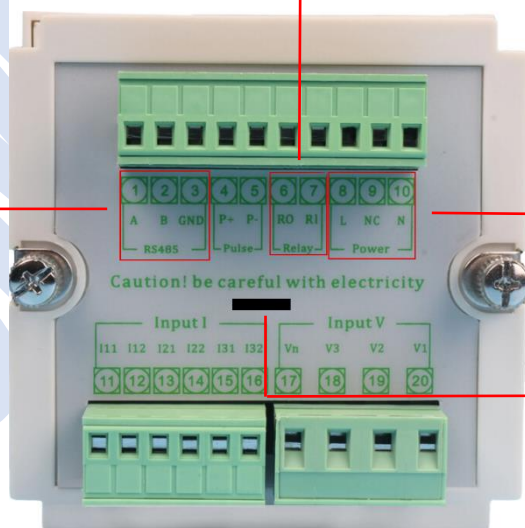
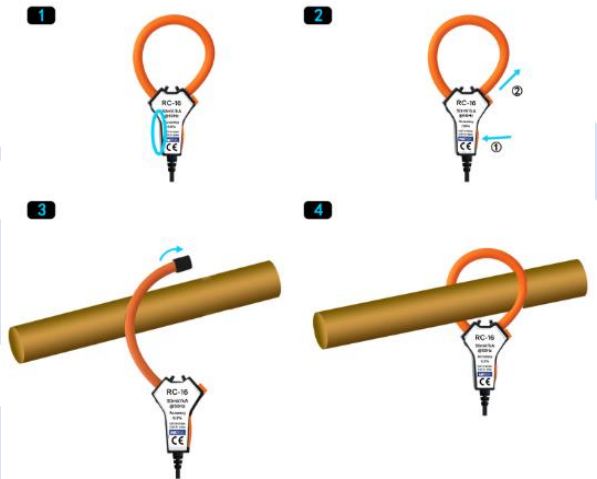


**Power Meter Multi - Function Model PM-96**



มีการเชื่อมต่อการสื่อสารแบบ RS-485

มี Output แบบ Relay

Power supply ใช้ได้ทั้งแบบ AC/DC 85-265 V

มีตัวเก็บข้อมูล แบบ Micro SD card

**Feature**

<b>Specification</b>	
Model	PM - 96
Product component type	Multifunction Power Meter
Poles description	3PH4W 3PH3W 1PH2W (L-N); 1PH2W(L-L);1PH3W(L-L-N)
Device application	Power Analysis Energy Meter
Input type	External CT (mV only) And External Rogowski coil
Display	3.5-inch TFT screen display (colour) 320×480
Sampling rate	8k samples per second
Mounting mode	Panel mounting
Harmonic	Panel mounting
Support Extra sensor	333mV CT Rogowski coil
Programmable digital output	Relay 1 CH.
I/O function	1*digital output
Power	85~265V AC/DC
Storage	<b>**Free**</b> 4GB SD card (Max 32GB) (save intervals 1mins default)
<b>Mechanical characteristics</b>	
Weight	350g
Dimension	L*W*D:96*96*99mm

## Display

Maximum value measured		
Parameter	Range	Resolution
Voltage	0.001V 999.9V 999.9kV 999.9MV	0.1
Current	999.9A 999.9kA	0.1
Power	999.9kW 999.9MW	0.1
Power factor	0.999	0.001
THD	99.9%	0.1%
Energy	999.9WH 999.9.KWH 999.9MWH 999.9GWH	0.1KWH , 0.01MKWH
Instantaneous rms Values		
Voltage	U, UTH2, UTH3, UTH4(Per Phase,AVG)	
Current	I,ITHD2, ITHD3, ITHD4(Per Phase,AVG)	
Power	P,FQ,S,PF (Per Phase,SUM)	
Energy (Wh)	EP,EFQ,ES,Freq (Per Phase,SUM) over 999.9MWh, value reset	
UTHD(%)	UTHD,THD2,THD3,THD4 (Per Phase,AVG)	
ITHD(%)	ITHD,THD2,THD3,THD4 (Per Phase,AVG)	
DPF	DPFa,DPFb,DPFc,AVG	

<b>Update rate</b>	
Data acquisition rate	400ms
Display update rate	0.5s
<b>Calibration</b>	
Current	Per phase,all
Voltage	Per phase,all
Power factor	Per phase,all
Energy	Reset to “0” EP,EQ,ES all phase
<b>Pulse Output</b>	
Pulse rate changeable by rated current	Rated current :100A/500A/1000A/5000A IMP/KWH :300/60/30/6

#### MODBUS RS485

<b>Communication</b>	
Transmission mode	RS485 port, Half duplex
RS485 link	3 wires
Communication protocol	MODBUS RTU
<b>Settings</b>	
Communication address	1 to 247 (default 1)
Baud rate (communication speed)	1200 to 57600 baud (default 9600)
Parity	Even(default), Old, None
Data bit	8
Stop bit	1

