PM-3133-RCT /PM-3133i-RCT Quick Start

v1.7, October 2025

Packing List

In addition to this guide, the package includes the following items:



PM-3133-RCT
PM-3133i-RCT



Screw Driver * 1



Cable ties * 3

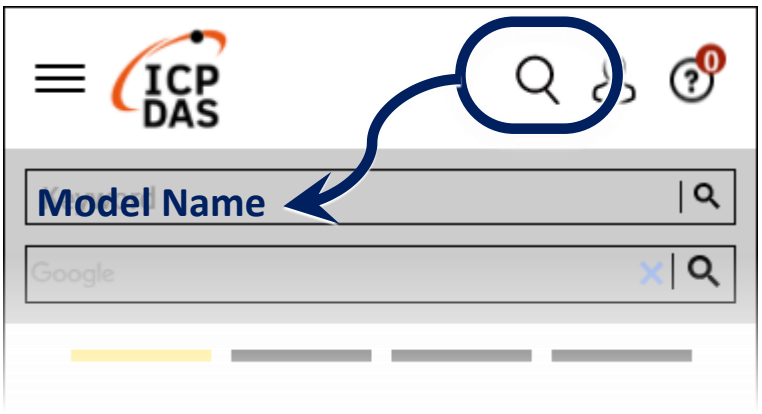
Technical Support

service@icpdas.com
www.icpdas.com

Resources

How to search for drivers, manuals and spec information on ICP DAS website.

- For Mobile Web



- For Desktop Web



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1. Caution & Warning



The meter contains hazardous voltages, and should never be disassembled. Failing to follow this practice will result in serious injury or death. Any work on or near energized meters, meter sockets, or other metering equipment could induce a danger of electrical shock. It is strongly recommended that all work should be performed only by qualified industrial electricians and metering specialist. ICP DAS assumes no responsibility if your electrical installer does not follow the appropriate national and local electrical codes.

ICP DAS assumes no liability for any damage resulting from the use of this product. ICP DAS reserves the right to change this manual at any time without notice.

2. Installation

2.1.

- Products come with external split type clip-on CT's. Disconnect the CT's or use other CT's is highly prohibited.
- Please read this operation manual carefully before using.
- Please re-confirm the measure position.
- Reconfirm the RST (ABC) phase sequence of the power system.
- Meter auxiliary power: DC +12V to +48V.

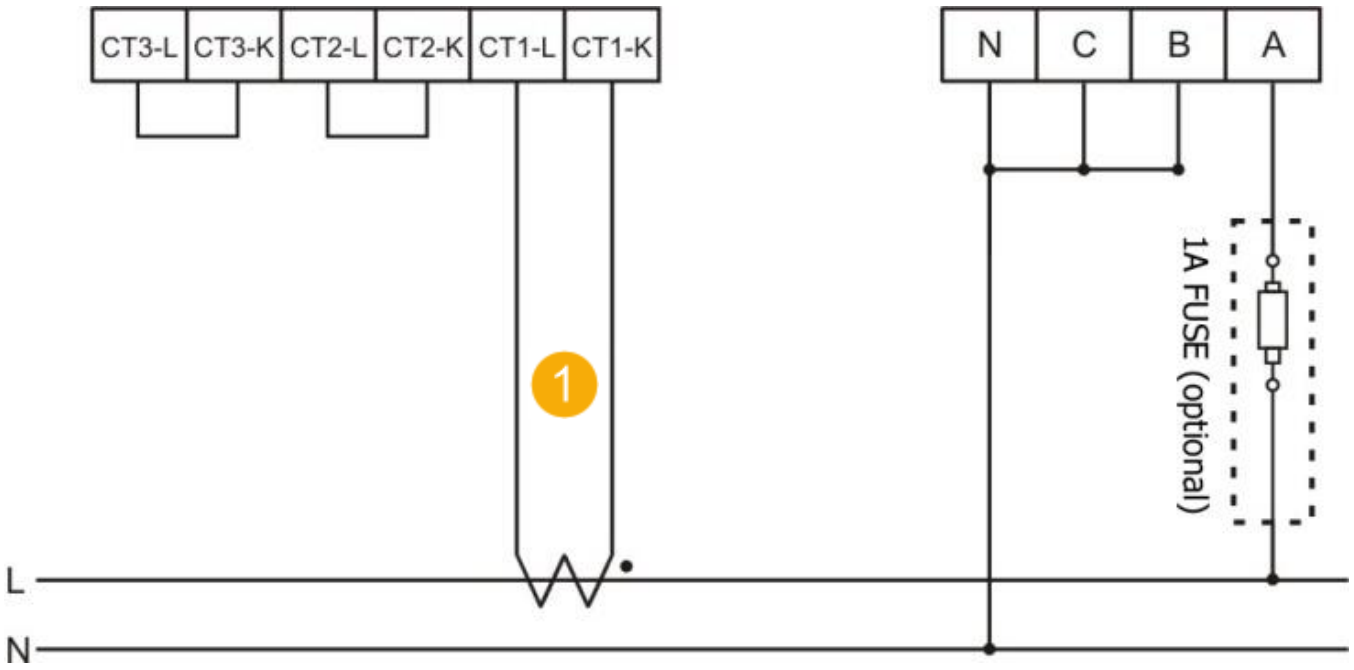
2.2. Voltage Input

1. PM-3133-RCT series: Input Voltage up to 500V.
   PM-3133**i**-RCT series: Input Voltage up to 600V.
   For any input voltage greater than the meter rating, please add a PT (Potential Transformer) and update the PT RATIO setting.
2. Confirm the RST (ABC) phase sequence.

