

PM-2133D Quick Start

1. Shipping Package

This shipping package contains the following items

1 x PM-2133D module



1 x Quick Start



CT x 3



Cable ties x 3



1.1. 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. The information furnished by ICP DAS is believed to be accurate and reliable. However, no responsibility is assumed by ICP DAS for its use, not for any infringements of patents or other rights of third parties resulting from its use.

1.2. Product Warranty & Customer Support

ICP DAS warrants all products free from defects in material and workmanship for a period of one year from the date of shipping. During the warranty period, we will, at our position, either repair or replace any product that proves to be defective. To report any defect, please contact : **+886-3- 597-3366** or service@icpdas.com.

Documentation & Utility:

<http://ftp.icpdas.com/pub/cd/powermeter/pm-2133d/>

1.2.1. Limitation of Warranty

This warranty does not apply to defects resulting from unauthorized modification, misuse, or use for reason other than electrical power monitoring. The supplied meter is not a user-serviceable product.

1.3. Installation

- Products come with external split type clip-on CT's. Disconnect the CT's or use other CT's is highly prohibited.
- Please read operation manual carefully before using.
- Please re-confirm the measure position.
- Reconfirm the RST (ABC) phase sequence of the power system.
- Meter auxiliary power for PM-2133D series is AC +85 ~ +264 VAC
(277 VAC available)

1.4. Voltage Input

1. PM-2133D series: Input Voltage up to 500V.

For any higher Input Voltage large than 500V, please add the PT (power transformer), and Change PT RATIO setup.

2. Confirm the RST (ABC) phase sequence.

1.5. Current Input



1. The external CT's are fragile, please handle with care.
2. The CT input of PM-2133D-xxxP series is in mV range.

Only the ex-factory attached CT's can be used. The other CT's, for example, from panel will damage the instrument due to its large current (around 5A or mA).

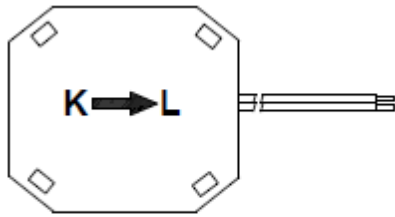
3. When more than one smart meter (PM-2133D series) are installed, please do not disconnect the CT with its original meter and mix use with each other. Since each set of smart meter (PM-2133D series) and its attached split type clip-on CT are calibrated set by set. The mix use may cause wrong measurements.
4. To install CT's correctly, please ensure the CT lines sequences is right before clip the CT's onto the power cable of the monitoring equipment. (Detail will be found in next section)

5. **When measuring the current, the secondary circuit of a CT should never be opened when a load is passing through its primary. Make sure you always open the CT clip to detach the CT before removing the terminal lines. Otherwise, it will cause severe injury.**
6. Please handle with extra care, especially when the operation space of CT's is limited.
7. The current direction must follow K-L marked on CT's.
8. Please select the right size CT's for different size of monitoring equipment cables:

power cable diameter $\lt; \Phi 10$ use 60A CT , $\Phi 10 \sim \Phi 16</math> use 100A CT , $\Phi 16 \sim \Phi 24</math> use 200A CT

, $\Phi 24 \sim \Phi 36</math> use 300A or 400A CT .$$$
9. The maximum current value cannot exceed the CT rating.

1.6. CT's installation steps



Bottom view

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



- Open the CT clip.



