

# PM-3033 series Quick Start

## 1. Shipping Package

This shipping package contains the following items

1 x PM-3033 module



1 x Quick Start  
(This Document)



Screw Driver x 1



CD x 1



## 2. PM-3033 series introduction

ICP DAS brings the most powerful, cost-effective, advanced Smart Power Meters PM-3033 series that gives you access to real-time electric usage for three-phase power measurement. With its high accuracy (<0.5%, PF=1 ), the PM-3033 series can be applied to both low voltage primary side and/or medium/high voltage secondary side and enables the users to obtain reliable and accurate energy consumption readings from the monitored equipments in real time under operation.

Direct input from “secondary side 1A/5A” type CTs. Dedicated CTs are no longer needed, which lowers the cost of implementation.

It operates over a wide input voltages range 10 ~ 500 VAC which allows worldwide compatibility. It also supports Modbus RTU, Modbus TCP or CANopen protocols for easy integration.

### 2.1. 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.

### 2.2. 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](mailto:service@icpdas.com).

#### 2.2.1. 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.

### 3. Installation

Please use the soft dry clothes to clean the instrument.

Please do not use any chemical or detergent or volatile solvents to clean the instrument, in order to avoid any possibility of the cover damage.

- Dimension: 127mm (length) × 33mm (wide) × 100mm (high)
- Please read this operation manual carefully before using.
- Please re-confirm the measure position.
- Reconfirm the RST (ABC) phase sequence of the power system.
- PM-3033 series can be installed as rail mounting mode or embedded, no need to drill a hole or screw to fix it (rail mounting width can up to the length of 35 mm).
- Meter auxiliary power for PM-3033 series is DC +12V ~+48V.

#### 3.1. Voltage Input

1. PM-3033 series: Input Voltage up to 500V.

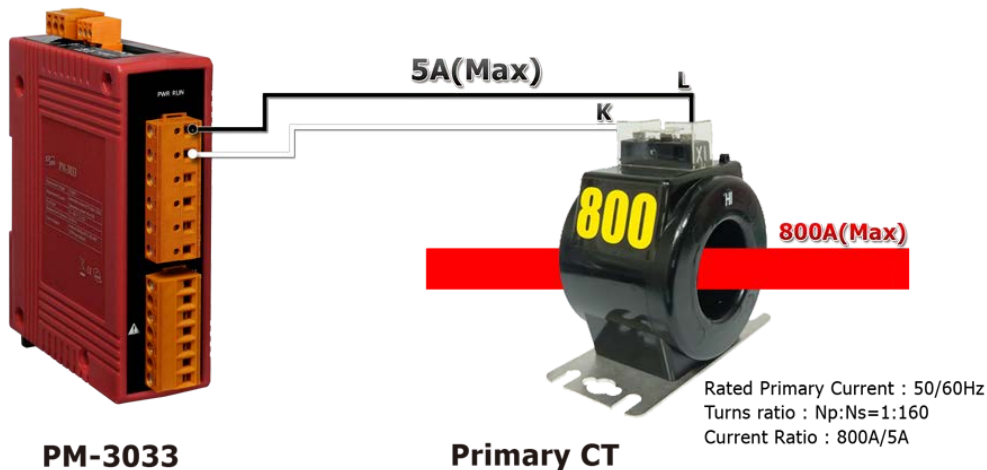
For any higher Input Voltage large than 500V, please add the PT (power transformer), and Change PT RATIO setup.

2. Confirm the RST (ABC) phase sequence.

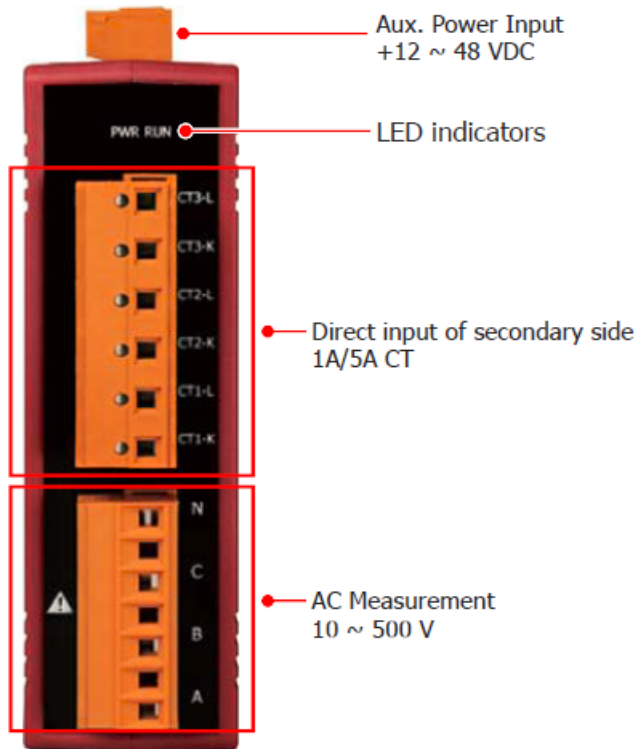
#### 3.2. Current Input

1. CT with secondary side output 1A/5A can be connected directly.
2. The current direction must follow K-L marked on CT's.