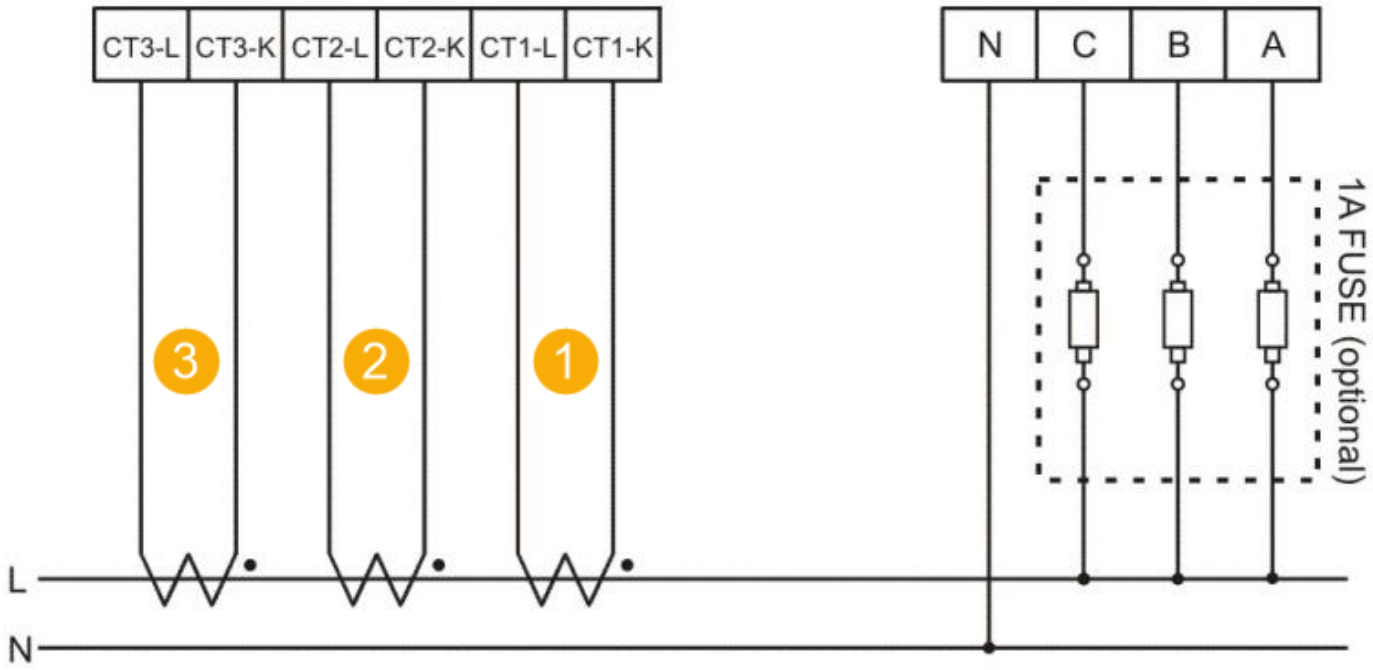
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2.3.Wiring

- 1P2W-1CT
  (Single-phase, Single-circuit) (Configuration required via software)

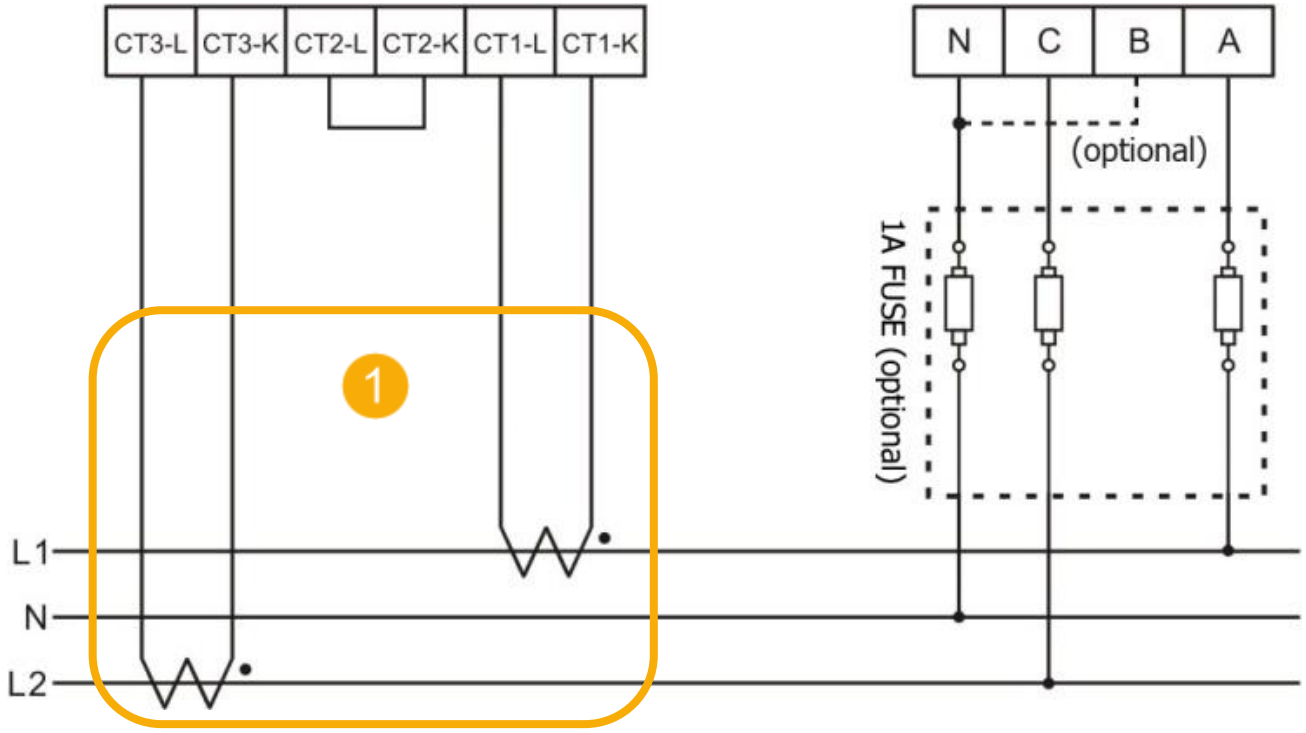


- 1P2W-3CT
  (Single-phase, 3-circuit) (Configuration required via software. Select "1P2W-1CT" as the wiring configuration.)