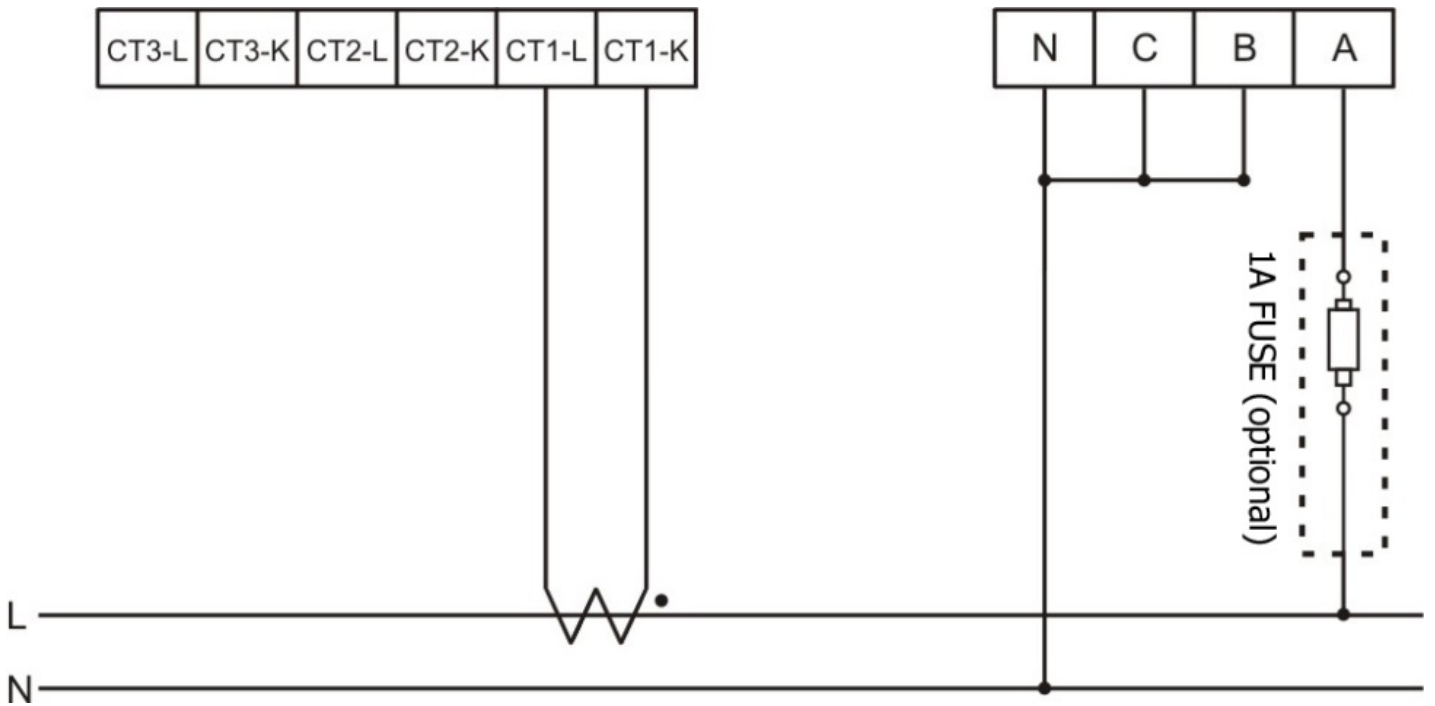
- Make sure the power current direction follow the “K→L” mark on the CT and then close the CT clip.



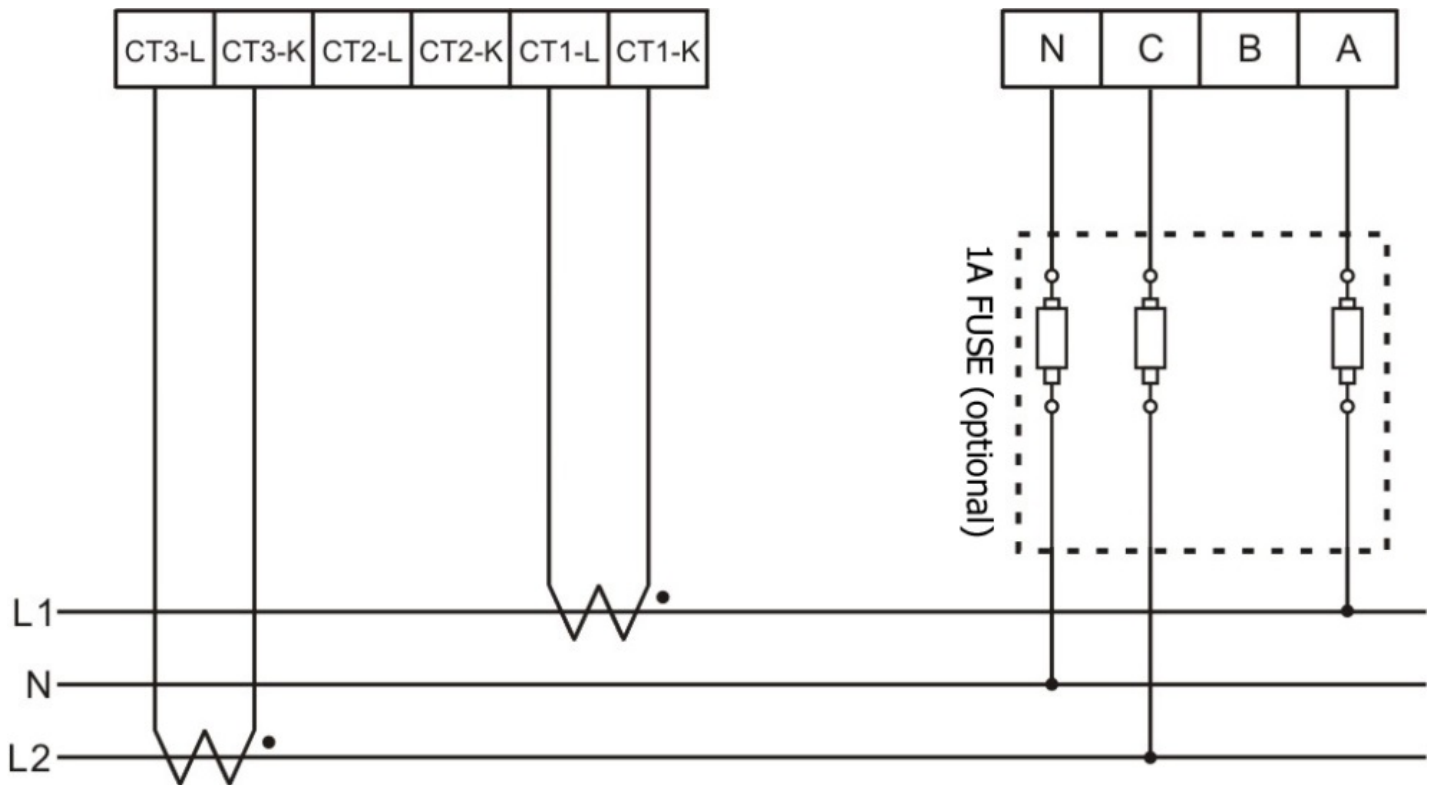
- Installation steps finished.

