MW(Q/S/PF)-5A Watt (Active Power/ RE-active Power/ PF)Meter

■ DESCRIPTION

Mx-5A meter to provide power (Watt or Active Power or Re-active Power or Power Factor), high-precision measurement, display and remote communication capabilities. ◦

Additional purchase: 1 group of relay outputs, 1 analog output, an RS485 communication output (the Modbus RTU Mode) interface, so that can be installed in power management, remote input and output, alarm and variety of remote communication control the use of needs. ◦

120mm (D) is ideal for assembling in panels with limited penetration depth ◦

■ FEATURE

- Measuring 1P2W, 1P3W, 3P3W, 3P4W Unbalanced systems of Power Parameters (W、Var、VA、PF.) ◦
- 1 relay output for Hi / Lo / Hi Hold / Lo Hold / OFF modes, and with start delay, hysteresis, energized time delay, de-energized time delay functions ◦
- Analogue output and RS 485 communication are available in options ◦
- Standard panel cutouts: 1/8 DIN 96 x 48 mm
- Meet CE requirements

■ APPLICATIONS

Electricity Charging System　Energy Consumption Monitoring & Control　Distribution System
Building Automation Energy　Management System　Testing Equipment

■ ORDERING INFOMATION

M [Type] –5A- [Connection] – [A Input range / V Input range] – [Optional Output 1] [Optional Output 2] [Optional Output 3] – [Aux. Power] – [*Optional Function]

CODE	TYPE
W	Watt
Q	Var
S	VA
PF	COS θ

CODE	CONNECTION
12	1P2W Unbalanced
13	1P3W Unbalanced
33	3P3W Unbalanced
34	3P4W Unbalanced

CODE	INPUT
A1	0 ~ 1 A
A5	0 ~ 5 A
AF	0 ~ 50 A (With the CT moduleYMW H-CT10A)
V1	50 ~ 500V

CODE	OUTPUT 1
ON	None
OR1	Relay

CODE	OUTPUT 2
AN	None
AI1	4~20 mA
AV1	0~10 V

CODE	OUTPUT 3
UN	None
U81	RS485

CODE	AUX. POWER
ADH	AC 85~264V DC 100~300 V
ADL*	AC/DC 20~56V

■ TECHNICAL SPECIFICATION

Measurement and connection

Connection	Input range			Input consumption
	Voltage	Amp.	Freq.	
1P2W 1P3W 3P3W 3P4W	50~500Vac (VL-N)	1A 5A	45 ~65 Hz	Voltage:≤0.5VA/Phase or Current:≤0.1VA/Phase
* Max input 500V, 5A, if exceed please use PT or CT ◦				

Accuracy and resolution

Paramet	Accura	Resolution(Programmab	Display Range
Active	0.5%	1 (W)	0~29999
Reactive	0.5%	1 (VAR)	0~29999
Apparent	0.5%	1 (VA)	0~29999
Power factor	0.5%	0.001(PF)	-0.500~+0.500

Input

Measurement: True RMS Value
Ripple effect: ≤ 0.2% of F.S. at 30% distortion
A/D converter: **16 bits A/D converter**
Accuracy: ≤ 0.5% of FS ± 1C;
Sampling rate: 128point/Cycle
Response time: ≤500 ms (Average value set as = "1")
System: 1P2W, 1P3W, 3P3W, 3P4W / Unbalanced
Input range: **Voltage: 50~500V L-N**
Primary shunt unit setting: V and KV
PT Primary setting: 50.0V~999.99KV
PT Secondary setting:50.0~500.0V
Direct Input: Primary = Secondary < 500V
Current: 0 ~ 1/ 0~ 5A (max.)
CT Primary setting: 1~2999.9A
CT Secondary Fixed: 1.000 or 5.000A (By Order)

Max. input capability:
Voltage: 2 X rated voltage continuous
4 X rated voltage continuous 2 minutes
Current: 3 X rated current continuous
10 X rated current continuous 10 seconds
50 X rated current 1 second (5A input type)

Control function

Setting point: 1 sets (1 contact output)
Relay output: 1 set SPDT, 3A/230Vac, 5A/115V
Relay mode: Hi / Lo / Hi.HLd / Lo.HLd / oFF
Function: Start delay/Start band/ Hysteresis /Relay hold
Start band: 0~9999 counts
Start delay: 0:00.0~9(Minutes):59.9(Second)
Run delay: 0:00.0~9(Minutes):59.9(Second)
Off delay: 0:00.0~9(Minutes):59.9(Second)
Hysteresis: 0~5000 counts