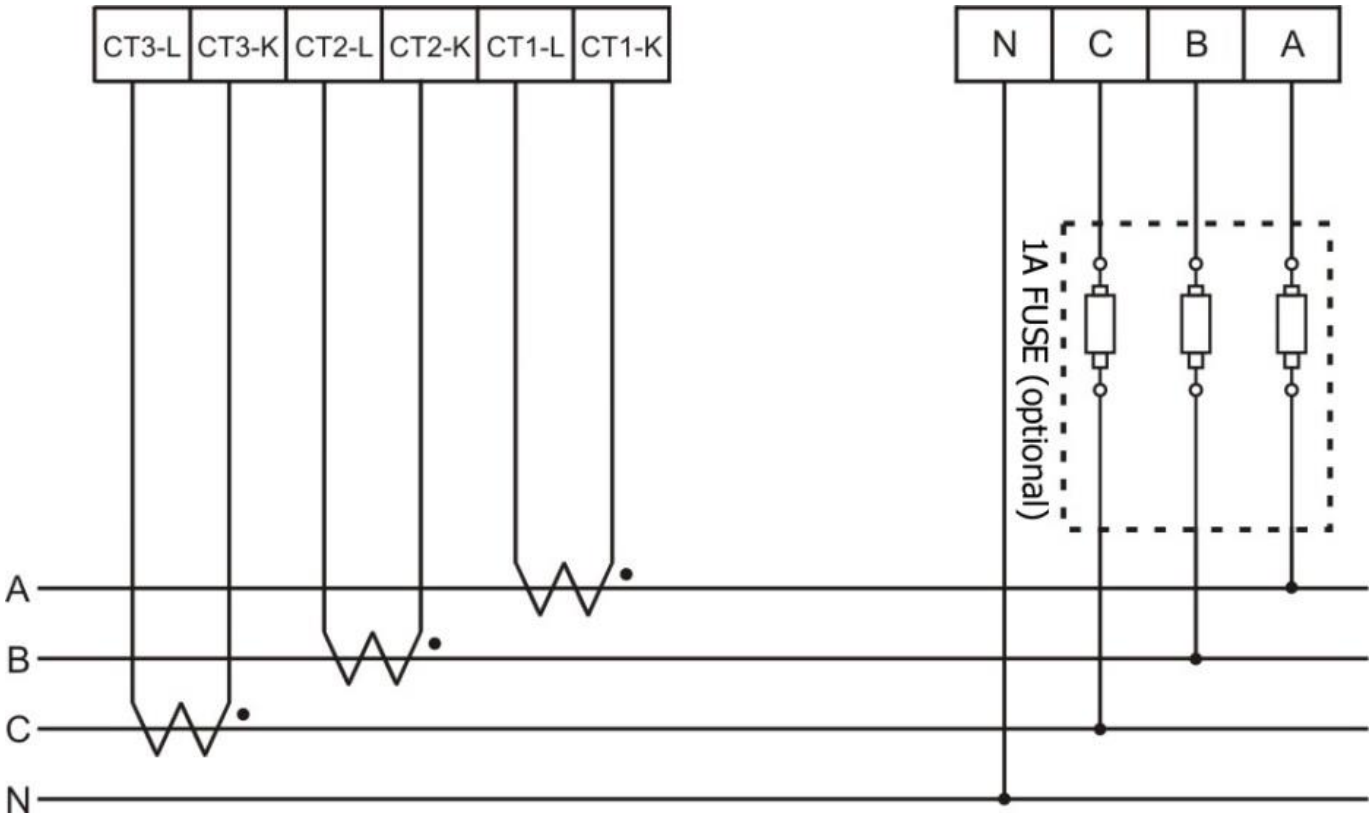


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- 1P3W-2CT
  (Single-phase, Single-circuit) (Configuration required via software)

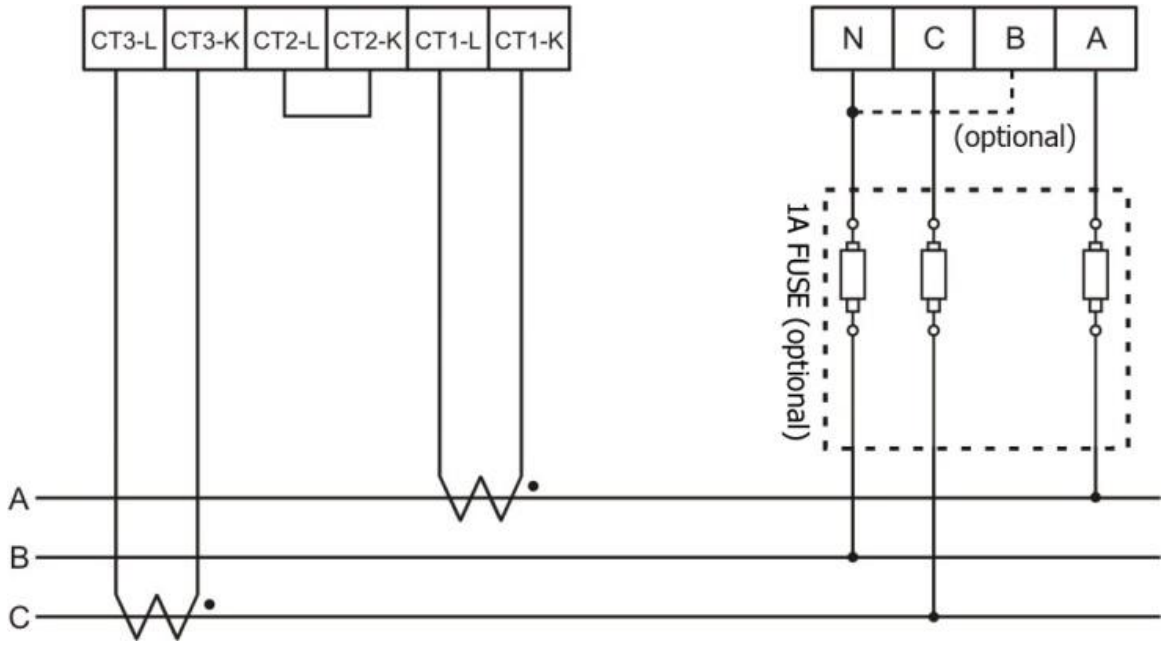


- 3P4W-3CT (Can be configured via software or DIP switch)



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- 3P3W-2CT (Can be configured via software or DIP switch)



Notes:

1. If phase B is in a floating state, it may pick up induced voltage signals. To avoid this, phase B can be connected to the neutral (N) line.