1.7. Wiring

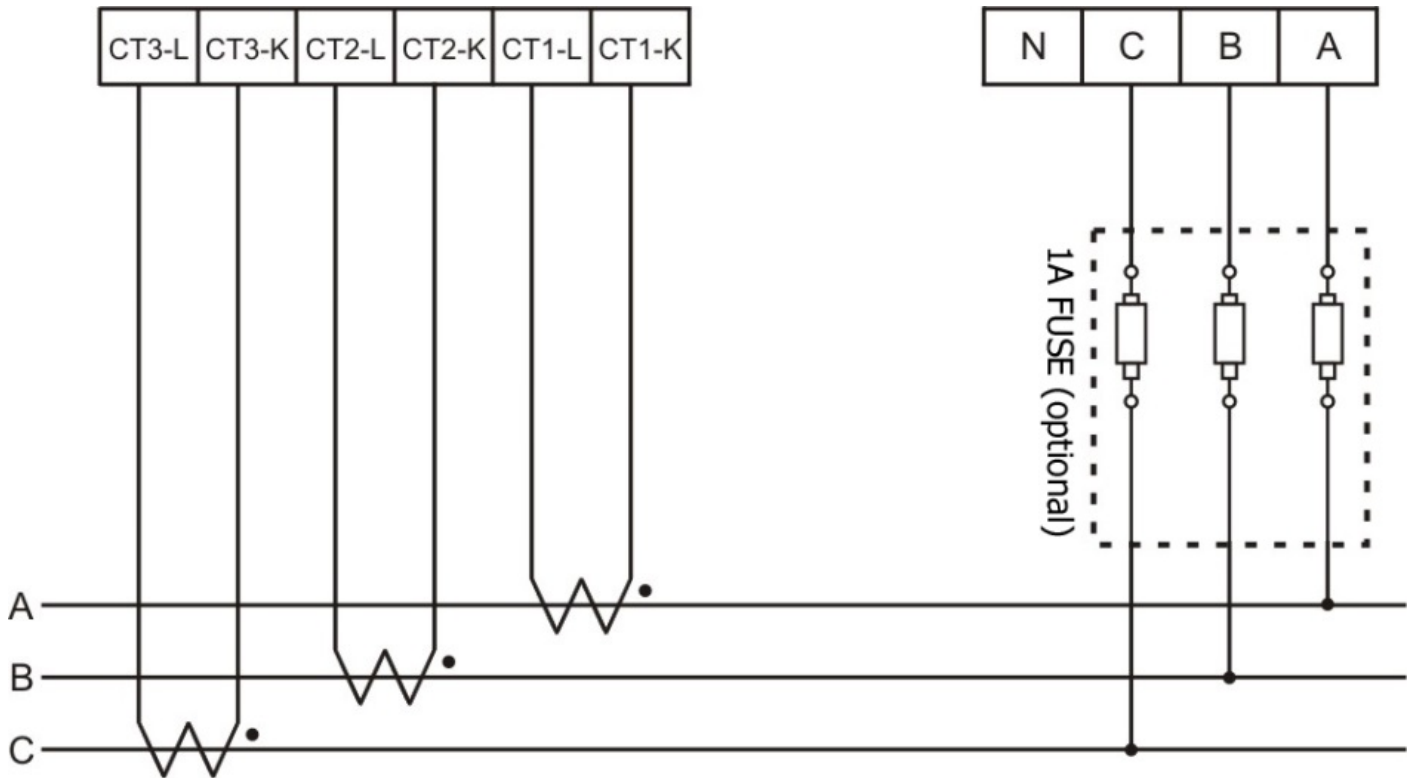
- 1P2W-1CT



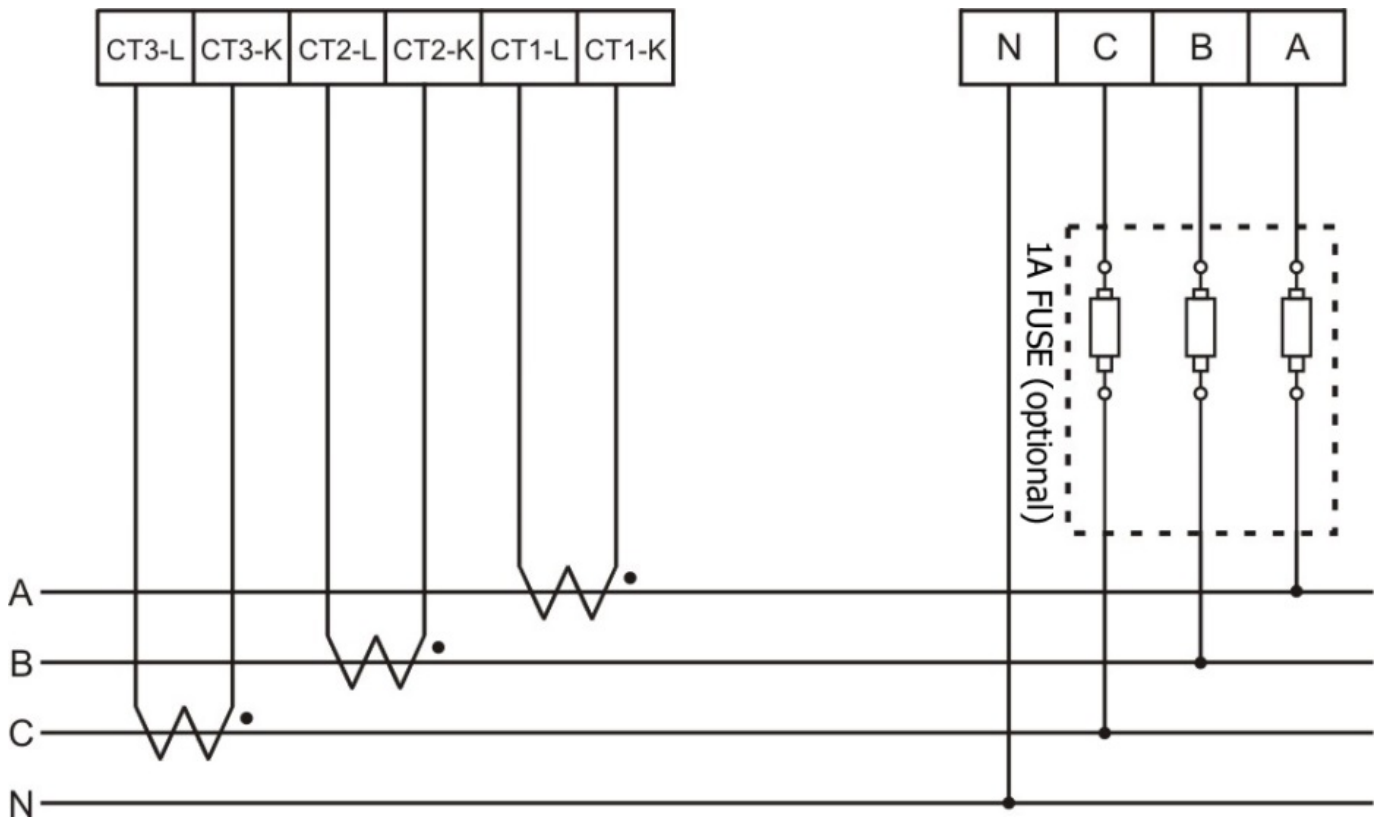
- 1P3W-2CT



● 3P3W-3CT



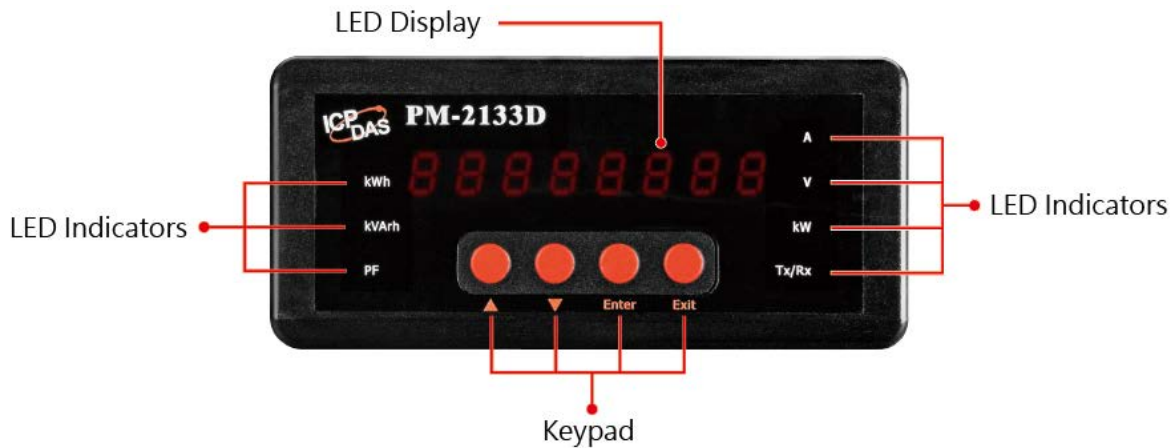
● 3P4W-3CT



2. Keypad, LED Indicator & Display

2.1 Function of LED Display, Indicator and Keypad

PM-2133D has a built-in 8-Digit LED Display to display the power data measured by the meters. The 7 LED Indicators are used to indicate the type of the power data which are currently shown