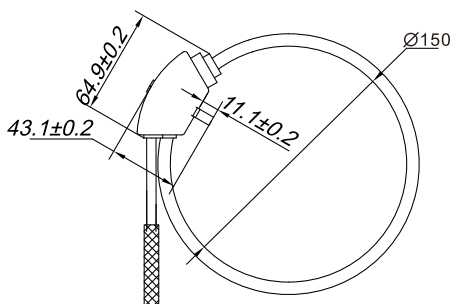
• 300A 罗氏线圈



• 1000A 罗氏线圈



• 3000A 罗氏线圈

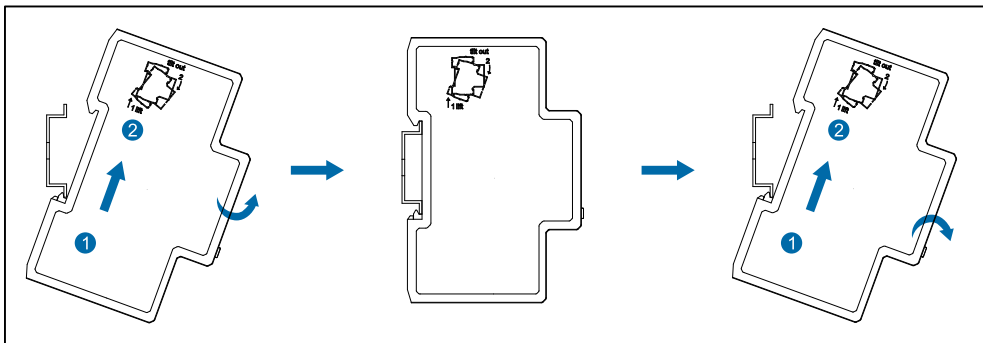


说明

公差为 $\pm 1\text{mm}$ ；外形、尺寸、信息请以实物为准；罗氏线圈每根线所能承受的最大拉力为 $15\text{N} \cdot \text{m}$ ，插拔时请按下罗氏线圈连接器卡扣，再向后拔出。