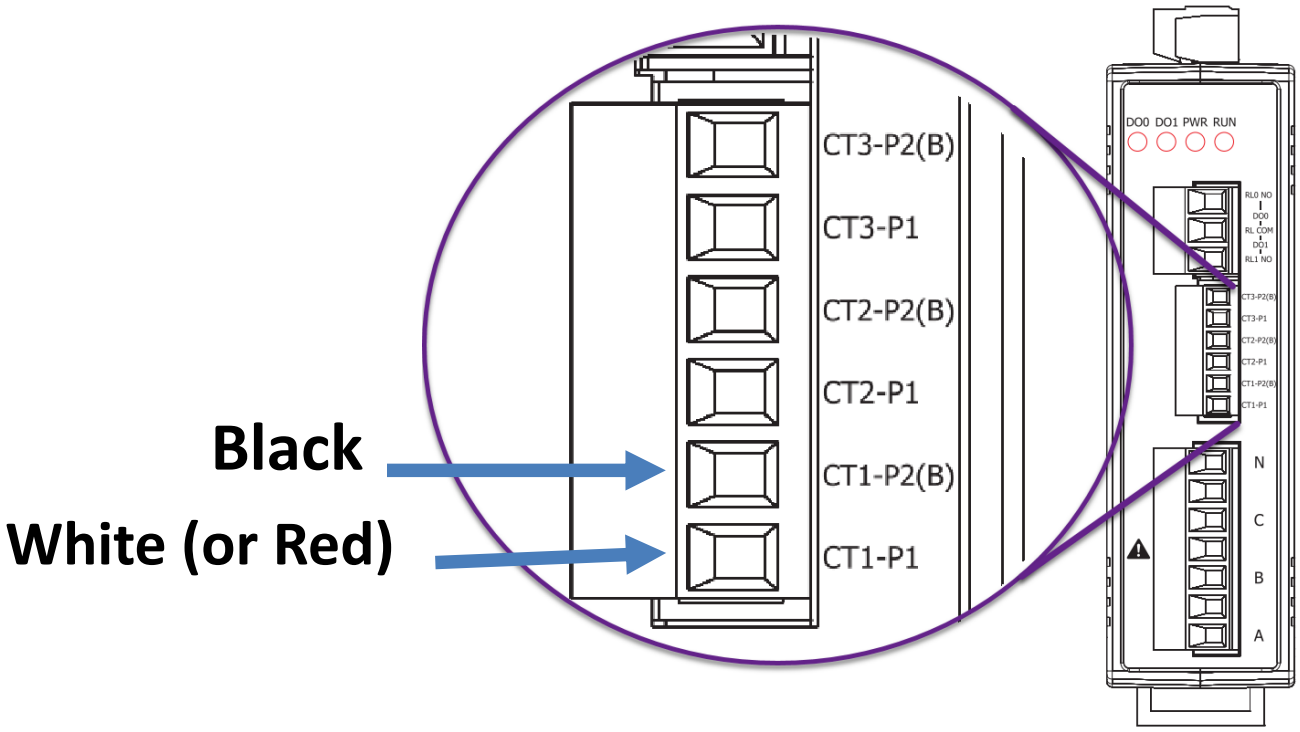
2. The 3P3W 2CT method is only suitable for **balanced three-phase systems with low harmonic distortion**. For unbalanced loads or systems with significant harmonics, the **3P3W 3CT method** is recommended for accurate measurement.
For detailed information, please refer to the Appendix “Questions and Answers” section of the manual.

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2.4. CT Connection

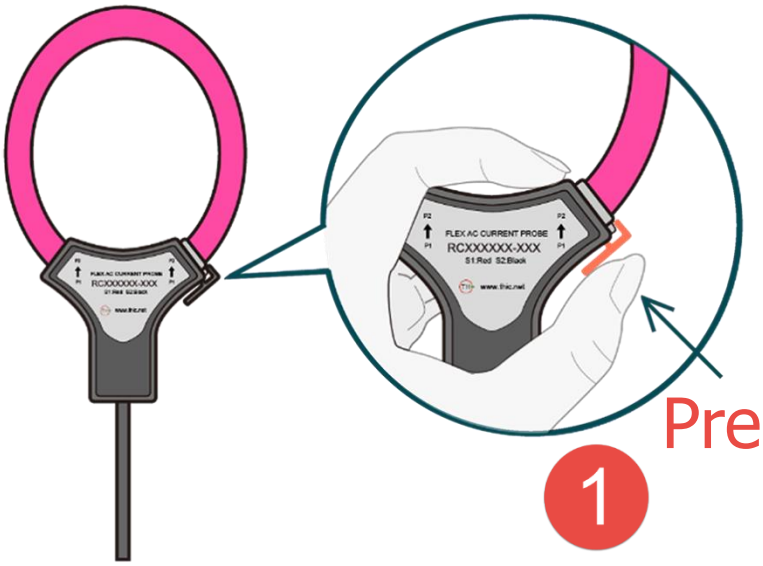
Please firstly check the current input terminal, and then and then in white (or red) - black, white (or red) - black, white (or red) - black wire sequences (CT1-P1, CT1-P2, CT2-P1, CT2-P2, CT3-P1, CT3-P2). Then connect the CT's, and close the CT clip. Make sure the arrow direction sign on CT's follows current flow direction.





