PM-5133/PM-5133P Quick Start

v1.0, Nov. 2025

Packing List

Depending on the product model, the packaging for models PM-5133-xxxP will include three clip-on CTs. In addition to this guide, the package includes the following items:

PM-5133-xxxP*1

Mounting kit*1

Screw Driver*1

Cable ties*3

Note: The package of model name PM-5133P doesn't include any clip-on CT, and the specifications of CT depend on the model number. For more detailed information, please refer to the product website.

Technical Support

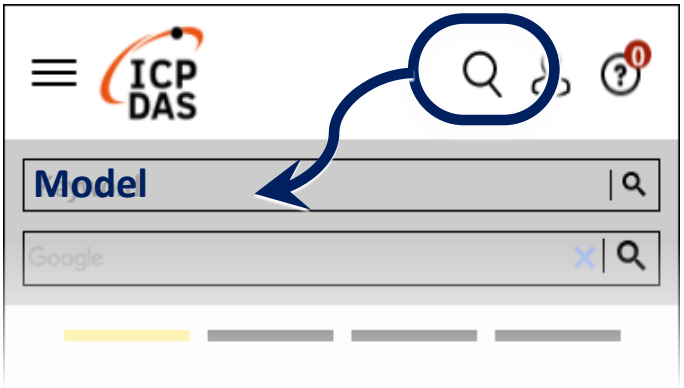
service@icpdas.com

www.icpdas.com

Resources

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

- For Mobile Web



- For Desktop Web

1 Safety Information

1.1 Safety Guidelines

The meter contains hazardous voltages and must be handled carefully during installation and operation.

- The meter must never be disassembled. Failure to follow this may result in serious injury or death.
- Any work on or near energized meters, meter sockets, or other metering equipment poses a risk of electrical shock.
- Installation and maintenance should only be performed by qualified industrial electricians or metering specialists.
- ICP DAS assumes no responsibility for improper installation or failure to comply with national and local electrical codes.

1.2 Disclaimer

ICP DAS assumes no liability for any damage resulting from the use of this product. The company reserves the right to revise or modify this document at any time without prior notice.

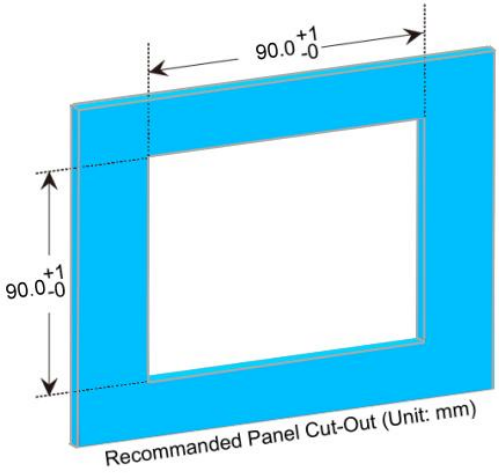
2 Installation

2.1 Preparation & Safety

- The product includes external split type clip-on CTs. Do not disconnect or replace them with other CTs, as this is strictly prohibited.
- Carefully read this operation manual before use.
- Re-confirm the measurement position before installation.
- The meter's auxiliary power supply range is DC +12V to +48V.

2.2 Mounting

- Step 1: Prepare a panel and cut a hole to the specified size (90 × 90 mm, +1/–0).



- Step 2: Attach the PM-5133 to the cut-out hole.

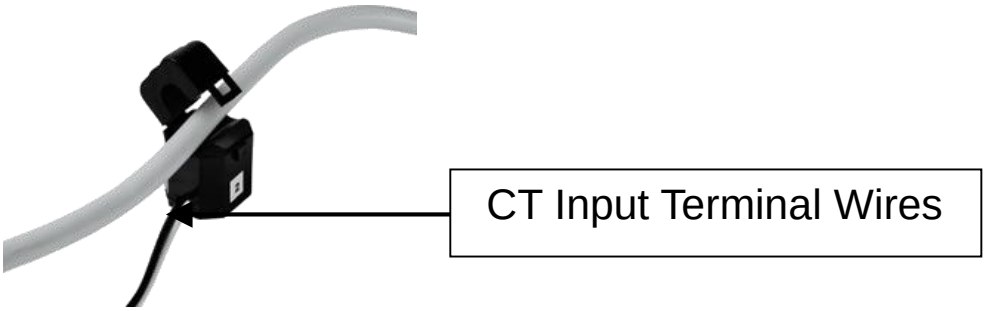
- Step 3 & 4: Insert the panel mounting clips into the upper and lower ventilation holes, and screw them to fix the unit.

Mounting Screw: M4 x 30L

Note: Recommended Screw Torque: 3.4 ~ 4.5 kgf-cm.

2.3 Wire Disconnection

1. Unlock the CT clip and remove the CT from the power cable, avoiding disconnecting the CT terminal wires if possible (do not disconnect the terminal wirers first).
   Warning! If you need to remove the CT terminal wires, make sure to first detach the CT before removing the CT terminal wires. This is to prevent high open-circuit secondary voltage being generated on the secondary side of the CT, which could cause electric shock or damage to the CT and connected equipment in the secondary circuit.
2. Disconnect the voltage input wires from the terminals and wrap the wire ends with insulating tape.
3. Disconnect the communication wires from the terminal.
4. Disconnect the auxiliary power from the terminal, then wrap the wire ends with insulating tape.