2 安装和拆卸

2.1 电表与辅助电源安装



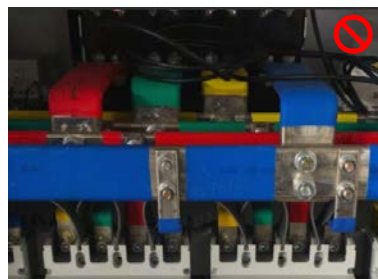
2.2 罗氏线圈安装

• 正确安装方式



- 一个线圈采样一相母线
- 线圈用扎带固定
- 建议选择母线间隔>10cm的采样位置

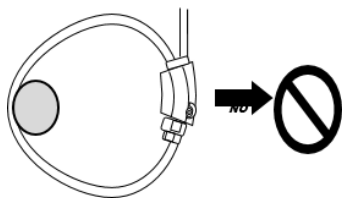
• 错误安装方式



- 禁止多相导线穿过线圈
- 禁止多个分路穿过线圈

- 禁止采样位置导线间距过小，磁场叠加会增大误差

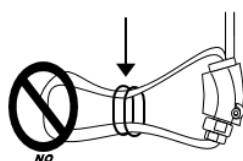
- 禁止采样位置靠近导线弯曲、接头、端子等磁场不均匀位置



• 禁止强行拉扯



• 禁止强行弯曲

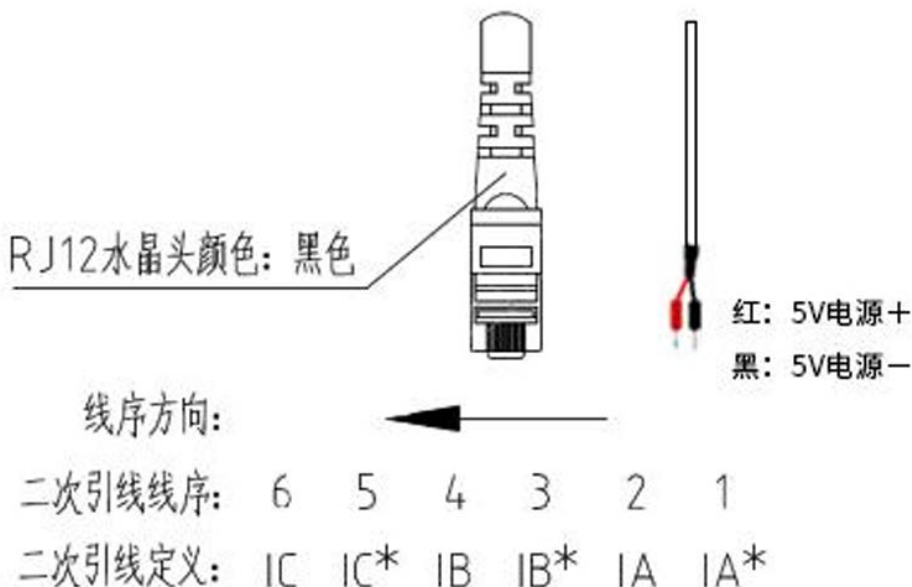


• 禁止弯曲状态下包装

⚠ 注意

只有在正确运输、存放、安装以及小心操作和维护的情况下，才能保证该线圈安全无故障运行，用力扭曲、刺破、过度挤压，过分弯曲等行为将大大降低设备的精确性以及使用寿命。

2.3 罗氏线圈线缆定义



3 安装线缆

3.1 准备线缆

线缆	端口描述	类型	导线截面积	外径	来源
电压线缆	L1(Ua)	多芯户外铜 线缆	1.5mm ² ~2.5mm ²	3mm~5mm	用户 准备
	L2(Ub)				
	L3(Uc)				
	N				
通信线缆 (建议)	RS485	两芯户外双 绞屏蔽线	0.25mm ² ~1mm ²	4mm~11mm	用户 准备
辅助电源交流 供电线缆 (建议)	L、N	多芯户外铜 线缆	1.5mm ² ~2mm ²	3mm~4mm	用户 准备