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2.5. CT's installation steps



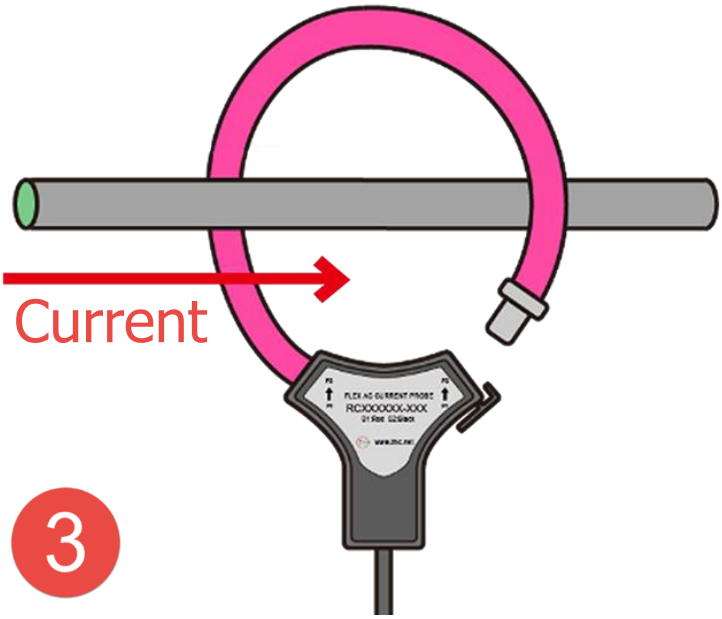
Press

1

2

Gently Pull
The "Free End"



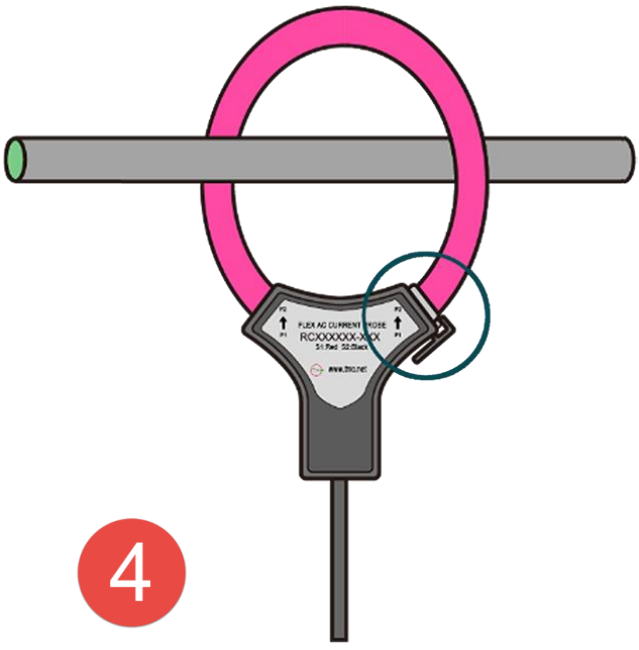


Current

3

Confirm Direction





4

Snap the "free end"
into place

2.6. CT’s installation steps Precautions

1. The ICP DAS Rogowski power meter is calibrated with the conductor positioned at the center (Position A in Figure 1.0), which is the ideal location to ensure measurement accuracy.

2. The Rogowski coil is not a completely closed circular structure, as it has a connection joint. The dashed area at Position D in Figure 1.0 indicates the location of this connection. It is known that when the measured conductor is placed closer to this area, the measurement error increases because magnetic flux variations in that section cannot be properly detected. Please avoid measuring current within the dashed area, as doing so may result in measurement errors exceeding −5%. Moreover, external magnetic flux can also affect the connection section, further increasing measurement errors.

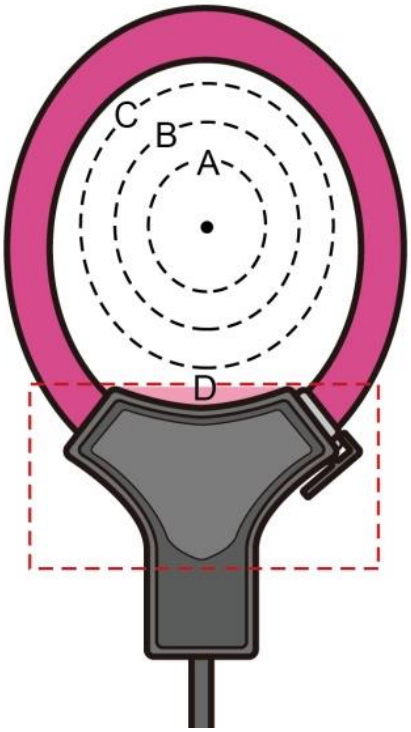


Figure 1.0

Before performing current measurements, ensure that all other current-carrying conductors, except the one being measured, are kept away from the Rogowski coil’s connection section as much as possible.

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3. In practical applications, if the measured conductor is offset from the center of the Rogowski coil, tilted, or if the conductor size is disproportionate to the coil diameter, the measurement accuracy may be affected. When the conductor is only slightly tilted or off-center, the meter can still maintain acceptable measurement accuracy, but the error will increase accordingly. To achieve higher measurement precision, it is recommended to keep the measured conductor as perpendicular to the coil as possible and ensure it passes through the center of the coil. Figure 1.1 illustrates the recommended cable tie fixation method to minimize tilt.

In Figure 1.2, when the conductor's tilt angle is large and its position is close to the coil's connection end, the measurement error becomes the greatest.