3 Wiring

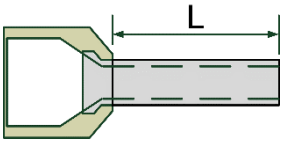
3.1 Voltage Input

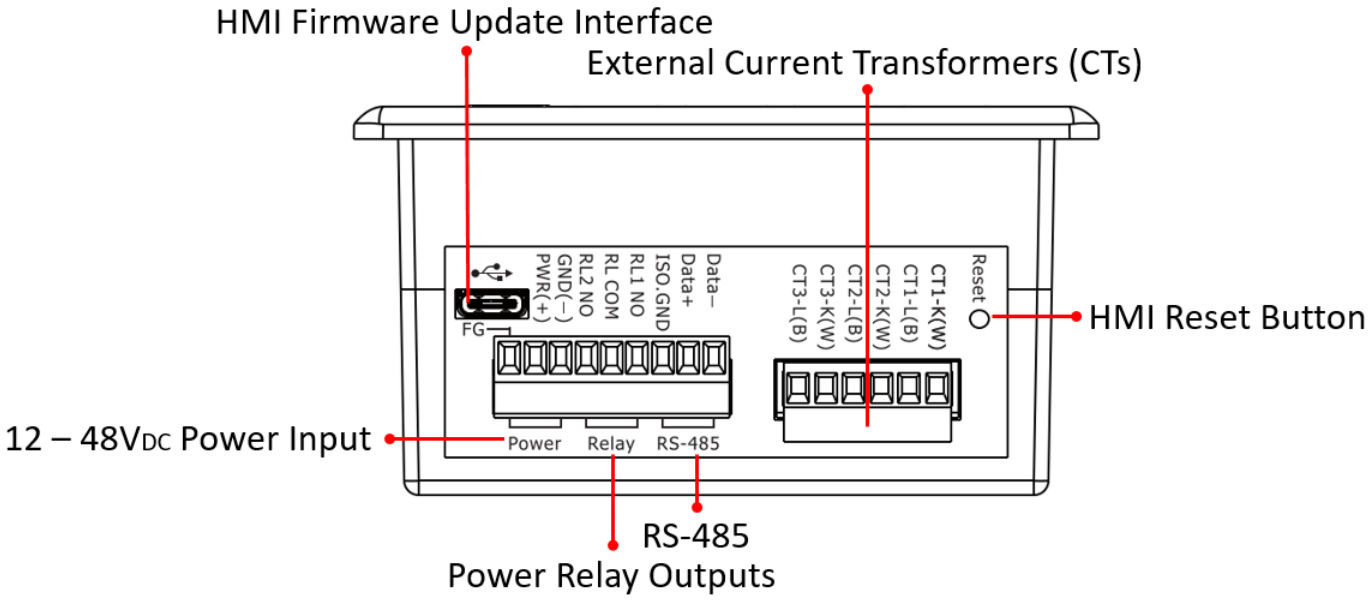
- The PM-5133 series supports input voltage up to 500 VAC.
- For voltages above 500 VAC, use a potential transformer (PT) and set the correct PT ratio.
- Verify the R-S-T (A-B-C) phase sequence before wiring.

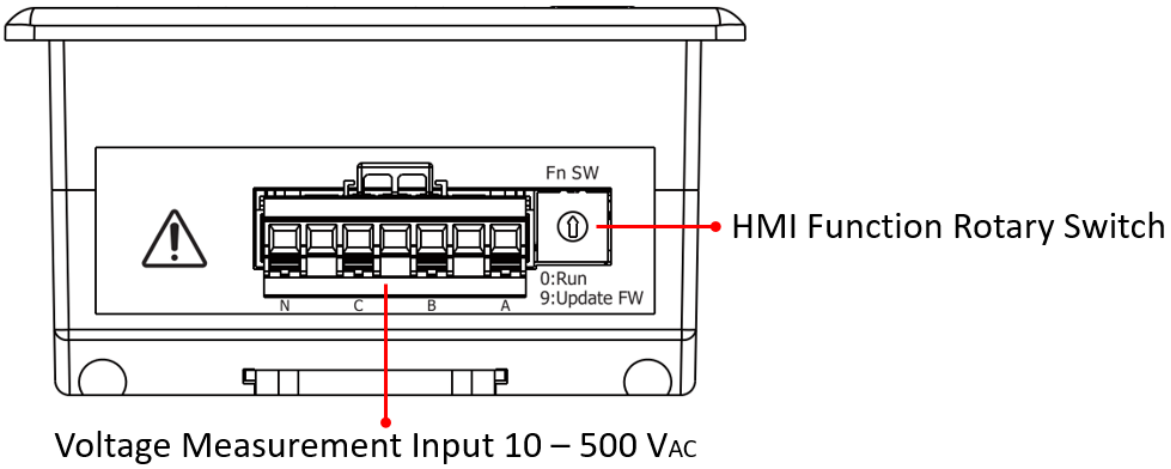
3.2 CT Wiring & Direction

- Check the current input terminals. Connect in the sequence: **CT1-K, CT1-L; CT2-K, CT2-L; CT3-K, CT3-L** (**white/black, white /black, white /black).**
- Ensure the arrow direction on each CT follows the current flow: **K (White wire) → L (Black wire)**.
- After wiring, close the CT clips securely.
- When using Euroblock bootlace ferrules for termination, follow the specifications below:

Connector	AWG	L Length
CTs	16 ~ 28	8 mm
Communications	16 ~ 26	6 mm
Voltages	12 ~ 24	12 mm







3.3 PM-5133P: 333 mV CT Requirements

- The external CTs are fragile; handle with care.
- **The current input of PM-3133P series is designed for 333 mV.** Do not use any CTs that do not meet the specifications, as doing so may damage the module.

CT Selection Considerations:

- Using a 333 mV output CT reduces the measured current by its ratio. Example: A 200 A CT with a 40:1 ratio outputs 5 A. The meter sees 5 A, so the readings must be scaled by 40.

Current transformer	CT Ratio
50A CT	10:1
60A CT	12:1
100A CT	20:1
200A CT	40:1

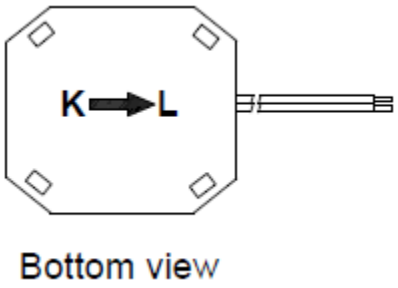
Current transformer	CT Ratio
400A CT	80:1
800A CT	160:1
1000A CT	200:1
1200A CT	240:1

Note:

A. Use CTs with a low phase-angle error (i.e. <2°) to ensure accurate power and energy measurements.
B. The accuracy of the primary CT directly affects the measurement accuracy.
C. PM-5133P only supports **external 333 mV output CTs** (Rogowski coils are not supported).
D. Safe design: built-in burden resistor, 333 mV output at rated current, no shorting blocks required.
E. Required CTs per wiring mode:

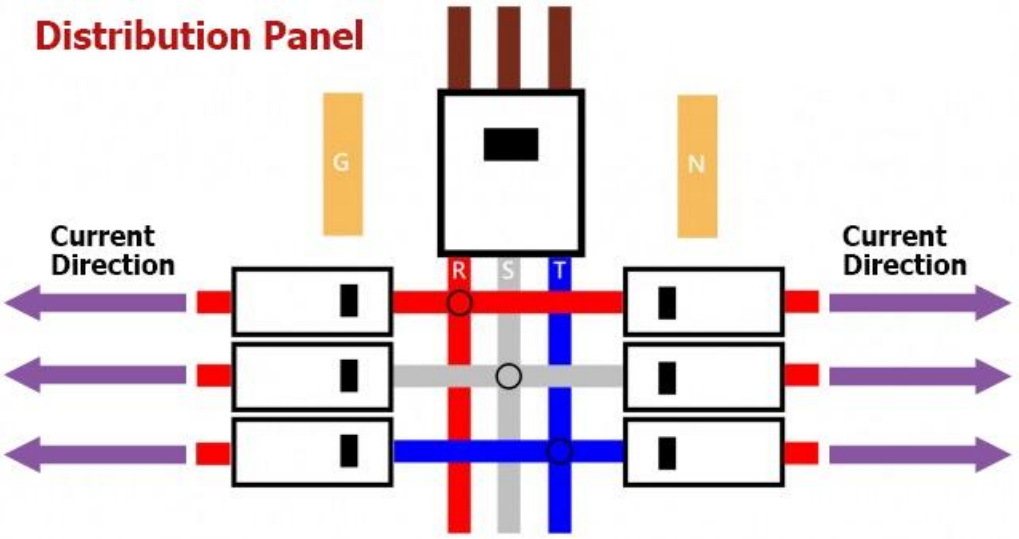
- 1P2W-1CT → 1 CT
- 1P3W / 3P3W-2CT → 2 CTs
- 3P3W-3CT / 3P4W → 3 CTs

3.4 PM-5133-xxxP CT Installation Steps



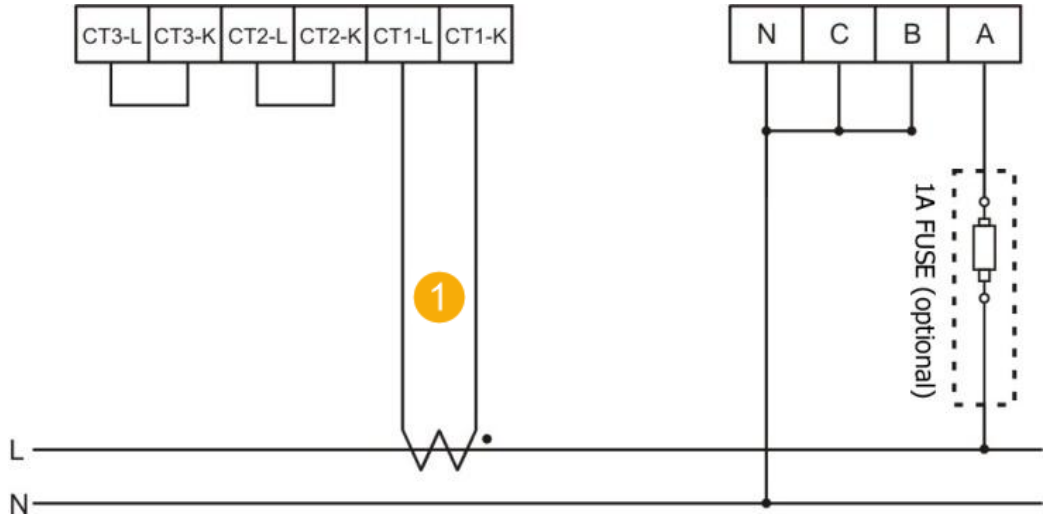
- At the bottom of the CT, there is a “K→L” mark.
- Open the CT clip.

- Make sure the power current direction follow the K → L marking on the CT and then close the CT clip.
- Complete the Installation.