### Certificate

<b>Environmental conditions</b>	
Operating temperature	-25 °C to +55°C
Storage temperature	-40 °C to +85 °C
Humidity rating	5 to 95% RH at 50 °C (non-condensing)
Pollution degree	2
Overvoltage category	III, for distribution systems up to 277/480VAC
Dielectric withstand	As per IEC61010-1, Doubled insulated front panel display
Altitude	3000m Max
IP degree of protection	IP20 conforming to IEC 60629
Colour	White
Contractual warranty	12months (1 Year)
<b>EMC</b>	
Electrostatic discharge	Level IV(IEC61000-4-2)
Immunity to radiated fields	Level III (IEC61000-4-3)
Immunity to fast transients	Level IV (IEC61000-4-4)
Immunity to surge	Level IV (IEC61000-4-5)
Conducted immunity	Level III (IEC61000-4-6)
Immunity to power frequency magnetic fields	0.5mT (IEC61000-4-8)
Conducted and radiated emissions	Class B (EN 55022 )
<b>Standard compliance</b>	
EN 62052-11,EN61557-12,EN 62053-21,EN 62053-22,EN 62053-23,EN 50470-1,EN 50470-3, EN 61010-1, EN 61010-2,EN 61010-031	

## Specification

Measurement Accuracy		
Current	0.5% from 1% to 120% (don't ensure accuracy when)	
Rated current	500A (0.5% from 10A to 600A) 3000A (0.5% from 30A to 3600A) 10kA (0.5% from 100A to 12kA)	
(Rogowski coil) Clamp Sensors (cable 2 m.)	100A	RC-100
	300A	RC-300
	600A	RC-600
	1,000A	RC-1K
	3,000A	RC-3K
	6,000A	RC-6K
Voltage	0.2% from 80V to 400V (or 100V to 500V)	
Power factor	±0.005 from 10% to 120%	
Active/Apparent Power	IEC62053-22 Class 0.5	
Reactive power	IEC62053-21 Class 2	
Frequency	0.01% from 45 to 65Hz	
Active energy	IEC62053-22 Class 0.5s	
Reactive energy	IEC62053-21 Class 2	
Measurement Arrange		
Measured voltage	80V to 400V AC (or 100V to 500V)	
Frequency range	50/60Hz	

<b>Input-current characteristics</b>		
Primary current range (Clamp sensors)	100A	0.5A to 120A
	300A	0.5A to 360A
	600A	0.5A to 720A
	1,000A	1A to 1200A
	3,000A	3A to 3600A
	6,000A	6A to 7200A
Measurement input range	0.5mV-333mV	
Permissible overload	600mV for 10s/hours	
<b>Control Power</b>		
AC/DC	85 to 265V AC/DC, 3.5W	
Digital output	1×digital output (2 ports) from 1pcs relay, rated 24V/800mA, 75mΩ max, 2.5kVrms insulation (controlled by Modbus) Maximum Switching Power : 0.5A, 125VAC 1A, 30VDC	
<b>Wire diameter for terminals</b>		
Connections-terminals	Screw terminals 2.5mm <sup>2</sup> , interval 5.08 mm <sup>2</sup>	
<b>Alarm</b>		
Setting	U and I Each phase, AVG	
Output form	Relay	

### Data Record

The power meter records data to SD card, the following table lists data record of the power meter.

<b>Record</b>	
Record interval	1s to 9999s (166.65 min) (default 1 min)
Record format	Csv (เปิดในโปรแกรม excel)
Record capacity	Micro SD card 4GB (default)
	Store about 1K Bytes data each time
	record 8 years (1min & 4GB)
Record data	Date&time, Voltage(V), UTHD(%), Current(A), ITHD (%), ITHD3(%), ITHD5(%), ITHD7(%), ITHD11(%), ITHD13(%), ITHD3(A), ITHD5(A), ITHD7(A), ITHD11(A), ITHD13(A) Frequency(Hz), PF(power factor), Active Power(W), Reactive Power(Var), Apparent Power(Va), Active Energy(Wh), Reactive Energy(Varh), Apparent Energy(Vah) Current Demand(A), Current Peak Demand(A)&Date Total Active Power Deamnd(W) Total Active Power Peak Deamnd(W)&Date Total Reactive Power Deamnd(W) Total Reactive Power Peak Deamnd(W)&Date Total Apparent Power Deamnd(W) Total Apparent Power Peak Deamnd(W)&Date

### Other Characteristics

The following table lists other characteristics of the power meter:

<b>Characteristics</b>	<b>Description</b>
<b>Reset</b>	
Minimum and maximum values	-
Peak demand values	-
Current demand calculation method	1 to 60 minutes
Power demand calculation method	1 to 60 minutes