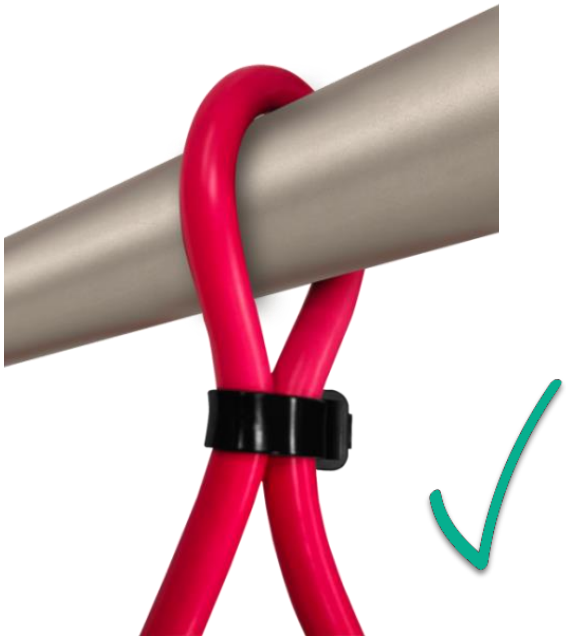


Figure 1.1



Figure 1.2

Good
Installation Method

1. The cable tie is fastened close to the wire to prevent the CT from slipping.
2. The tilt angle is small.
3. Avoid positioning the CT near location D.

Poor
Installation Method

1. Large tilt angle.
2. Too close to connection point D

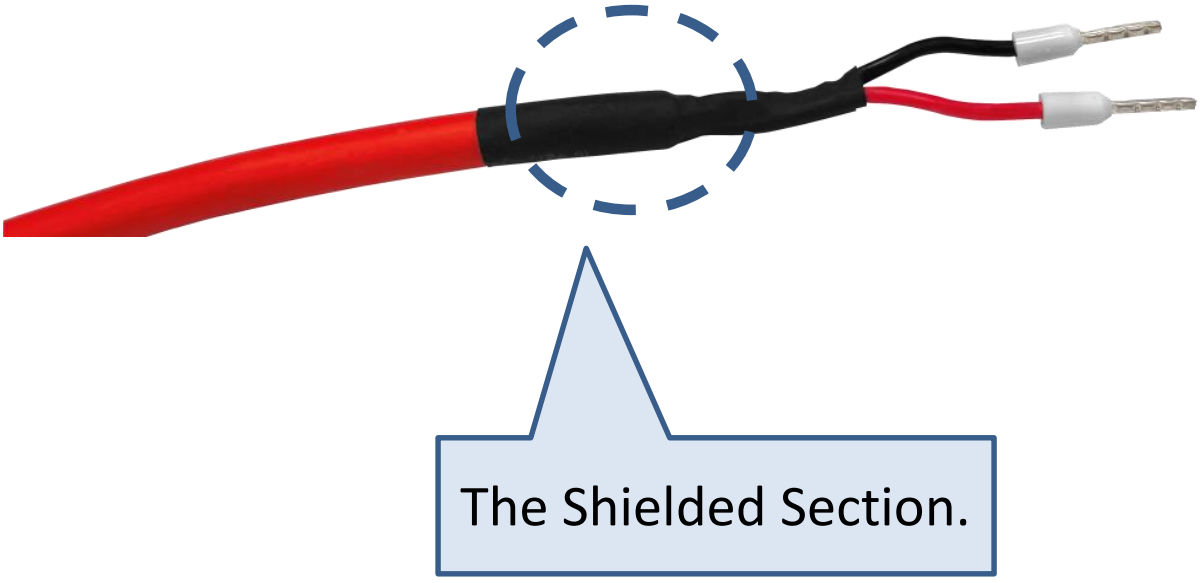
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4. At lower input currents (approximately 5%–15% of the rated current), the Rogowski coil exhibits relatively higher measurement error.
   The recommended operating current range vs. measurement accuracy is shown in the table below:

Rated Current	Recommended Operating Current Range	Low Current Range Error (5%–15% of Rated Value)	Mid-to-High Current Range Accuracy (15%–100% of Rated Value)
500A	50A ~ 500A	Higher Error (±2%～±4%)	Within ±2%; if the conductor is positioned at the center (Position A in Figure 1.0), the accuracy can be further improved to within ±1%.
1000A	50A ~ 1000A		
2000A	200A ~ 2000A		
4000A	200A ~ 4000A		

5. Do not extend the Rogowski coil's lead wires by yourself.
   Modifying the lead length will disrupt the original shielding structure, allowing external electromagnetic interference to couple into the sensing signal, which may cause waveform distortion and reduced measurement accuracy.

   If a special or extended lead length is required, please contact ICP DAS to obtain a factory-designed version with proper shielding treatment.



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3. Communication

3.1. RS-485 & CAN setting

3.2. Default setting for RS-485: 19200, n, 8, 1 ,for CAN: 125K bps

3.3. DIP switch (SW1-SW6) is used for Modbus address(or CANopen Node ID) setting, default is 1, i.e. all OFF

For example: Modbus address(or CANopen Node ID) is 10, find the table of DIP switch 1-6 is **ON, OFF, OFF, ON, OFF, OFF**

SW1—SW6 Setting Modbus-RTU address/CANopen Node ID for communication(1-64)