 **说明** L1、L2、L3、N端子最大扭矩为0.5N·m，建议扭矩为0.45N·m；
推荐剥线长度7mm。

3.2 安装接线图

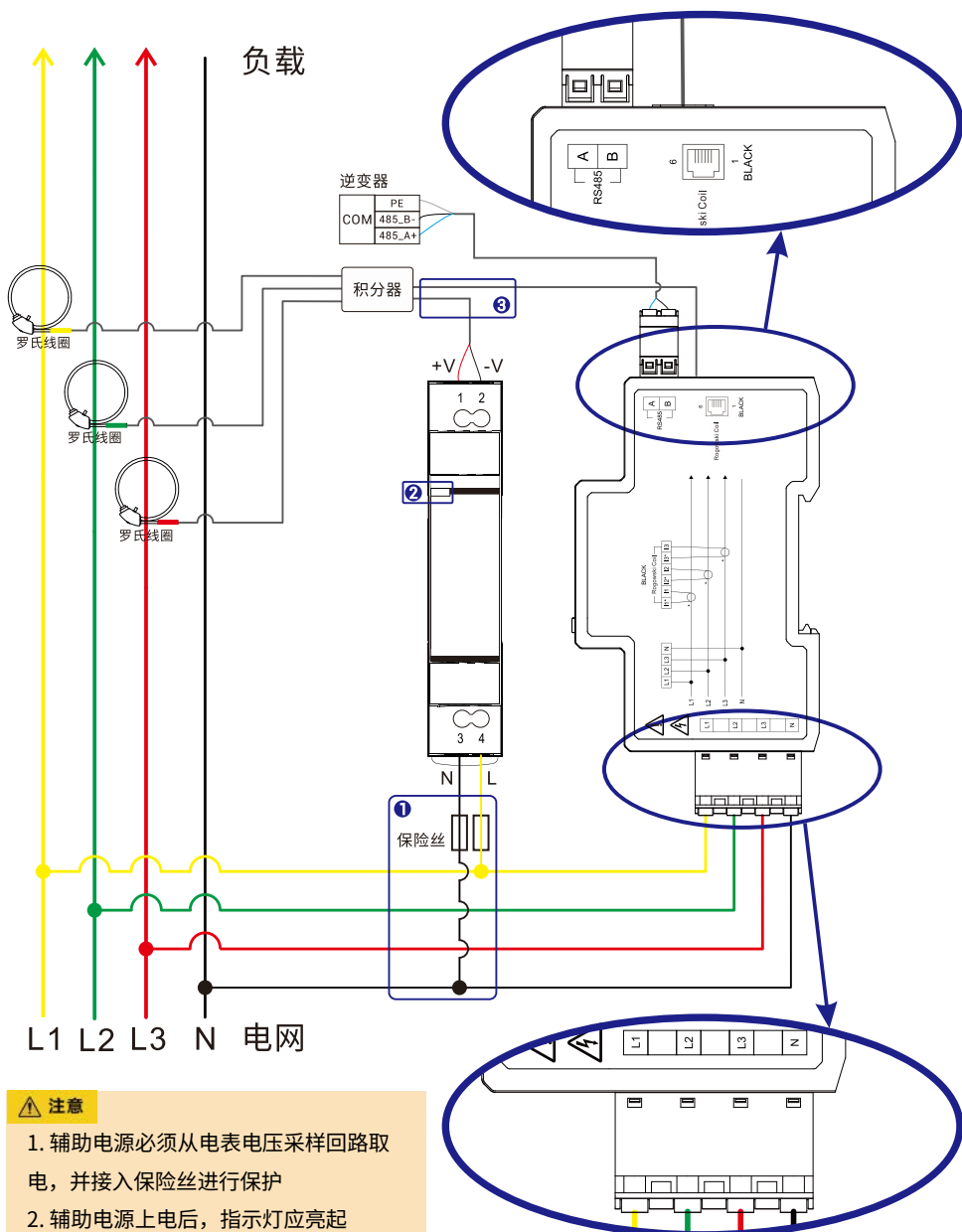
 **说明** 安装前请确认是否符合以下使用场景

场景	TN-C	TN-S	TT
可用性	可用	可用	可用
备注	需严格按照接线图接线 电表、辅助电源必须接 PEN		需严格按照接线图接线 电表、辅助电源必须接N

注意

- 以下情况可能导致触电、智能电表损坏或火灾：
1. 连接线缆前，请确保智能电表没有任何损坏；
 2. 请确保接地线安装牢固；
 3. 上电前，请确认接线正确。

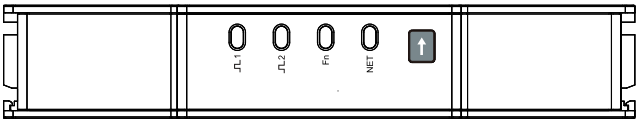
• 适用于三相四线 (TN-C或TT)和三相五线接入(TN-S)



⚠ 注意

1. 辅助电源必须从电表电压采样回路取电，并接入保险丝进行保护
2. 辅助电源上电后，指示灯应亮起
3. 积分器至电表的线缆(RJ12)长1m，至多外接≤9m的延长线(总长≤10m)

3.3 按键和指示灯示意图



• 按键功能

长按“➡”键10秒后，modbus地址恢复为默认值1，同时“Fn”LED灯亮紫灯，持续1秒。

• 指示灯说明

序号	LED灯	描述
1	JL1	脉冲灯 有脉冲时闪烁红灯
2	JL2	预留
3	Fn	功能灯 上电蓝灯常亮，通讯时蓝灯闪烁 恢复默认modbus地址时亮紫灯，持续1秒
4	NET	预留

4 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，则请按说明书提供电压。
电能计量与实际值偏差较大	1. 接线错误，电压与电流对应的相序是否正确； 2. 互感器规格是否正确。 注：请观察Pa、Pb、Pc的功率，如出现负值则表明不正常（部分特殊设备除外）。	1. 若接线不正确，则请按正确的接线方式（见接线图）接线； 2. 若不是以上问题，请联系当地供应商。

故障现象	原因分析	排除方法
RS485通讯异常	1. RS485通讯线缆开路，短路，接反； 2. 仪表的地址、波特率、数据位校验位与主机不符； 3. RS485通讯线缆末端未加匹配电阻(一般距离超过150米时)； 4. 外部设备是否可靠接地； 注：仪表与主机通讯协议命令不匹配。	1. 若通讯线缆有问题，请更换通讯线缆； 2. 通过按键设置仪表的地址、波特率、数据位校验位与主机相同，按键设置通讯参数； 注：若通讯距离超过150米，且仪表与主机通讯参数设置相同，仍通讯不上，请降低通讯波特率或者在通讯线缆的开始端和结束端加120Ω电阻（阻值可根据现场状况调整）。

5 保修与服务

制造厂对产品质量实行三包，仪表自出厂之日起18个月内，用户在完全遵守本说明书的规定且出厂封印仍完整的条件下,使用时发现仪表损坏，由本公司负责免费修理或更换。

6 环境保护

尊敬的顾客：

请您协助我们做一件事，当本产品在其寿命终了时，为了保护我们的环境，请做好产品或其零部件材料的回收工作。对于不能回收的材料，也请做好处理。非常感谢您的合作与支持。

7 声明

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- 3、本说明书中的资料如有更改，恕不另行通知。
- 4、本公司对由于提供、展示或使用本资料所造成的间接损失不承担任何责任。

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客服热线	+86-400-8177777
官方网站	http://aiot.chint.com
E-mail	services@chint.com

CHNT**合格证**

检验：03

日期：见产品或包装

本产品经检验合格，
准予出厂。