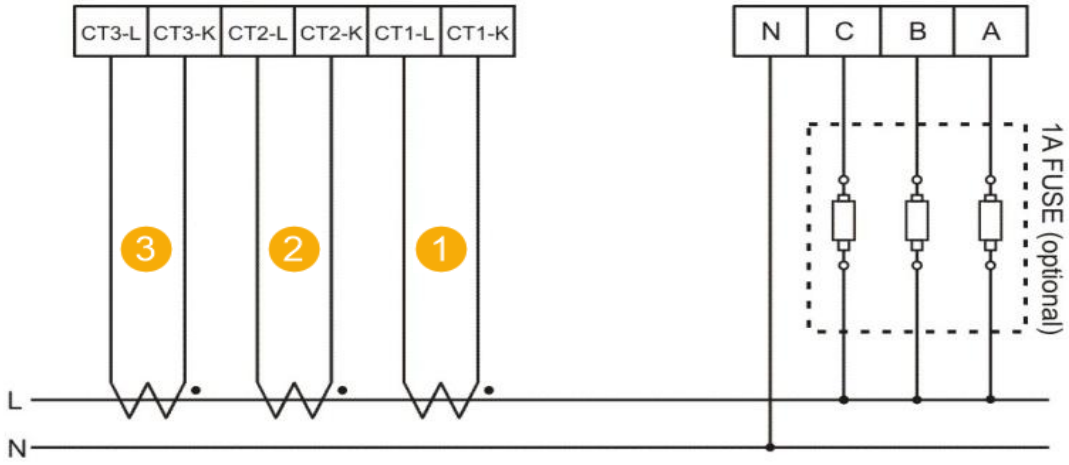


3.5 Wiring

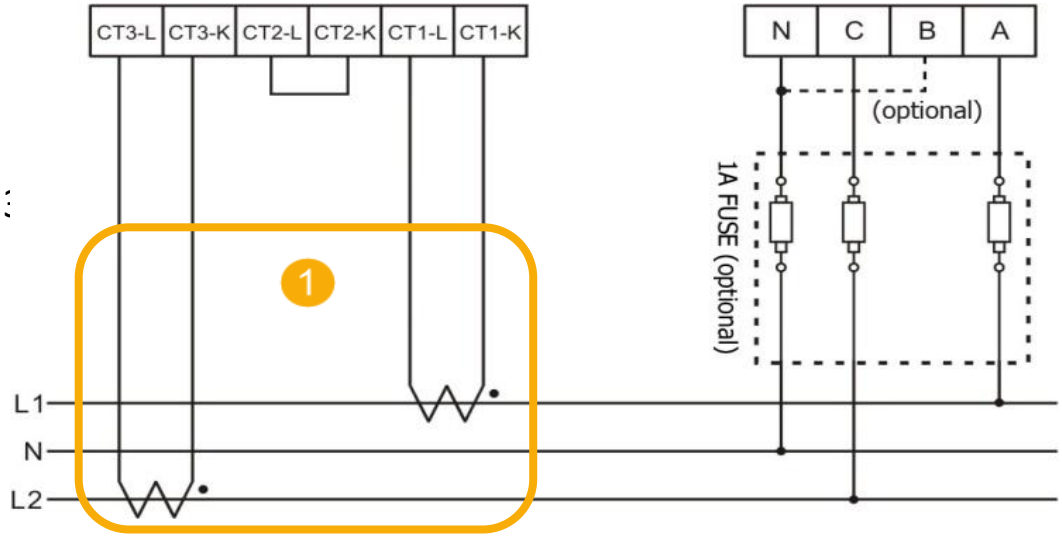
- 1P2W-1CT (Single-phase, Single-circuit) (Configure to 1P2W)



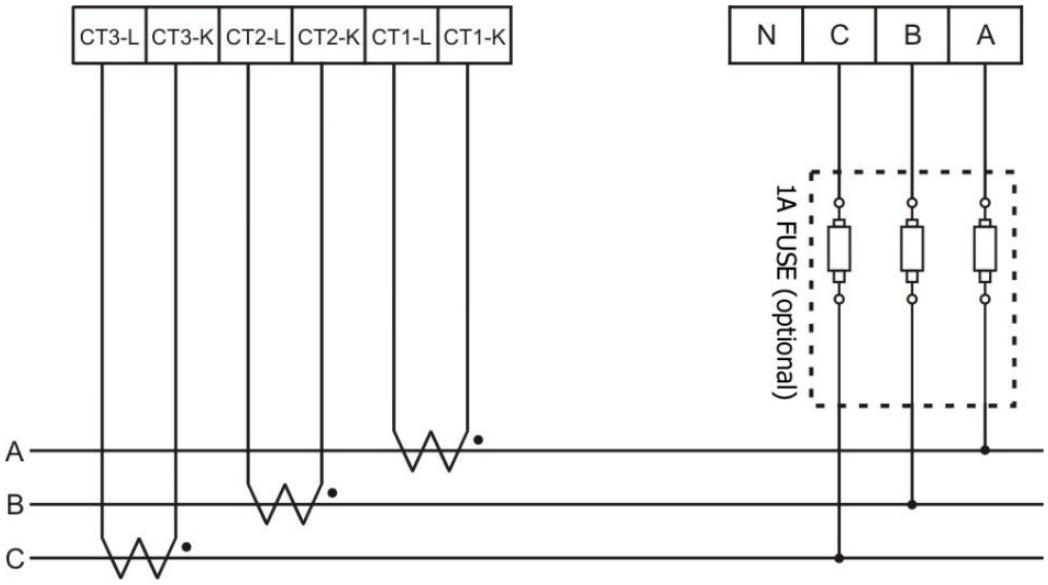
- 1P2W-3CT (Single-phase, 3-circuit) (Configure to 1P2W)



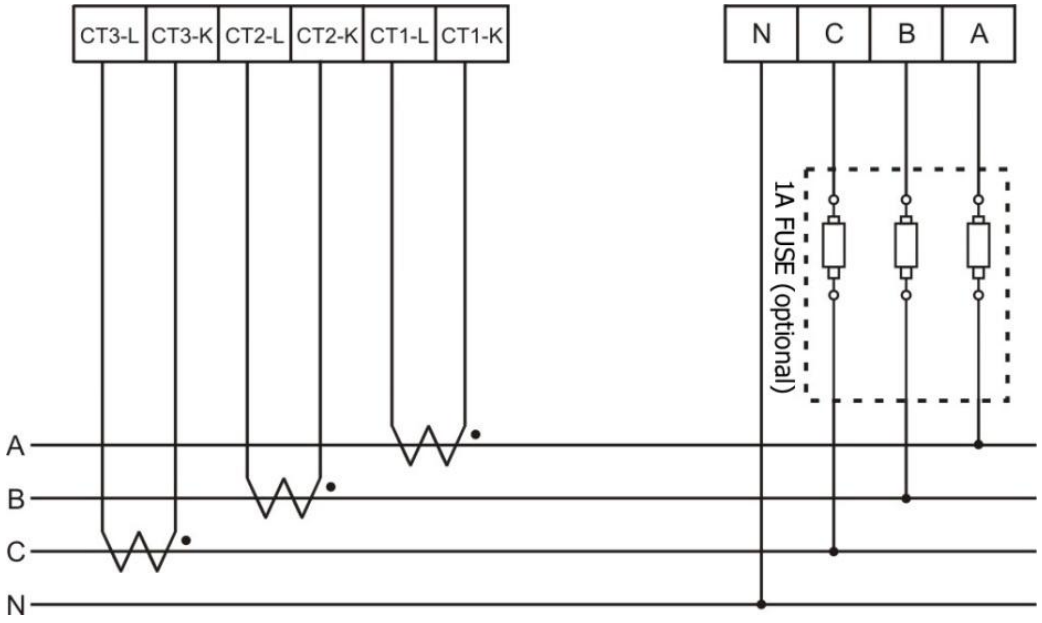
- 1P3W-2CT (Single-phase, Single-circuit) (Configure to 1P3W)