on the 8-Digit LED Display, and the status of RS-485 communication (Tx/Rx).



PM-2133D also has a built-in four buttons of keypad which is used to adjust the power data which is currently shown on the LED Display or the parameters setting of PM-2133D.

| Keypad | Function |
|--------|---|
| ▲ | Move to next item be shown or decrease the settings of parameters |
| ▼ | Move to previous item be shown or increase the settings of parameters |
| Enter | Change LED Display to "Setup Mode" or enable the modification of parameters |
| Exit | Change LED Display to "Normal Mode" or disable the modification of parameters |

2.2 Operation of LED Display, Indicator and Keypad

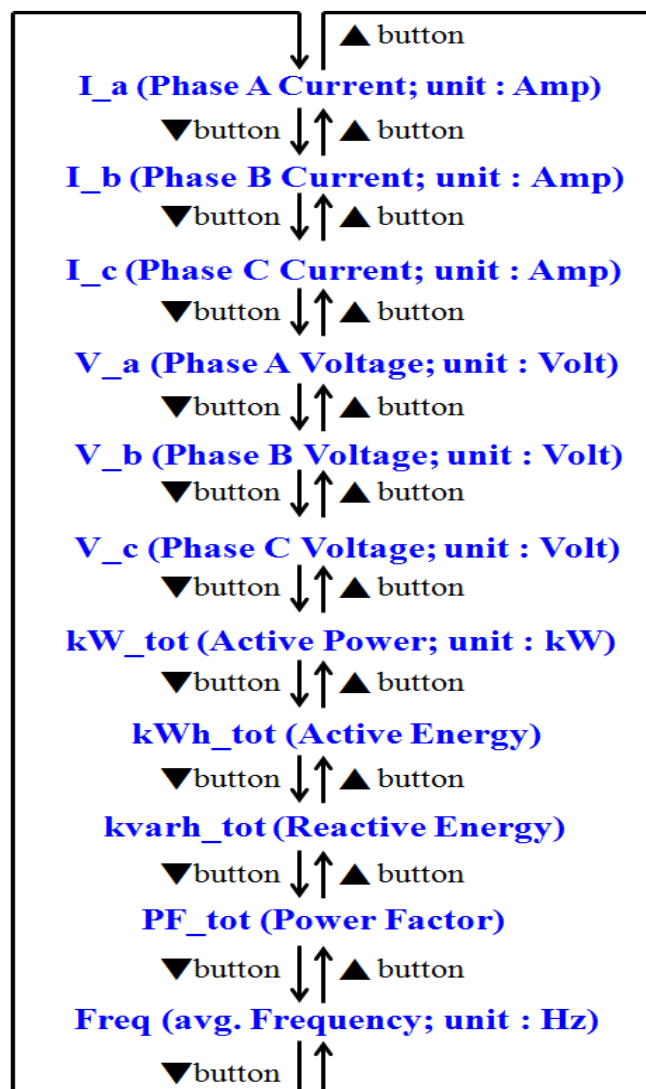
With the built-in LED Display, Indicator and Keypad, PM-2133D can display the real-time power data it measures. User can also change the setting of the power meter. The following sections describe the features provided.