Analogue output(option)

Accuracy: **≤± 0.1% of F.S.; 16 bits DA converter**
Ripple: ≤± 0.1% of F.S.
Response time: ≤100 msec. (10~90% of input)
Isolation: AC 1.5 KV between input and output
Output range:: [Ro5L] **Voltage:** 0~5V / 0~10V(default) / 1~5V
0~2.5~5V / 1~3~5V / 0~5~10V /
-5~+5V / -10~+10V
Current: 0~10mA / 0~20mA / 4~20mA(default)
4~12~20 mA / -10~10 mA / -20~+20 mA

Output capability: Voltage: 0~10V: ≥ 1000Ω;
Current: 4(0)~20mA: ≤ 600Ω max

Functions: AoHS (output range high): Settable range: -19999~29999
AoLS (output range Low): Settable range: -19999~29999
AoLnt (output High Limit): 0.00~110.00% of output High

Digital fine adjust: AoPro: Settable range: -38011~+27524
AoSPn: Settable range: -38011~+27524

RS 485 (Optional)

Protocol:	Modbus RTU mode
Baud rate:	1200/2400/4800/9600/19200/38400 bps selectable
Bits:	8 bits
Parity check:	Odd、even or none (with 1 or 2 stop bit) selectable
Address:	1 ~ 255 selectable
Wire distance:	1200M max
Terminal resistance:	150Ω.

Safety

Insulation:	AC 2.0 KV for 1 min, Power/Input/Output/Casing
Isolatuion resistance:	≥100M ohm at 500Vdc, Power/Input/Output/Casing
Signal isolation:	Power/Input/Relay/RS485/Analogue output/Pulse
EMC:	EN 55011:2002; EN 61326:2003
Safety(LVD):	EN 61010-1:2001

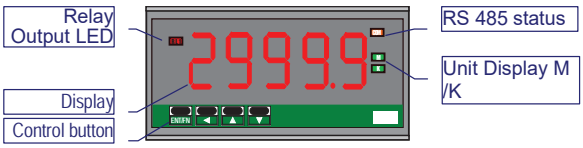
Working environment

Temperature.:	0~60 ˚C
Humidity.(%RH):	20~95 %RH, Non condensing
Temp. coefficient:	≤ 100 PPM/˚C
Storage:	-10~70 ˚C
Protection:	Front panel :IEC 529 (IP52); Case: IP20

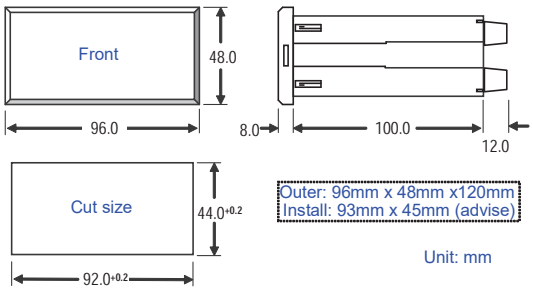
Mechanical

Dimension:	96mm(W) x 48mm(H) x 120mm(D)
Mounting size:	92mm(W) x 44mm(H)
Case material:	ABS Non-flammable (UL 94V-0)
Installation:	Panel mounting
Terminal:	Plastic NYLON 66 (UL 94V-0) 10A 300Vac, M2.6, 16~22AWG
Weight:	350g(Aux. Power : ADH, ADL)

■ Front panel

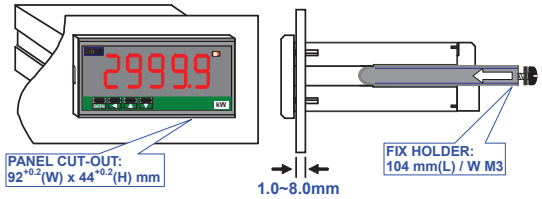


■ Casing dimension



■ Installation

Please install meter within working temperature & humidity environment



Power supply

Working voltage: ADH:AC 85~264V，DC 100~300V
ADL:AC/DC 20~56V

Power consumption: AC Power≦12VA，DC Power≦6.0W

Data storing: By EEPROM

Display

0.8"Display: Watt / Var / VA / P.F display by order selection
5 digi; 0.8"(2cm) Red LED