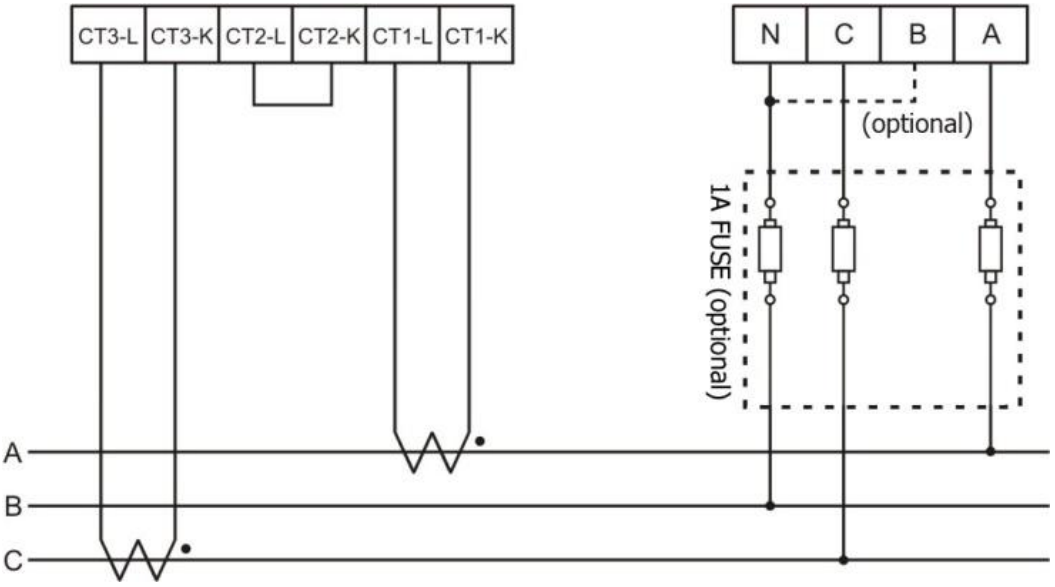
- 3P3W-3CT (Configure to 3P3W 3CT)



- 3P4W-3CT (Configure to 3P4W 3CT)



- 3P3W-2CT (Configure to 3P3W 2CT)



Notes:

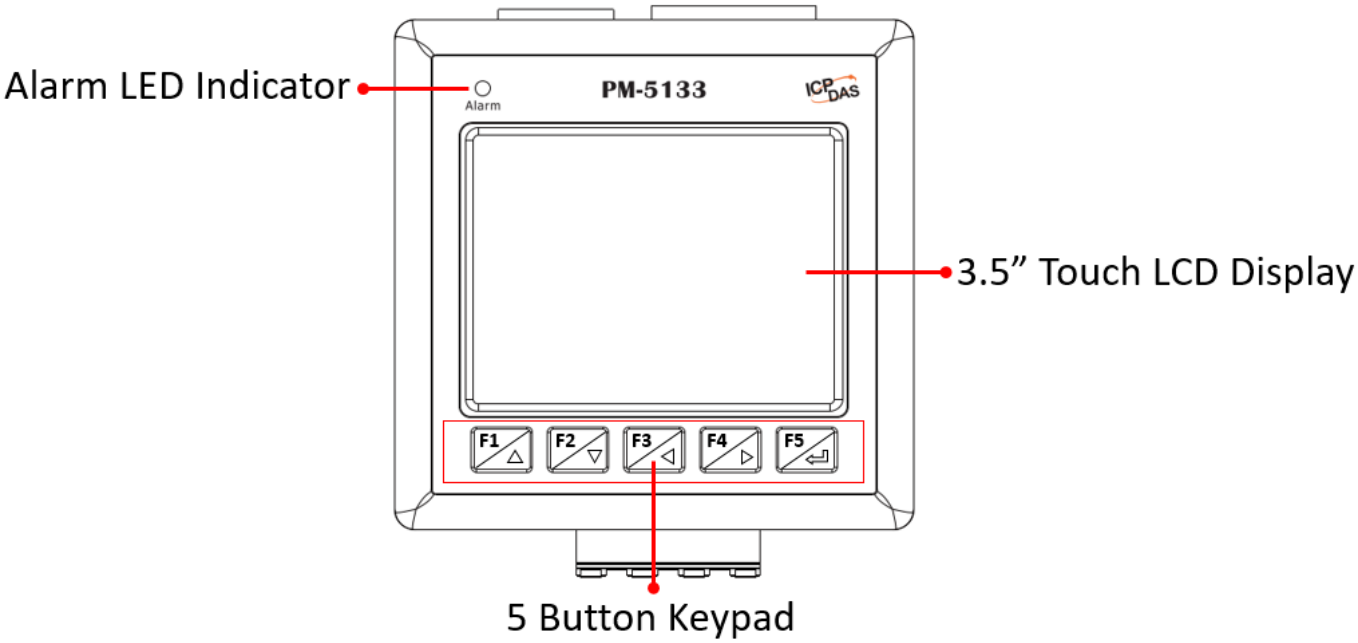
1. If phase B is in a floating state, it may pick up induced voltage signals. To avoid this, phase B can be connected to the neutral (N) line.
2. The 3P3W 2CT method is only suitable for **balanced three-phase systems with low harmonic distortion**. For unbalanced loads or systems with significant harmonics, the **3P3W 3CT method** is recommended for accurate measurement.

For detailed information, please refer to the Appendix “Questions and Answers” section of the manual.

4 Operation

4.1 Keypad, Touch LCD Display & LED Indicator

- The PM-5133 provides a 3.5” touch LCD panel for operation, configuration, and displaying measurement data.
- A 5-button keypad is available for navigation when the touch panel is not convenient.
- The Alarm LED indicator turns on when predefined alarm conditions are active.



Keypad Functions:

Keypad	Functions
F1	Go to previous page
F2	Go to next page
F3	Switch phase / return to main page from advanced parameter settings
F4	Switch phase / go to advanced parameter settings
F5	Go to previously viewed page / exit the Setup mode