2.2.1 Normal Mode

After power up PM-2133D, the default power data shown is power data of I_a (Phase A Current). User can press the "▲" button and "▼" button of the Keypad to select the desired power data to be displayed on PM-2133D. The corresponding LED Indicator of the power data selected will also be in "ON" status - lights up in red.

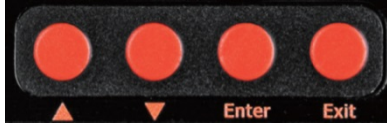


The power data provided by PM-2133D will be displayed circularly in the sequence as below:



2.2.2 Setup Mode

User can press the buttons of Keypad to enter the Setup Mode to adjust the parameters setting of PM-2133D. The steps are as below:



- i. Press the "Enter" button to enter the Setup mode, all the LED Indicators of PMD-2133D will be in "ON" status, and the LED Display panel will display

8.8.8.8.8.8.8.

- ii. Press the "▲" button and "▼" button of the Keypad to select the parameter of PM-2133D to be modified. The settings of parameters provided by PM-2133D will be shown in sequence as below:

- **8.8.8.8.8.8.8.** : LED Segment check (read only, cannot be modified)
- **uEr 0209** : Firmware version (read only, cannot be modified).
- **Ad 01** : Modbus Address setting.
 - Press the "Enter" button, the current address setting will blink.
 - Press the "▲" button and "▼" button to adjust the setting of address. The range is from 1 to 64.
- **br 9600** : Modbus Baudrate setting.
 - Press the "Enter" button, the current Baudrate setting will blink.
 - Press the "▲" button and "▼" button to adjust the Baudrate setting. There are 4 options: 9600(**9600**), 19200(**19200**), 38400(**38400**) and 115200(**115200**) for selection.
- **dF 801**: Modbus Data Format setting.
 - Press the "Enter" button, the current Data Format setting will blink.
 - Press the "▲" button and "▼" button to adjust the Data Format setting. There are 6 options: 8N1(**8n1**; 8 data bits, None Parity, 1 stop bits), 8O1 (**8o1**; 8 data bits, Odd Parity, 1 stop bits;), 8E1(**8E1**; 8 data bits, Even Parity, 1 stop bits), 8N2(**8n2**; 8 data bits, None Parity, 2 stop bits), 8O2 (**8o2**; 8 data bits, Odd Parity, 2 stop bits;) and 8E2(**8E2**; 8 data bits, Even Parity, 2 stop bits) for selection.

- Pt 012.33 : PT ratio setting. The range is from 0.01 to 655.35.
 - Press the "Enter" button, the hundreds digit of the PT ratio will blink. Press the "▲" button and "▼" button to adjust the setting of hundreds digit.
 - Then press the "Enter" button, the tens digit of the PT ratio will blink. Press the "▲" button and "▼" button to adjust the setting of tens digit.
 - Press the "Enter" button, the units digit of the PT ratio will blink. Press the "▲" button and "▼" button to adjust the setting of units digit.
 - Press the "Enter" button, the tenths digit of the PT ratio will blink. Press the "▲" button and "▼" button to adjust the setting of tenths digit.
 - Press the "Enter" button, the hundredths digit of the PT ratio will blink. Press the "▲" button and "▼" button to adjust the setting of hundredths digit.