**Port definition**

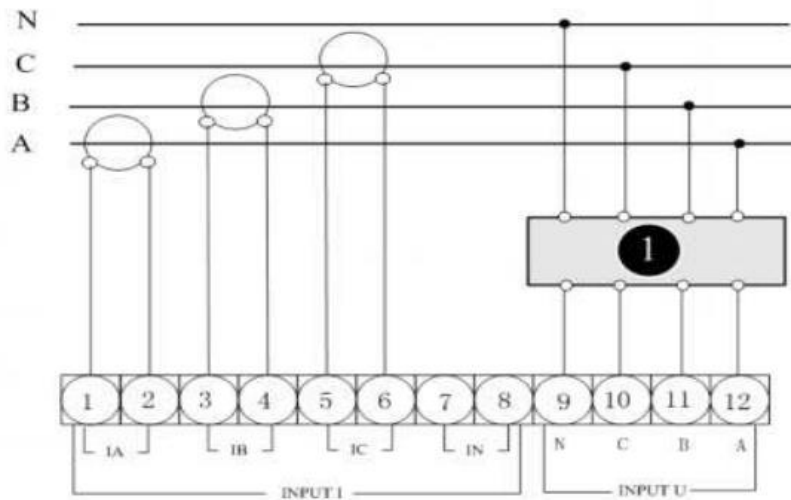
Port number	Port name	Port function	Remarks
1	A	RS485 A	RS485 communication
2	B	RS485 B	
3	GND	RS 485 GND	
4	P+	Pulse output +	Pulse output
5	P-	Pulse output -	
6	RO	Relay output	Relay output
7	RI	Relay input	
8	L	POWER(+)	Power 85~265V AC/DC
9	N/C	N/A	
10	N	POWER(-)	
11	IA1	A-phase current input positive	A-phase current
12	IA2	A-phase current input negative	
13	IB1	B-phase current input positive	B-phase current
14	IB2	B-phase current input negative	
15	IC1	C-phase current input positive	C-phase current
16	IC2	C-phase current input negative	
17	Vn	N-phase voltage input	Voltage input
18	V3	C-phase voltage input	
19	V2	B-phase voltage input	
20	V1	A-phase voltage input	

**Wiring**

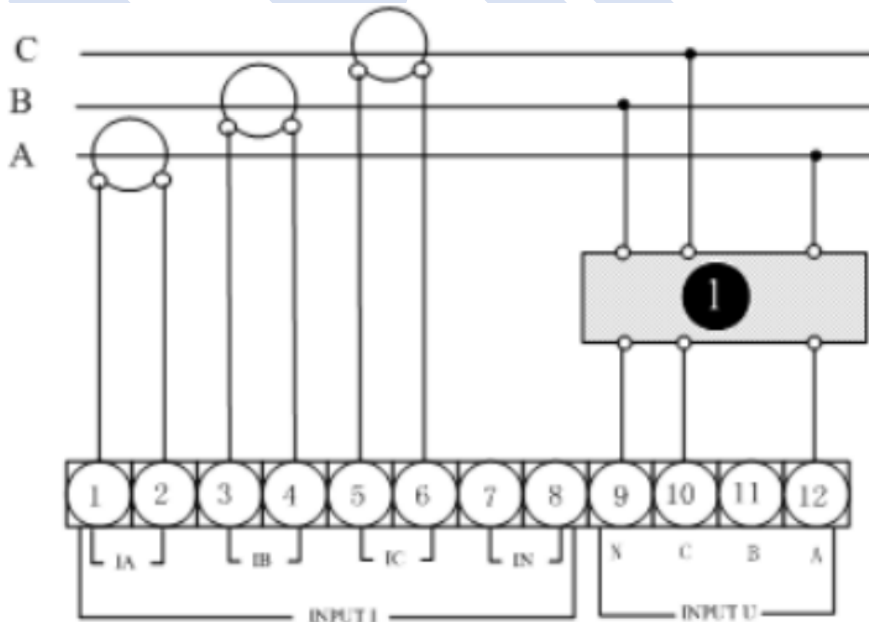
\* : Rogowski coil secondary output voltage can not over 333mV rms.

^: CT must be voltage output, secondary output can not over 333mV rms.