I/O Status:

K M **Units of indicator:** K:10^3，M:10^6

COM **RS 485 communication:** 1 rectangular orange LED RS485 signal send/receive data，LED will blink When COM blink faster, data transfer speed is higher

RL1 **Relay output LED:** 1 rectangular red LED LED on when relay output;;

Control button: 4 control buttons: Enter, function./ Shift / Up / Down

Up key: Values increase / return

Down key: Value decrease / enter next level

Shift key: Move decimal point / return to up level / escape setting

Enter/Fun key: Enter setting status / save and enter next function parameters

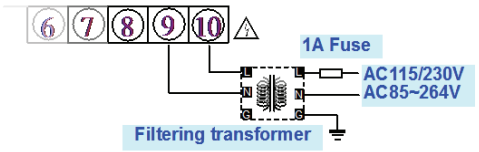
Password function: 4 digits password setting；range 0000~9999
Password for parameters setting level needed.
Password can be change at parameters level
Please contact us if password lost.

Lock function: 4 lock modes, No lock/User level lock/Parameters Setting lock/Lock all
None: No lock，all function and parameters selectable
User Level: Open for viewing level, not able to change any setting if locked
Engineer Level: Open for viewing level, not able to change any setting If locked
All: Locked all level.

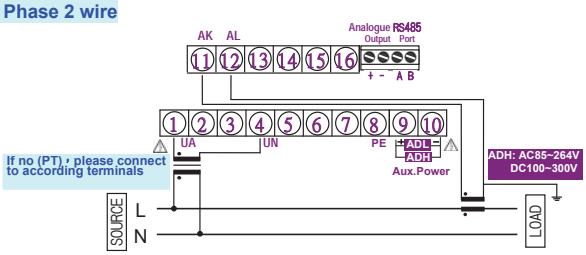
■ Wiring diagram

Please check input operating voltage before sending power, terminal connection to right number。Advise adding fuse/switch in front of power. RS485 / Analog Output wiring: AWG22~16(0.5~1.3mm^2)
Other: Wiring: AWG15~10(1.5~2.5mm^2)