- Ct 00029 : CT ratio setting. The range is from 1 to 65535.
 - Press the "Enter" button, the ten thousands digit of the CT ratio will blink. Press the "▲" button and "▼" button to adjust the setting of ten thousands digit.
 - Press the "Enter" button, the thousands digit of the CT ratio will blink. Press the "▲" button and "▼" button to adjust the setting of thousands digit.
 - Press the "Enter" button, the hundreds digit of the CT ratio will blink. Press the "▲" button and "▼" button to adjust the setting of hundreds digit.
 - Press the "Enter" button, the tens digit of the CT ratio will blink. Press the "▲" button and "▼" button to adjust the setting of tens digit.
 - Press the "Enter" button, the units digit of the CT ratio will blink. Press the "▲" button and "▼" button to adjust the setting of units digit.

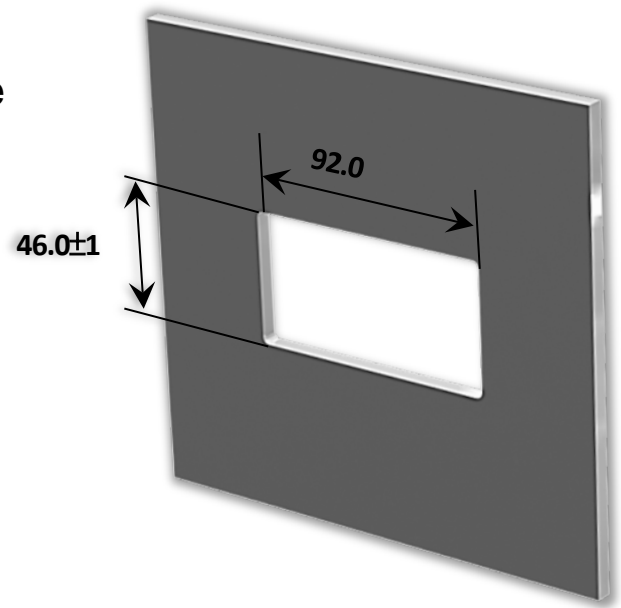
- W 1P24 : Wiring mode setting.
 - Press the "Enter" button, the current Wiring mode setting will blink.
 - Press the "▲" button and "▼" button to adjust the Wiring mode setting. There are 5 options: 1P2W(1P24), 1P3W(1P34), 3P3W2CT (3P342C), 3P3W3CT(3P343C) and 3P4W3CT(3P443C) for selection.

- V AUTO : Display Voltage setting.
 - Press the "Enter" button, the current Display Voltage setting will blink.
 - Press the "▲" button and "▼" button to adjust the Display Voltage setting. There are 3 options: Automatic(AUTO), "Show as VIn" (EO VLn) and "Show as VII" (EO VLL) for selection. Please refer to PM-2133D User's Manual before change the setting of Display Voltage.

- iii. After completing the setting, press the "Enter" button to save the new setting.
- iv. Repeat Step ii~iii to complete all parameter settings.
- v. After all parameter settings are completed, press the "Exit" button to return the Normal Mode.

3 Mounting the PM-2133D

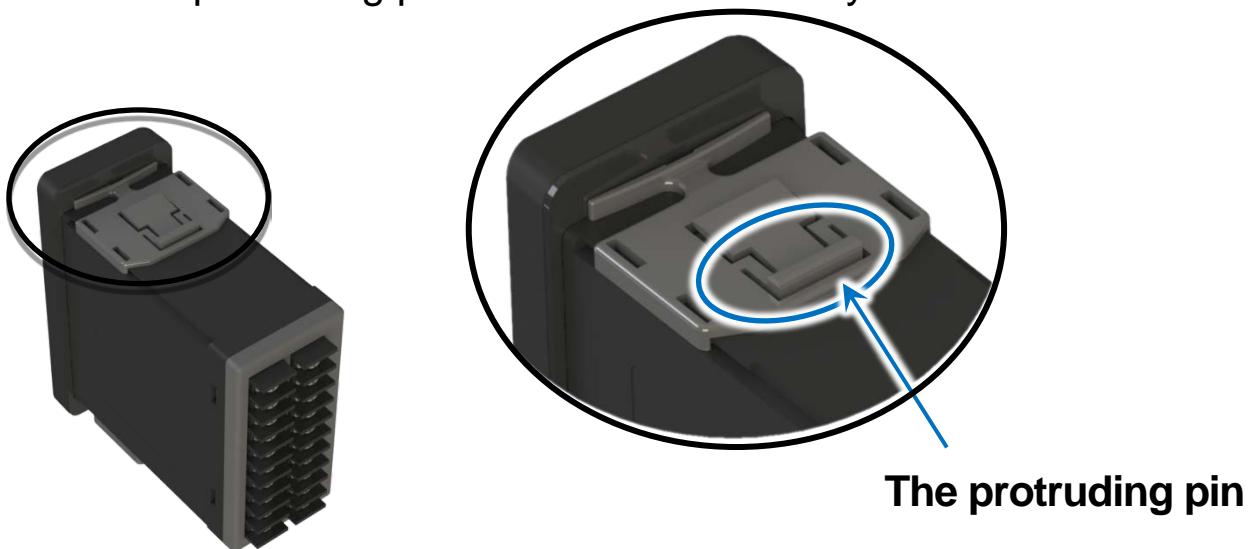
1. Prepare a panel and cut a hole to the specified size (unit: mm).