#### 800A/5A Primary CT Installation and Wiring



### 3.3. Connection



Please firstly check the current input terminal.

Make sure the arrow direction sign on Primary CT's follows current flow direction (K→L) .

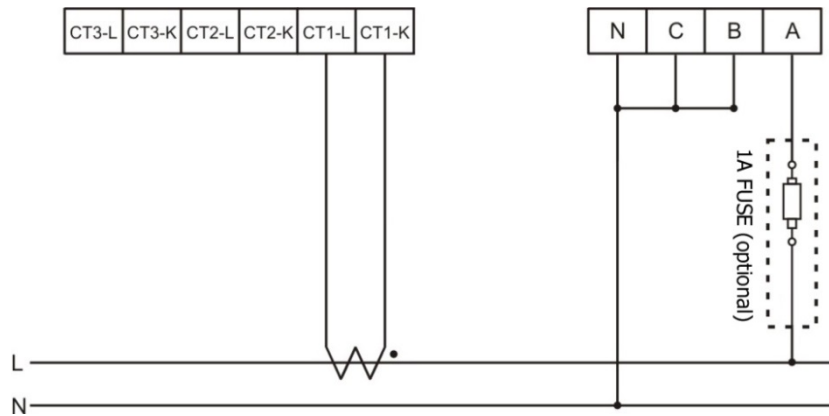
**Note: it must be in the same direction.**

Connect the voltage input terminal N C B A. for PM-3033 series, in the three phase order as follows on N C B A.

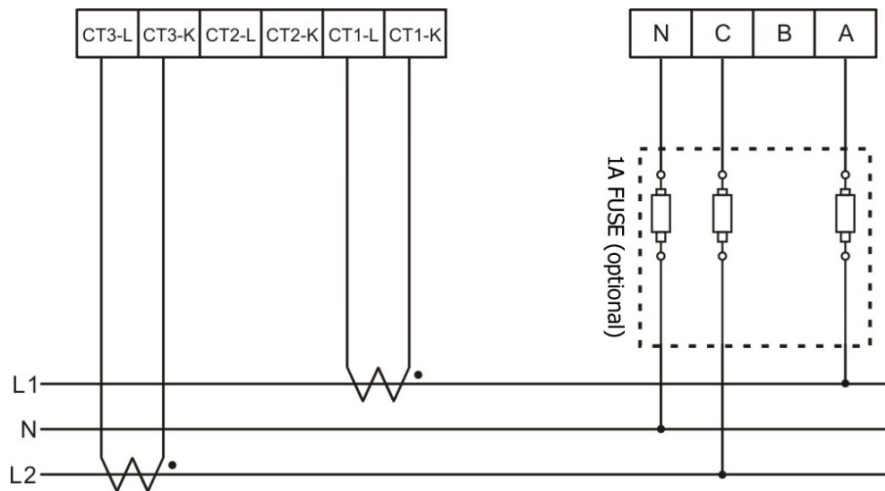
**Attention please!! For 3P3W-2CT, connect in N C A phase sequence, do not connect phase B (Check the diagram).**

## Wiring

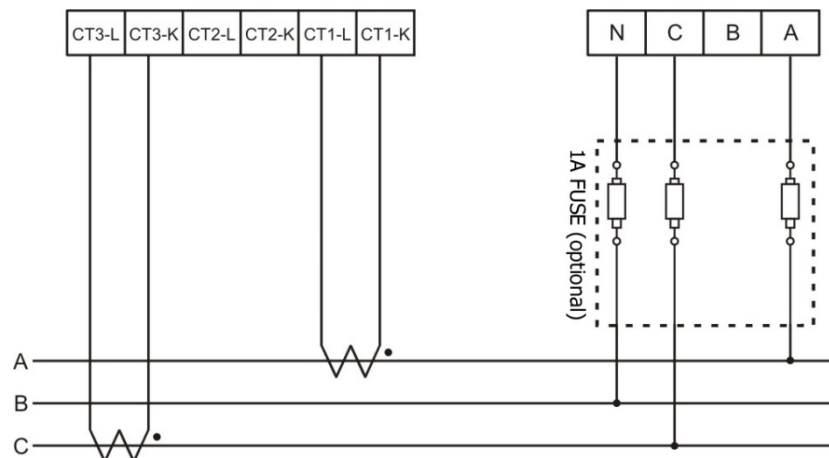
- 1P2W-1CT (PM-3033 series)



