

DESCRIPTION

MWH-10A Energy Meter offers high accuracy measurements of Energy (Watt-Hr) and Active Power, display and communication functions. It is also with 1 relay output, 1 analogue output, 1 RS485 communication port, and 1 pulse output in option as well

112mm (D) is ideal for assembling in panels with limited penetration depth



FEATURE

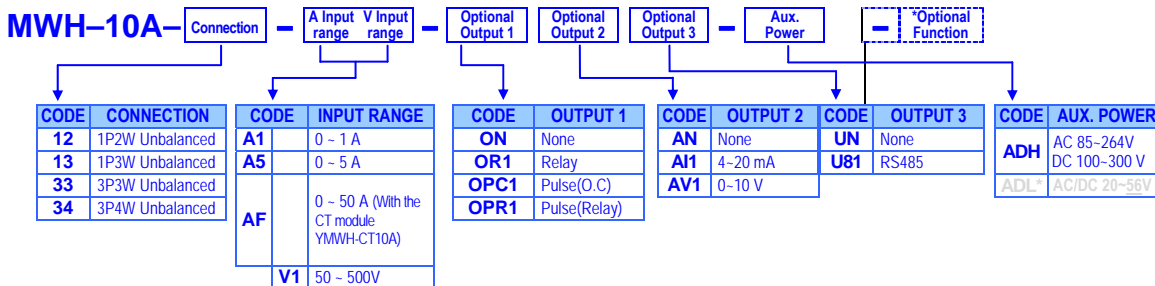
- Measuring Watt & Watt-Hr in 1P2W, 1P3W, 3P3W, 3P4W Unbalanced systems
- Dual displays for 10 digits Watts-Hr and 4 2/3 digits Active Watts
- 1 relay output for Hi / Lo / Hi Hold / Lo Hold / OFF modes, and with start delay, hysteresis, energized time delay, de-energized time delay functions
- Analogue output, pulse output and RS 485 communication are available in options
- Standard panel cutouts: 1/8 DIN 96 x 48 mm
- Meet CE requirements

APPLICATIONS

Control panels and Consumption monitoring
Energy and tariff managements for building automation

Switchgear distribution systems
Energy Testing Equipment

ORDERING INFORMATION



TECHNICAL SPECIFICATION

Measurement and connection

Connection	Input range			Input consumption
	Voltage	Amp.	Freq.	
1P2W	50~500Vac (VL-N)	1A	45 ~65 Hz	Voltage:≤0.5VA/Phase or Current:≤0.1VA/Phase
1P3W		5A		
3P3W				
3P4W				

* Max input 500V, 5A, if exceed please use PT or CT

Accuracy and resolution

Parameters	Accurac	Resolution(Programmable)	Display Range
Active Power	0.5%	0.001 (kW/ kWh)	-19999~29999
Active Energy	0.5%		0~9999999999

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 = "2")

System:

Input range:

1P2W, 1P3W, 3P3W, 3P4W / Unbalanced load
Voltage: 50~500V L-N

Primary shunt unit setting: V and KV
 PT Primary setting:50.0V~299.99KV
 PT Secondary setting:50.0~500.0V
 Direct Input: Primary = Secondary < 500V
Current: 0 ~ 1 A or 0~ 5A (max.)
 CT Primary setting: 1~2999.9A
 CT Secondary setting 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 contact output
Relay output: 1set SPDT, 1A/230Vac, 3A/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

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.

Pulse output(Optional)

Output mode: 1 contacts open collector · DC 30V, 100mA
 Relay:DC24V/1A (frequency has to under 50Hz)
Output range: Maximum frequency: 1000Hz; duty cycle 50%
Pulse divider:: 1 Pulse/1~9999 Count programmable.
Pulse high-level output time: 0(Auto)~1/~5000x4ms setting

Safety

Insulation: AC 2.0 KV for 1 min, Power/Input/Output/Casing
Isolation 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 45mm(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)

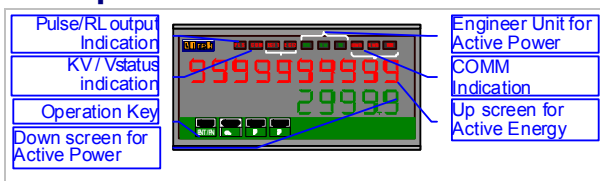
Power supply

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

Power consumption: AC 電源 ≤ 12VA · DC 電源 ≤ 6.0W

Data storing: By EEPROM

■ Front panel



Display: **Dual screen display for active power and active**
Low row: 5 Digits; 0.28"(0.71cm) Green LED
Up row: 10 Digits; 0.28"(0.71cm) Red LED
Display unit: **Active power:** 3 green rectangular LED for W / KW / MW
 Effective :1 rectangular red LED for WH(unit: K / M green LED)

I/O Status:

PLS **Pulse output display:** 1 rectangular red LED
 During pulse transmission, LED will blink ; when it blink faster mean Watt-Hr. accumulate more
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: Value increase / return to previous level
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.