Panel thickness: 1 to 5 mm

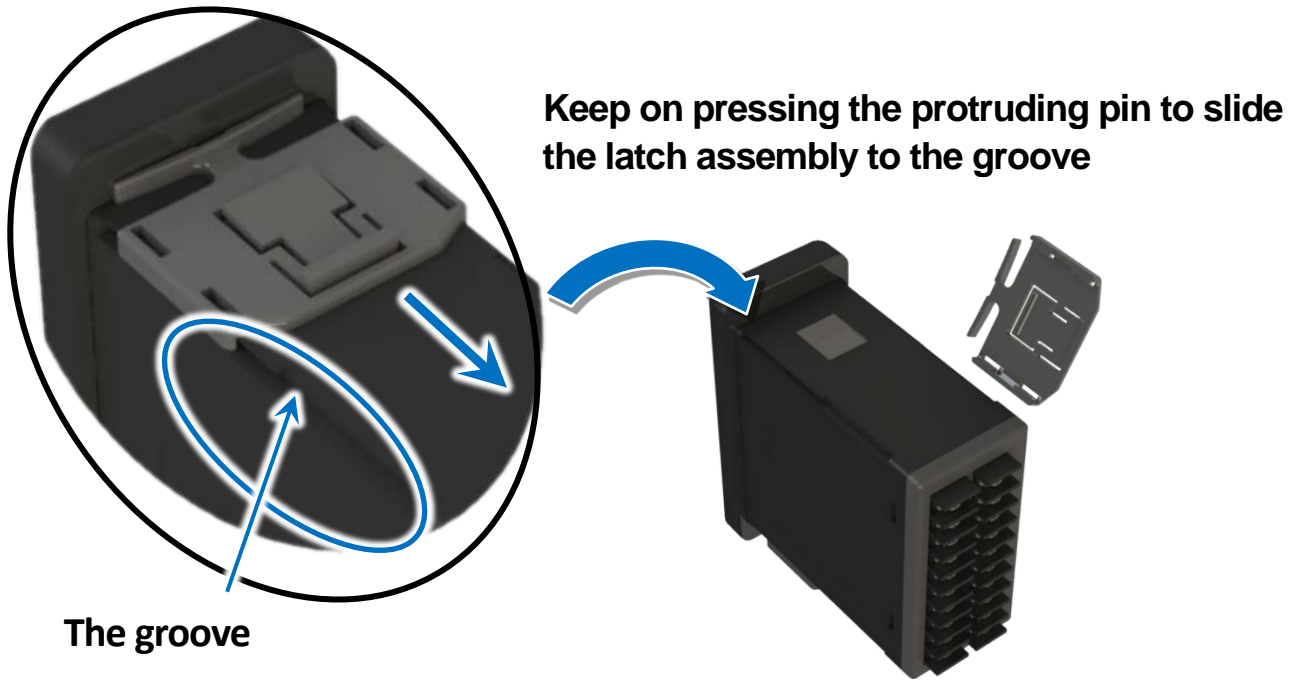
2. Remove the latch assembly.

- i. Press the protruding pin of the latch assembly.



Panel thickness up to 5mm

ii. Slide the latch assembly to the groove, and then remove the latch assembly.



3. Attach the PM-2133D to the cut-out hole.



4. Attach the latch assembly, and then slide the latch assembly toward the panel.