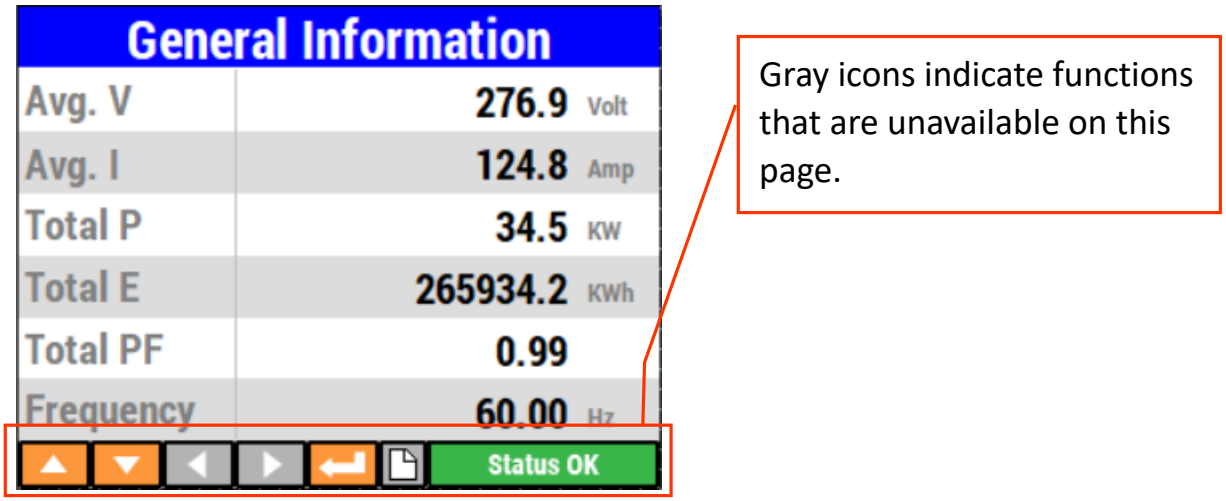
4.2 Normal Mode

Mode and Navigation

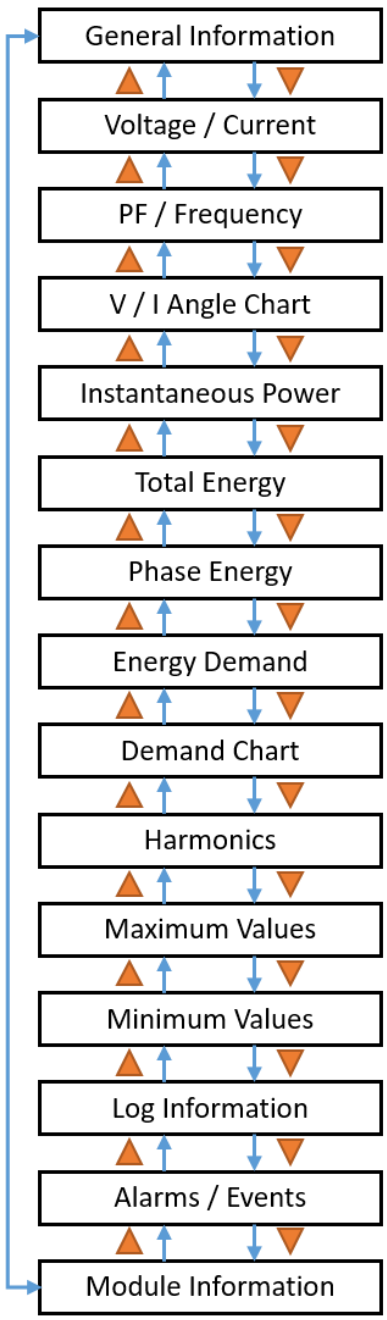
- The PM-5133 has two modes: **Normal Mode** and **Setup Mode**.
- Both modes use the F1 and F2 keys to switch pages.
- The F3 and F4 keys are used to switch phases or enter parameter settings on specific pages.
- Virtual buttons at the bottom of the screen can also be used for navigation.
- Grey icons indicate functions that are not available on the current page.

System Status Icons

- **Log icon**: shows the status of the data logging function.
  - Idle → log icon (gray)
  - Active → log icon (green)
- **Alarm icon**: shows alarm status.
  - No unconfirmed alarms → normal icon Status OK (green / OK)
  - At least one alarm → alarm icon Alarm (red); click Alarm to open the Alarms & Events page, afterwards click the F5 to go back the previously page from the Alarms & Events page.



- The PM-5133 automatically starts measuring power data after power-up.
- A total of 15 pages are available for displaying measurement information. (For detailed descriptions, refer to the User's Manual.)



Average voltage, average current, total kW, total kWh, total PF, and power frequency

Voltage and current of each phase

Power factor and power frequency of each phase

The angle chart of voltage and current of each phase

The values of kW, kVar, and kVA of each phase

Total electrical power includes positive/negative/net/absolute kWh, absolute kVarh and absolute kVAh

The values of kWh, kVarh, and kVAh of each phase

The total energy demand and relative information

The trend chart of the total energy demand

Vthd, Ithd and 31-order harmonic information of each phase

The recorded maximum values of voltage, current, kW and Kvar of each phase

The recorded minimum values of voltage, current, kW and Kvar of each phase

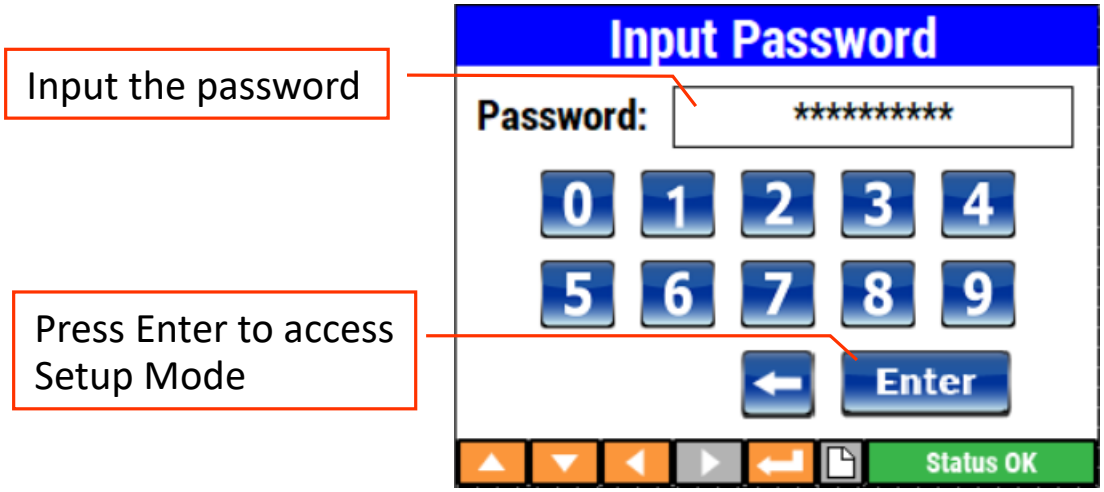
The configuration and status of the data log functions

The log of the alarms and events

Beside the configured wiring mode and PT/CT ratio, it also provides the firmware version, system time and the way to the configuration mode.