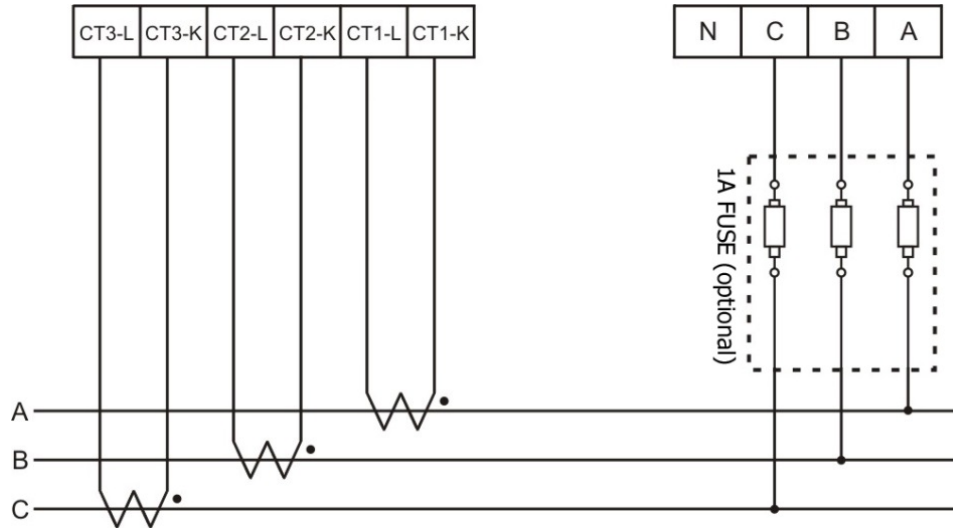
- 1P3W-2CT (PM-3033 series)



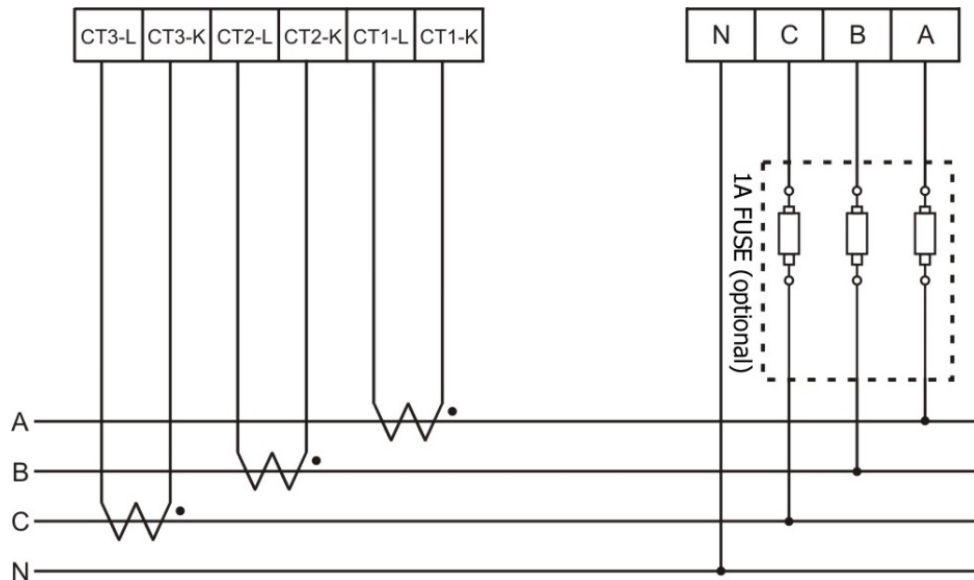
- 3P3W-2CT (PM-3033 series)



- 3P3W-3CT (PM-3033 series)



- 3P4W-3CT (PM-3033 series)



- **LED Indicator**

The PM-3033 series has 2 LED to indicate the unit power status, communication, and power data calculation.

- RUN: Green, light up after communication ready. LED will flash when the unit is processing communication.
- PWR: Red, Power on LED always on.