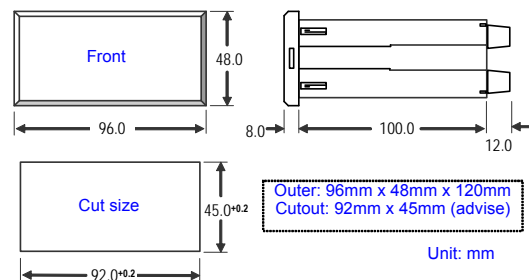
Lock function:

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.

Analogue(Optional)

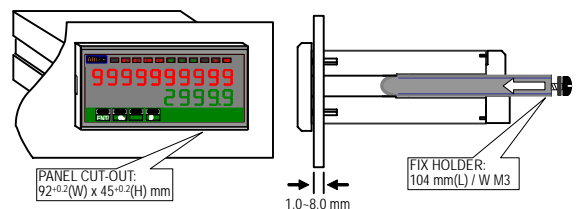
Accuracy: ± 0.1% of F.S.; 16 bits DA converter
Ripples: ± 0.1% of F.S.
Output range: **Voltage:** 0~5V / 0~10V(Default) / 1~5V
Current: 0~10mA / 0~20mA / 4~20mA(Default)
Function: [Output Hi] (Output Hi):Output from 0.00~110.00%

■ Casing dimension



■ Installation

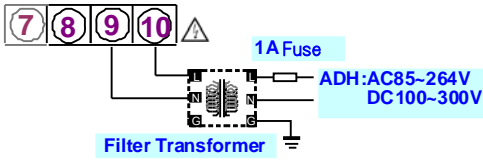
Please install meter within working temperature & humidity environment.



Wiring diagram

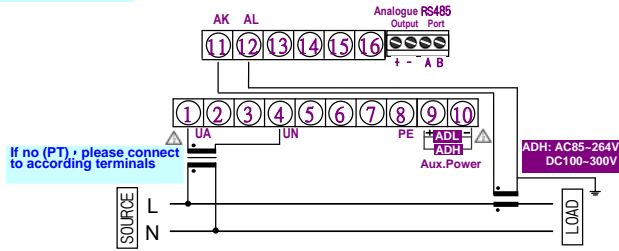
Please check input operating voltage before sending power, terminal connection to right number. Advise adding fuse/switch in front of power.
 RS485 / Analog Output wiring: AWG22~16(0.5~1.3mm²)
 Other: Wiring: AWG15~10(1.5~2.5mm²)

Operating power connection

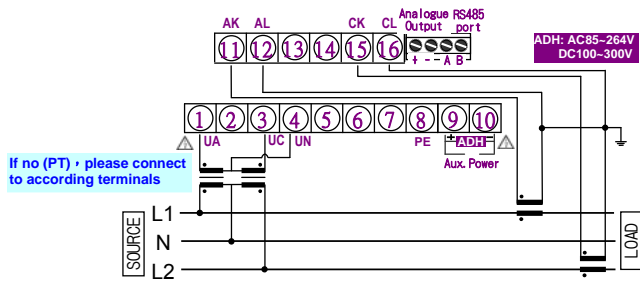


Input connection

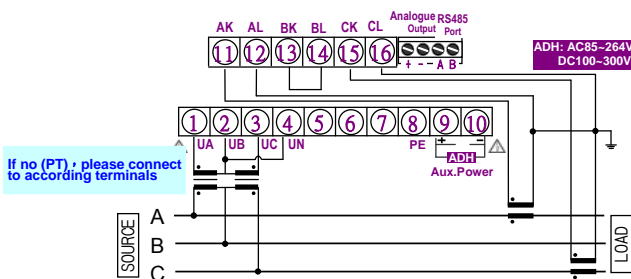
1 Phase 2 Wire



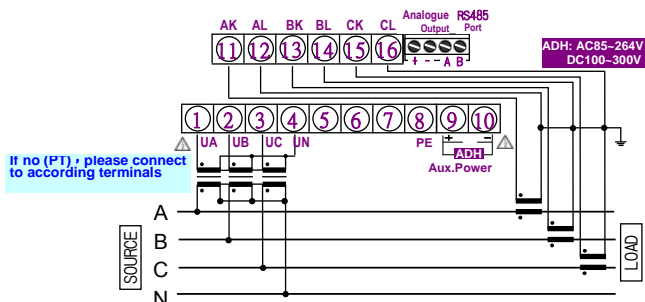
1 Phase 3 Wire



3Phase 3wire 2CT(Unbalanced Load)

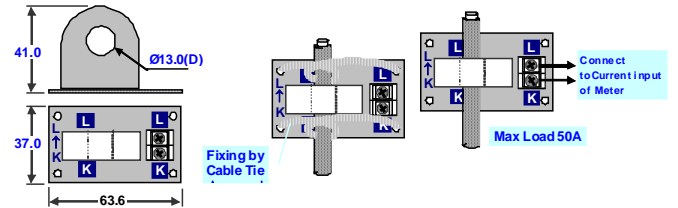


3Phase 4wire 3CT(Unbalanced Load)