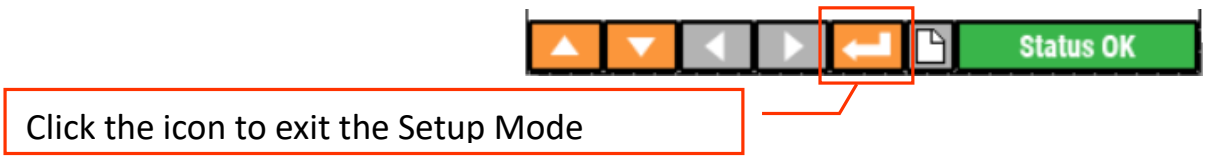
4.3 Setup Mode

- Enter Setup Mode from the **Module Information Page** by pressing **Configuration >>**.
- A password (up to 16 characters) is required to access Setup Mode.
- The default password is **0000**. If the password is forgotten:
  - Set the **Fn SW** (see Section 4.1 in User's Manual) to position 3 on the Input Password page.
  - The Alarm LED will turn on for ~10 seconds.
  - During this time, users can enter Setup Mode without a password.
  - After setting a new password, return **Fn SW** to **0** for security.
- Restoring **factory defaults** (via System Settings page) resets the password to **0000**.



Navigation in Setup Mode

- The bottom bar layout is the same as in Normal Mode.
- **Grey icons** = unavailable functions on the current page.
- Users can:
  - Switch pages with the / **icons** or / **buttons**.
  - Exit Setup Mode with the or .



There are 12 configuration pages in Setup Mode. These pages allow users to configure power measurement, communication parameters, alarm definitions, digital output (DO) actions, data logging, and other system functions. When switching pages in Setup Mode, the sequence and corresponding functions are shown below (For detailed descriptions, refer to the User's Manual.):

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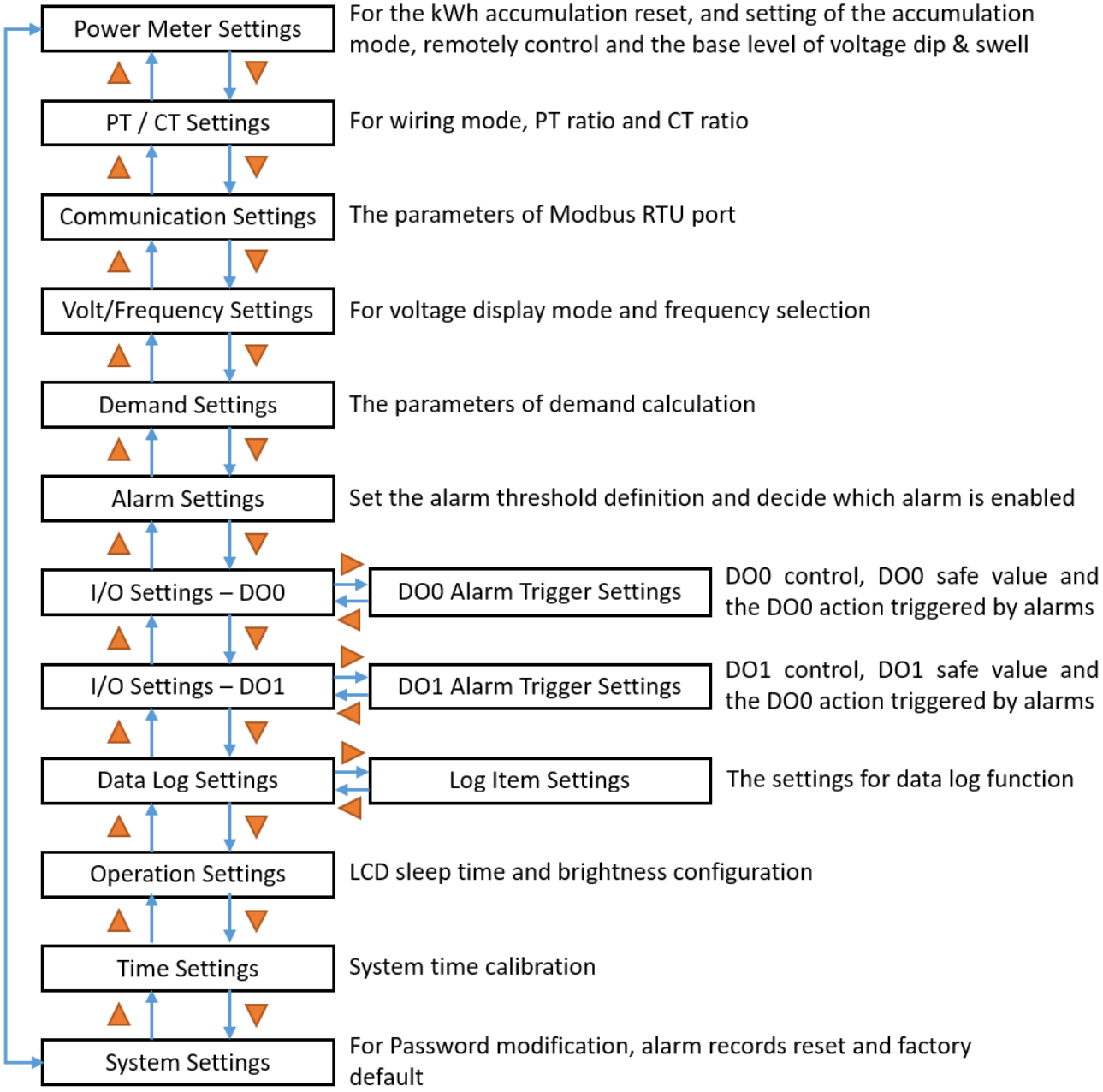
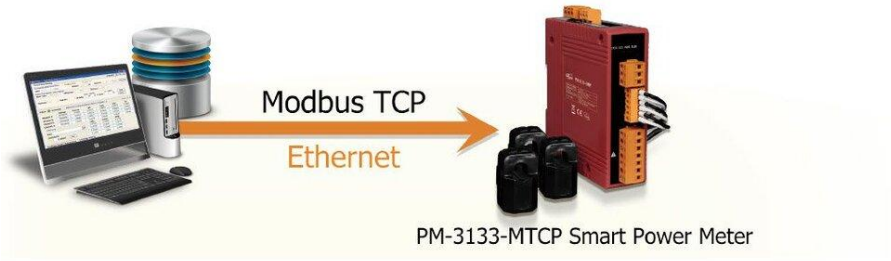
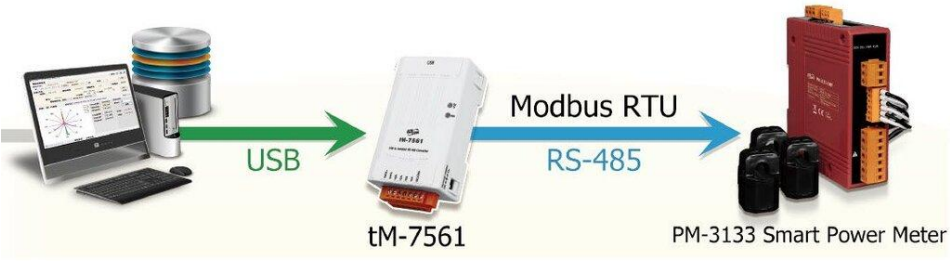