### 3. Communication

#### RS-485 & CAN setting

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

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



Modbus Address ( Node 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
26	ON	OFF	OFF	ON	ON	OFF
27	OFF	ON	OFF	ON	ON	OFF
28	ON	ON	OFF	ON	ON	OFF
29	OFF	OFF	ON	ON	ON	OFF
30	ON	OFF	ON	ON	ON	OFF
31	OFF	ON	ON	ON	ON	OFF
32	ON	ON	ON	ON	ON	OFF
33	OFF	OFF	OFF	OFF	OFF	ON
34	ON	OFF	OFF	OFF	OFF	ON
35	OFF	ON	OFF	OFF	OFF	ON
36	ON	ON	OFF	OFF	OFF	ON
37	OFF	OFF	ON	OFF	OFF	ON
38	ON	OFF	ON	OFF	OFF	ON
39	OFF	ON	ON	OFF	OFF	ON
40	ON	ON	ON	OFF	OFF	ON
41	OFF	OFF	OFF	ON	OFF	ON
42	ON	OFF	OFF	ON	OFF	ON
43	OFF	ON	OFF	ON	OFF	ON
44	ON	ON	OFF	ON	OFF	ON
45	OFF	OFF	ON	ON	OFF	ON
46	ON	OFF	ON	ON	OFF	ON
47	OFF	ON	ON	ON	OFF	ON
48	ON	ON	ON	ON	OFF	ON
49	OFF	OFF	OFF	OFF	ON	ON
50	ON	OFF	OFF	OFF	ON	ON
51	OFF	ON	OFF	OFF	ON	ON

52	ON	ON	OFF	OFF	ON	ON
53	OFF	OFF	ON	OFF	ON	ON
54	ON	OFF	ON	OFF	ON	ON
55	OFF	ON	ON	OFF	ON	ON
56	ON	ON	ON	OFF	ON	ON
57	OFF	OFF	OFF	ON	ON	ON
58	ON	OFF	OFF	ON	ON	ON
59	OFF	ON	OFF	ON	ON	ON
60	ON	ON	OFF	ON	ON	ON
61	OFF	OFF	ON	ON	ON	ON
62	ON	OFF	ON	ON	ON	ON
63	OFF	ON	ON	ON	ON	ON
64	ON	ON	ON	ON	ON	ON

- **SW7 – SW8 setting**

PM-3033 series : 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



PM-3033 series : Select the different wiring mode

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

Models	PM-3033/ PM-3033-CPS		PM-3033-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



**Add the Bias Resistor on RS-485 Network for stable signal**

The RS-485 master is required to provide the bias for PM-31xx series. Otherwise, the tM-SG4 or SG-785 should be added to provide the bias. All ICP DAS controllers and converters provide the bias.

**Ethernet setting**

- Ethernet default settings:

IP Address	192.168.255.1
Subnet mask	255.255.0.0
Gateway	192.168.0.1
Port	502

# Specifications

Model		PM-3033	PM-3033-MTCP	PM-3033-CPS
<b>AC Power Measurement</b>				
Wiring	1P2W-1CT, 1P3W-2CT, 3P3W-2CT, 3P3W-3CT and 3P4W-3CT			
Measurement Voltage	10 ~ 500 V (CAT III)			
Measurement Current	Secondary current: 1A or 5A			
Measurement Frequency	50-60 Hz			
W Accuracy	Better than 0.5% (PF:1)			
Power Parameter Measurement	True RMS voltage (Vrms), True RMS current (Irms), Active Power (kW), Active Energy (kWh), Apparent Power (kVA), Apparent Energy (kVAh), Reactive Power (kVAR), Reactive Energy (kVARh), Power Factor (PF), Frequency(Hz)			
Data Update Rate	1 Second			
<b>Communication</b>				
RS-485	Protocol	Modbus-RTU	-	
	Baud rate	9600,19200 (default), 38400, 115200; DIP Switch Selectable	-	
	Data format	N,8,1 (default); N,8,2; E,8,1; E,8,2; O,8,1; O,8,2	-	
	Isolation	3000 VDC	-	
	Bias Resistor	No ( <b>Usually supplied by the RS-485 Master. Alternatively, add a tM-SG4 or SG-785</b> )	-	
Ethernet	Protocol	-	Modbus TCP	
	PoE	-	Yes, IEEE 802.3af	
CANopen	Protocol			CANopen
	Baud rate			125 k (default), 250 k, 500 k, 1 M;
<b>Aux Power</b>				
Input Range	+12 ~ 48 VDC	+12 ~ 48 VDC or PoE		+12 ~ 48 VDC
		PoE Pin Assignments: + (Pin 1, 2), V- (Pin 3, 6)		
Power Consumption	2 W			
Dimensions (W x L x H)	127 mm x 100 mm x 33 mm			
<b>Environment</b>				
Operating Temperature	-20 ~ +70 °C			
Storage Temperature	-25 ~ +80 °C			