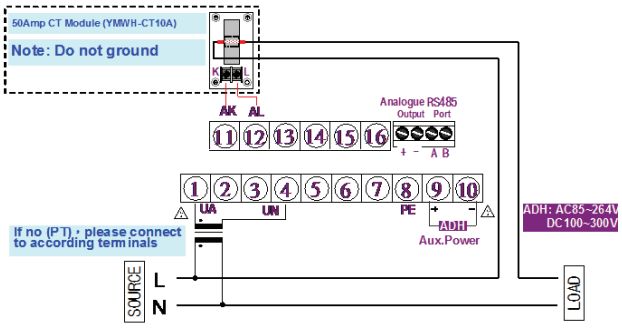
Operating power connection



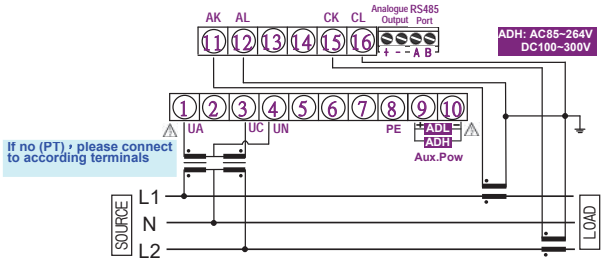
1 Phase 2 wire



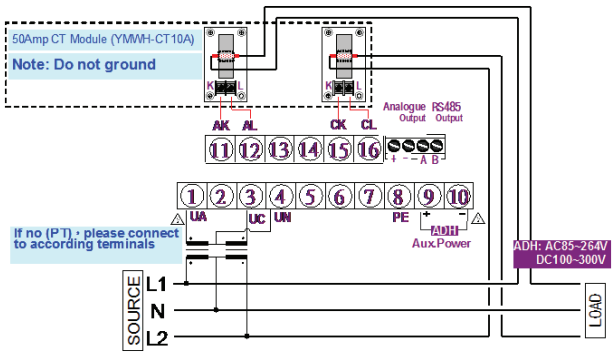
With YMWH-CT10A(CT Module) 1P2W



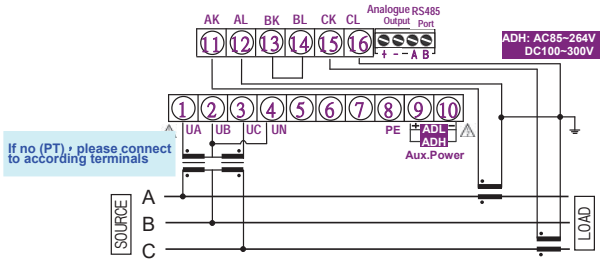
1 Phase 3 wire



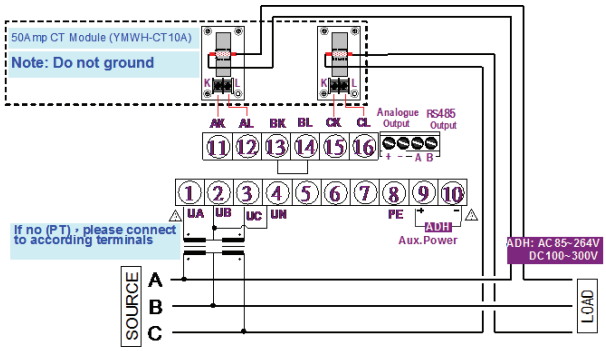
With YMWH-CT10A(CT Module) 1P3W



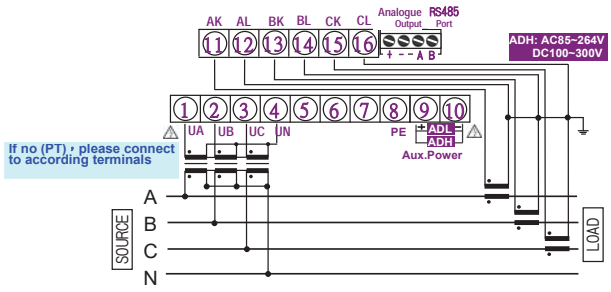
3Phase 3wire 2CT(Unbalanced Load)



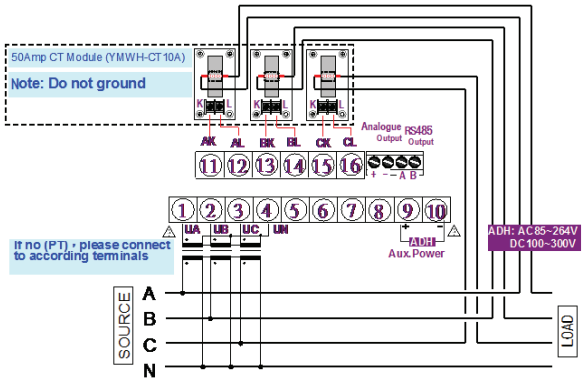
With YMWH-CT10A(CT Module) 3P3W



3Phase 4wire 3CT(Unbalanced Load)



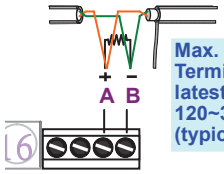
With YMWH-CT10A(CT Module) 3P4W



Output signal connection

Due to terminal quantitative restrictions, the left side of the terminal can be used for analog output; the right terminal can be used for RS485 output

RS485 output

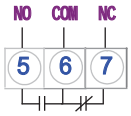


Max. Distance: 1200M
Terminate Resistor (at latest unit): 120~300ohm/0.25W (typical: 150ohm)

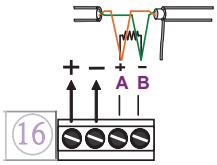
Relay output

Relay output:

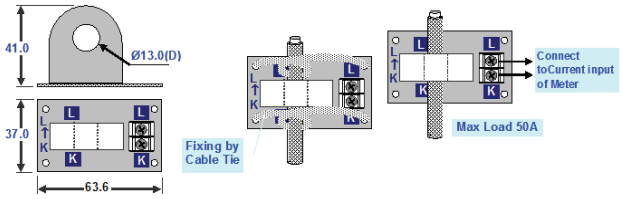
Contact load 1A/230V , 3A/115V



A.O + RS485



Optional modules: high-precision CT module – YMWH-CT10A – 0.1class



Do not ground the use of CT module - YMWH-CT10A