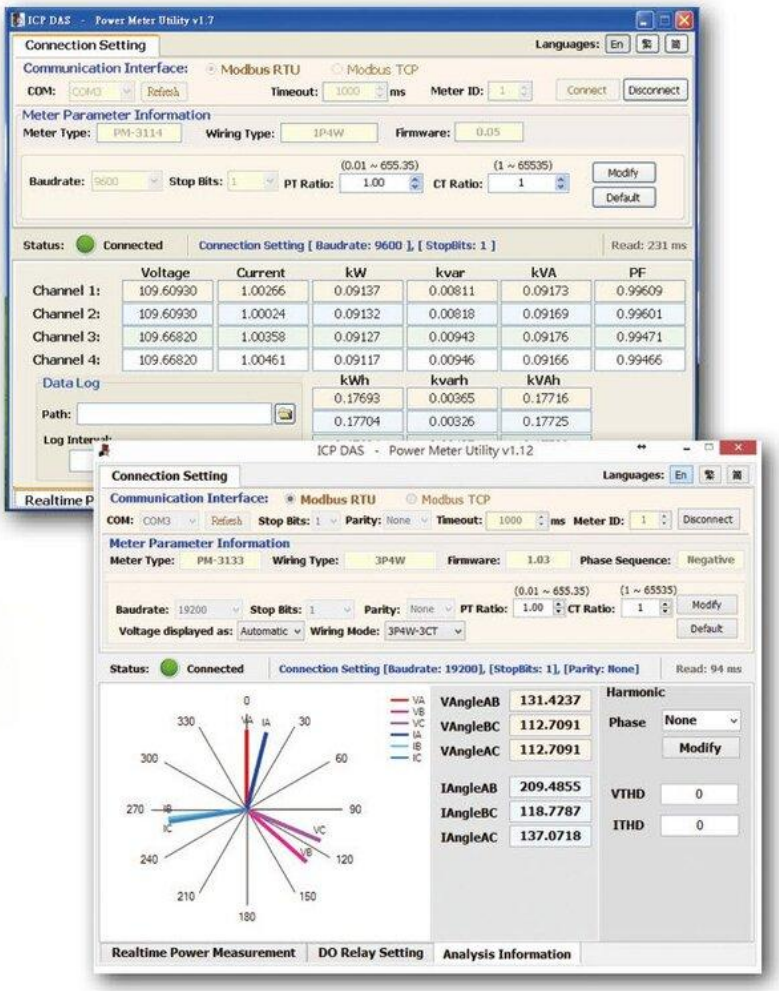
5 Power Meter Utility

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.



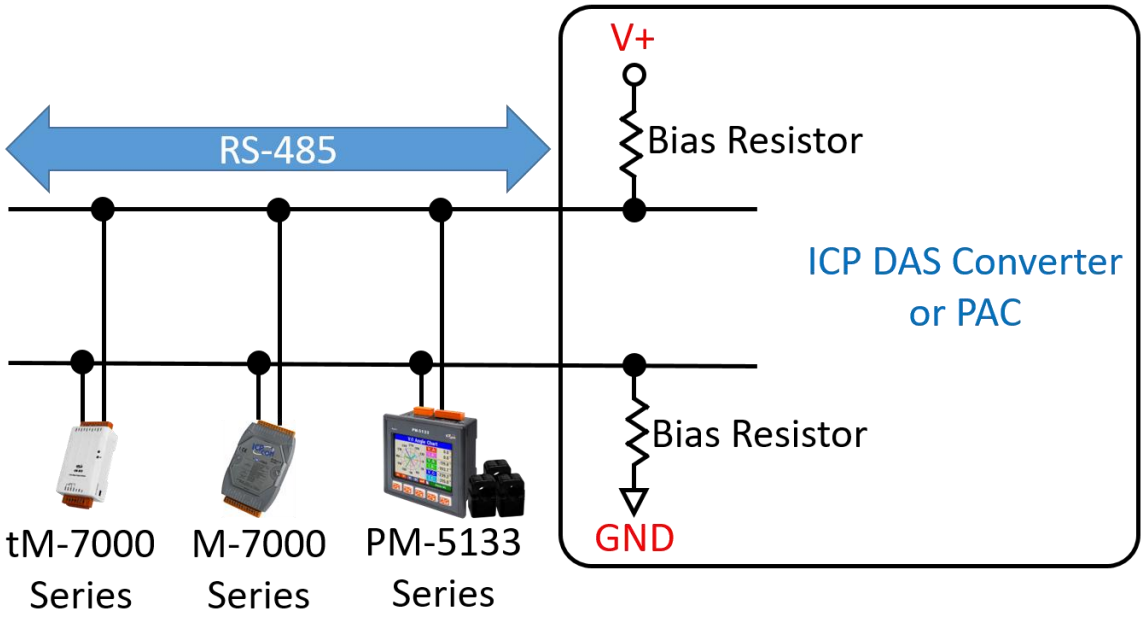




6 Troubleshooting

6.1 RS-485 Connection Issues

- If the PC cannot communicate with the meter via RS-485:
  - Add a **bias resistor** on the RS-485 network to stabilize the signal.
  - The RS-485 master must provide bias for the PM-5133 series.
  - If the master does not provide bias, install a **tM-SG4** or **SG-785** to supply it.
  - All ICP DAS controllers and converters include built-in bias.



6.2 Negative Power Readings

- If measured power consumption (kW) values are negative:
  1. Verify the connections on the current input terminals to ensure they follow the sequence **CT1-K, CT1-L, CT2-K, CT2-L, CT3-K,** and **CT3-L**, in the correct white-black pattern.
  2. Check the current flow direction (K → L) to confirm it matches the arrow direction on the clip-on CT.
  3. An incorrect wiring sequence for voltage or current inputs may result in phase angle calculation errors. This can cause the power meter to misinterpret the direction of power flow, leading to negative KW readings or abnormally low Power Factor (PF) values.