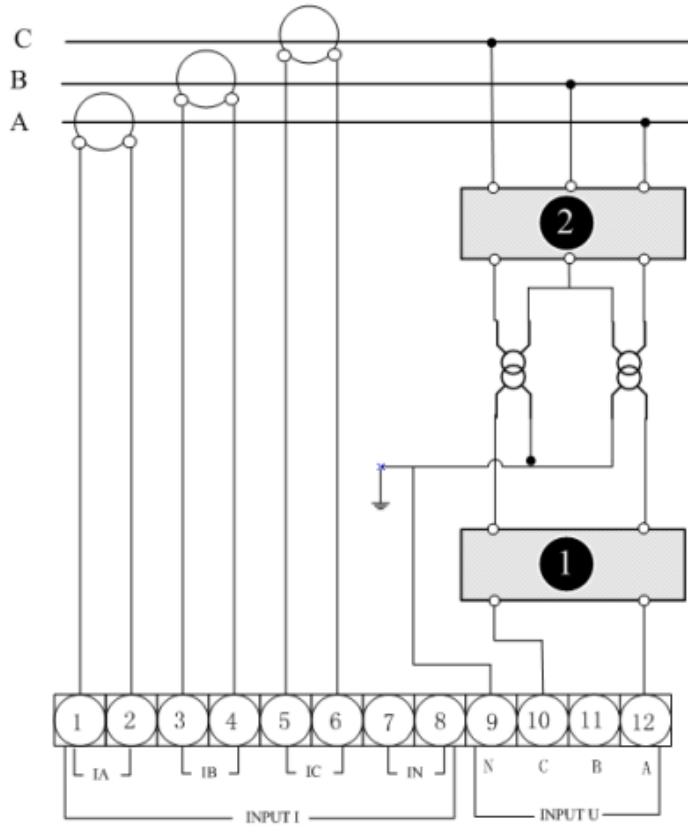
**3PH4W no VT**



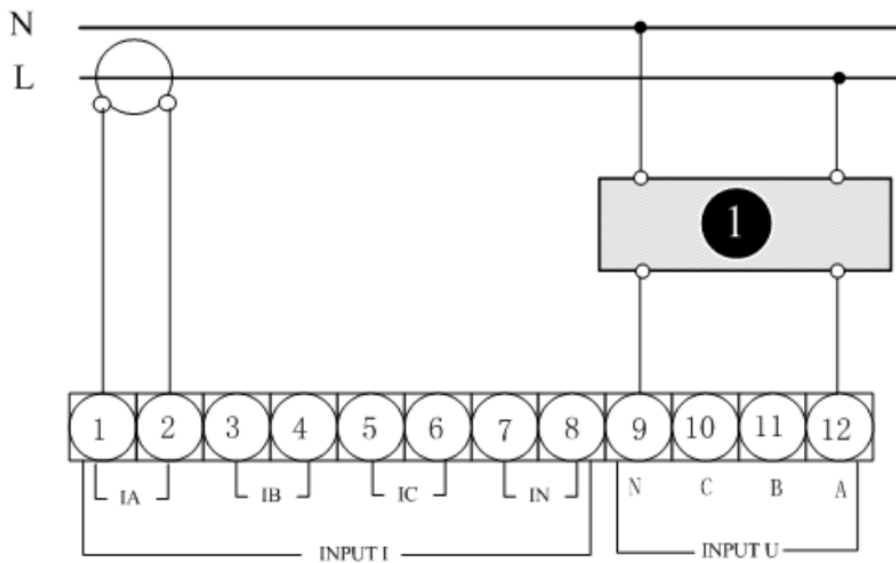
**3PH3W no VT**



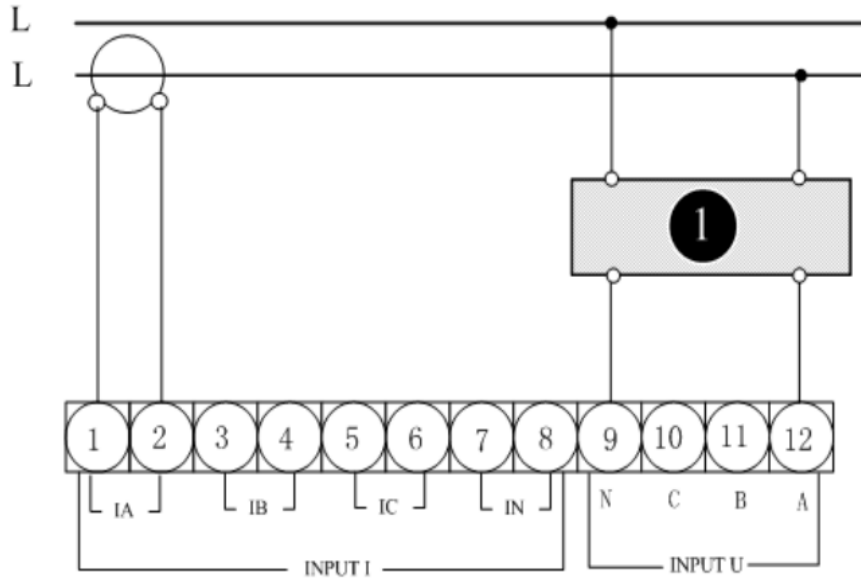
**3PH3W with VT**



**1PH2W L-N**



**1PH2W L-L**



**1PH3W L-L-N**