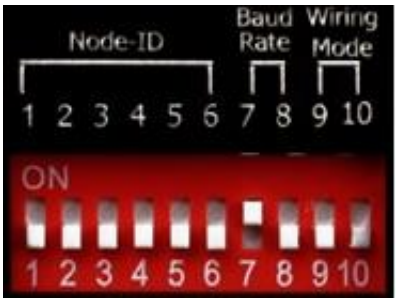
Modbus Address Or CANopen ID	SW 1	SW 2	SW 3	SW 4	SW 5	SW 6
1	OFF	OFF	OFF	OFF	OFF	OFF
2	**ON**	OFF	OFF	OFF	OFF	OFF
3	OFF	**ON**	OFF	OFF	OFF	OFF
4	**ON**	**ON**	OFF	OFF	OFF	OFF
5	OFF	OFF	**ON**	OFF	OFF	OFF
6	**ON**	OFF	**ON**	OFF	OFF	OFF
7	OFF	**ON**	**ON**	OFF	OFF	OFF
8	**ON**	**ON**	**ON**	OFF	OFF	OFF
9	OFF	OFF	OFF	**ON**	OFF	OFF
10	**ON**	OFF	OFF	**ON**	OFF	OFF
11	OFF	**ON**	OFF	**ON**	OFF	OFF
12	**ON**	**ON**	OFF	**ON**	OFF	OFF
13	OFF	OFF	**ON**	**ON**	OFF	OFF
14	**ON**	OFF	**ON**	**ON**	OFF	OFF
15	OFF	**ON**	**ON**	**ON**	OFF	OFF
16	**ON**	**ON**	**ON**	**ON**	OFF	OFF
17	OFF	OFF	OFF	OFF	**ON**	OFF
18	**ON**	OFF	OFF	OFF	**ON**	OFF
19	OFF	**ON**	OFF	OFF	**ON**	OFF
20	**ON**	**ON**	OFF	OFF	**ON**	OFF
21	OFF	OFF	**ON**	OFF	**ON**	OFF
22	**ON**	OFF	**ON**	OFF	**ON**	OFF
23	OFF	**ON**	**ON**	OFF	**ON**	OFF
24	**ON**	**ON**	**ON**	OFF	**ON**	OFF
25	OFF	OFF	OFF	**ON**	**ON**	OFF

For more complete information on switch positions, please refer to the manual.

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SW7－SW8 For Baud Rate Setting

RS-485	CAN	SW 7	SW8
9600 bps	**125k (Default) bps**	OFF	OFF
19200 (Default) bps	**250k bps**	**ON**	OFF
38400 bps	**500k bps**	OFF	**ON**
115200 bps	**1M bps**	**ON**	**ON**



Select the different wiring mode
(Please select the Software setting, if 1P2W-1CT or 1P3W-2CT is used)

Models	PM-3133-RCT/ PM-3133i-RCT		PM-3133-RCT-MTCP/ PM-3133i-RCT-MTCP	
Wiring	SW 9	SW 10	SW 1	SW 2
Software setting	OFF	OFF	OFF	OFF
3P3W-2CT	**ON**	OFF	**ON**	OFF
3P3W-3CT	OFF	**ON**	OFF	**ON**
3P4W-3CT	**ON**	**ON**	**ON**	**ON**



Ethernet default settings：

IP Address	192.168.255.1
Subnet mask	255.255.0.0
Gateway	192.168.0.1
Port	502

For recovering to default settings, dip Init/Run Switch (SW 4) to Init position for 10 seconds after power on, the settings will be changed as default values. Must dip back to Run position and repower on after settings changed. User also can recover settings to default value by Modbus command.

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4. Common Malfunction Analysis:

4.1. PC and meter cannot make the connection with RS-485？

Add the Bias Resistor on RS-485 Network for stable signal
The RS-485 master is required to provide the bias for PM-2133D series. Otherwise, the tM-SG4 or SG-785 should be added to provide the bias. All ICP DAS controllers and converters provide the bias.

4.2. What problem is while the measured readings of the power consumption (kw) is negative?

(1) First check the current input end – line terminal, （check the connection should be **CT1-P1 (Red), CT1-P2 (Black), CT2-P1 (Red), CT2-P2 (Black), CT3-P1 (Red), CT3-P2 (Black).**，base on white black, white black, white black follow the sequence order

(2) Check the current flow direction and ensure it matches the arrow direction indicated on the clamp-type CT.



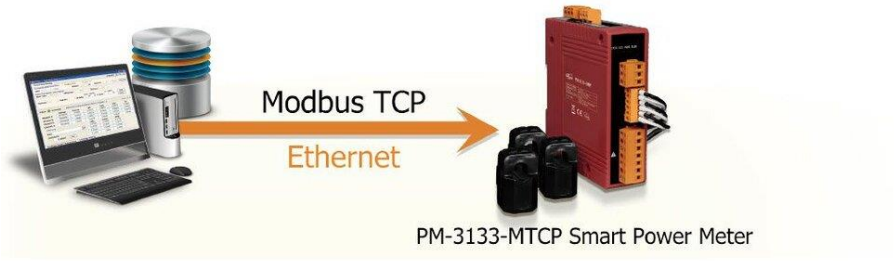
(3) Incorrect voltage or current wiring sequence may lead to phase angle calculation errors, causing the power meter to misinterpret the direction of power flow. This may also result in an abnormally low Power Factor (PF) reading.