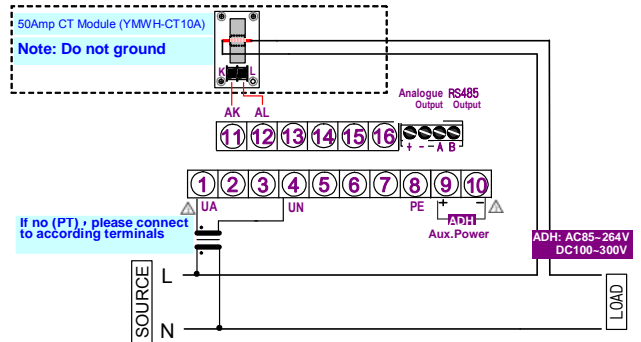
Input connection

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

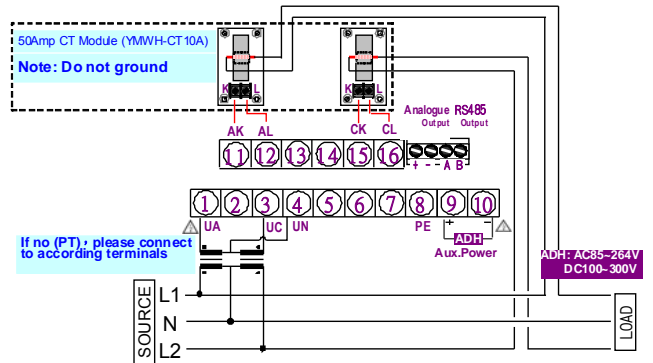


Do not ground the use of CT module - YMWH-CT10A

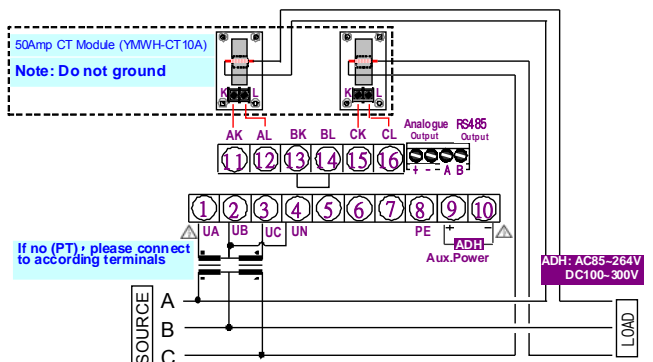
With YMWH-CT10A(CT Module) 1P2W



With YMWH-CT10A(CT Module) 1P3W

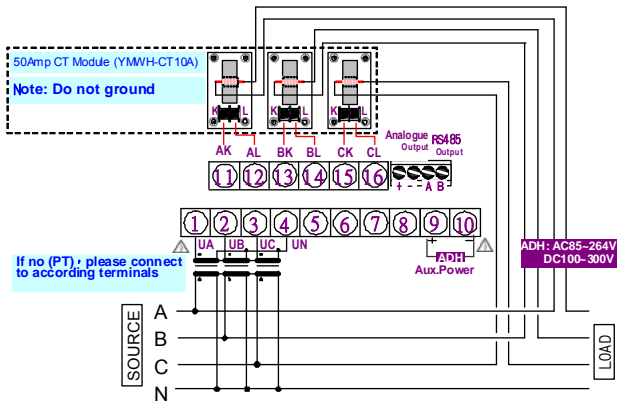


With YMWH-CT10A(CT Module) 3P3W

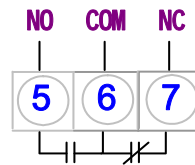


With YMWH-CT10A(CT Module) **3P4W**

Alarm Relay output(OR1)



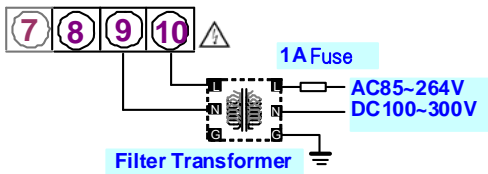
Contact load
1A/230V · 3A/115V



■ **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(0.5~1.3mm²)
Other: Wiring: AWG15~10(1.5~2.5mm²)

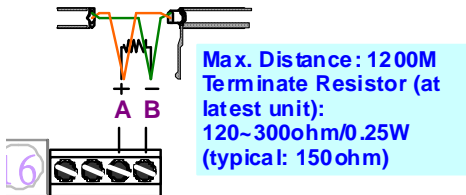
Operating power connection



Output signal connection

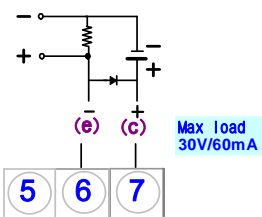
Due to limited terminals · left side terminal used for analog output; right terminal used for RS485 output Please follow product code, specification on label and connection according to given on product

RS485 output



Pulse output

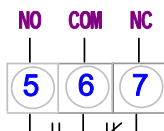
Open collector output:(OPC1)



Relay Pulse output:(OPR1)

Action frequency
less than 30Hz

Contact load
1A/230V · 3A/115V



1 Analogue + RS485 Output