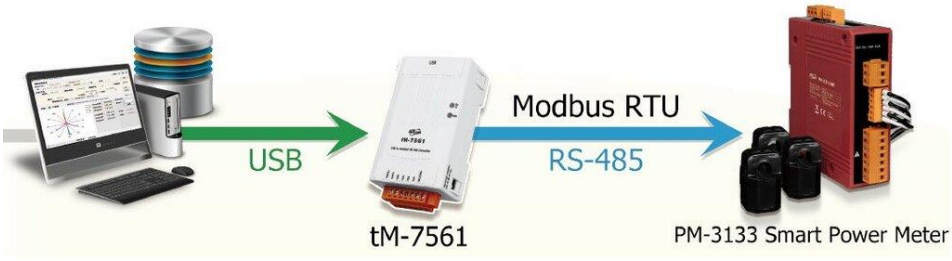
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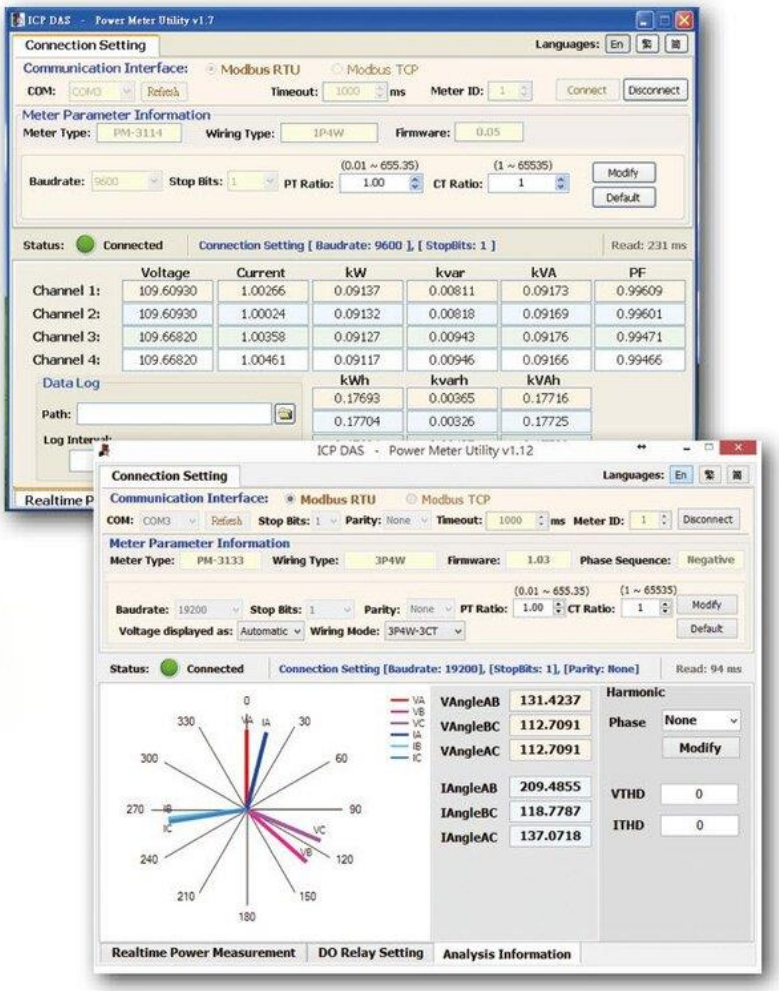
5. Power Meter Utility

Power Meter Utility has to be installed on PC and it enables to retrieve and display the power measurement values that measured by power meter via COM Port or Ethernet. The users will be able to read the power measurement values and to perform parameter settings of the meter.

Visit www.icpdas.com/, search [Power Meter Utility], and download the tool.





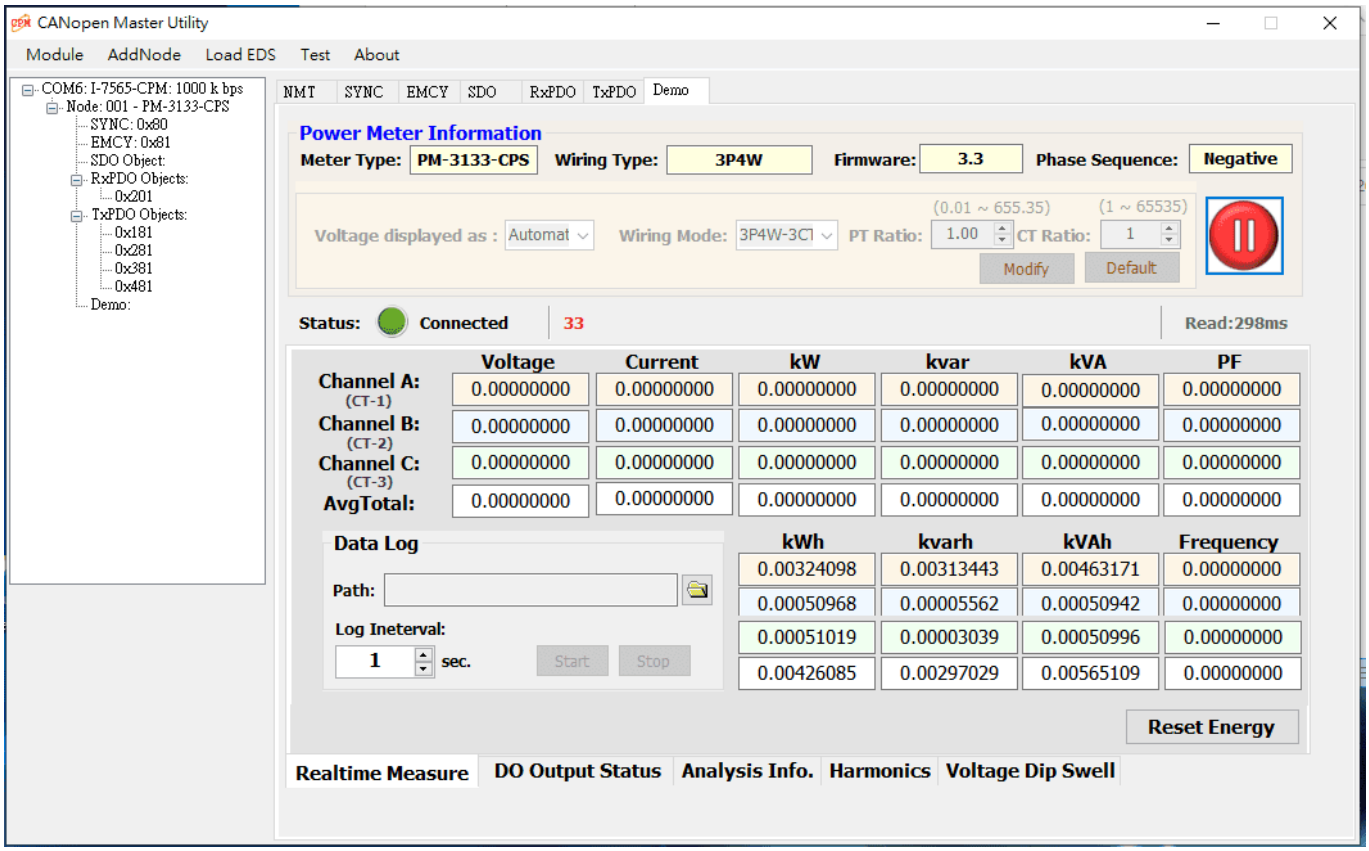


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6. CANopen Master Utility

Visit www.icpdas.com/, search [CANopen Master Utility], and download the tool.





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