MWH-10A

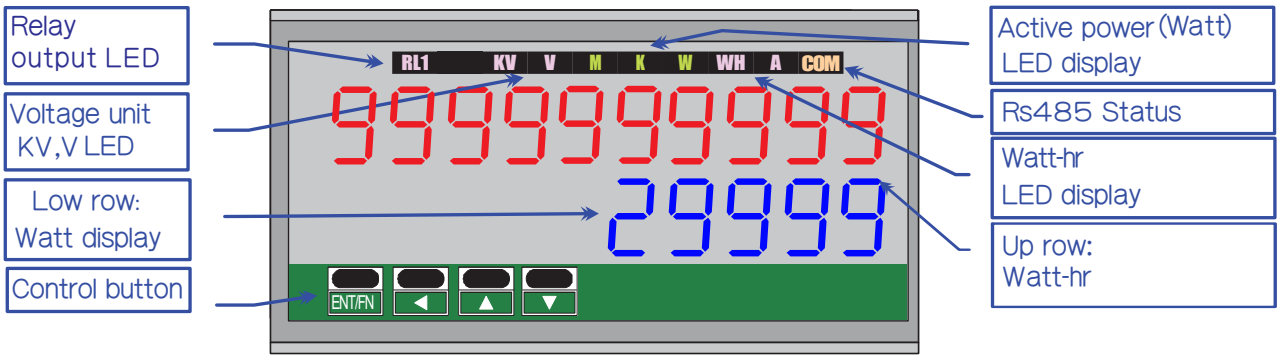
Operation manual

MWH-10-A Operation manual

FEATURE

Input 1P2W,1P3W,3P3W,3P4W Unbalanced load system's active power, reactive power, apparent power and electric energy (Watts-Hr) etc parameters.
Dual display, 10 digits Watts-Hr,lower row 4 2/3 digits Watts.
1 set relay(SPDT) output, having relay function : Hi / Lo / Hi Hold / Lo Hold / OFF; further advance function , start delay, hysteresis, time delay, reset delay etc
1 analogues output same as relay setting parameters.
Output range: Current 0~10mA / 0~20 mA / 4~20 mA (Default 4-20mA)
Output range: Voltage 0~5V / 1~5 V / 0~10 V / 0~±5 V (Default 0-10V)
Option pulse and RS 485 communication output.

Front panel and button



Operation button

4 Control button Enter / Shift / Up / Down

- ENT/FN Enter/Fun key: Enter setting / save changes and enter next parameters
- Shift key: Change decimal / back to previous or escape setting
- Up key: Increase / back to previous
- Down key: Decrease / to next

LED Unit

- KV V Voltage unit LED: 2 rectangular red LED indicate KV or V ,on when display select V-A
- M K W Watt unit LED: 3 Rectangular green LED , on when display select KWH, automatic switch KW or MW units
- WH Watt-hr LED: 1 rectangular red LED, on when select KWH display , only display WH, K/M unit follow Watt.

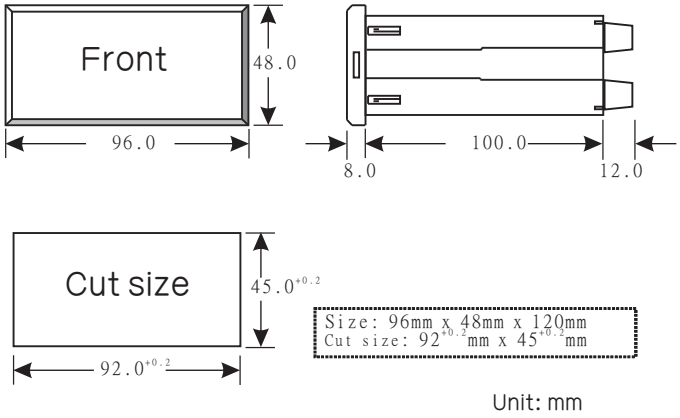
Display digits

PV values: 5 digits; 0.28" (0.71cm)red LED
Accumulative values 10 digits; 0.28" (0.71cm)

LED status

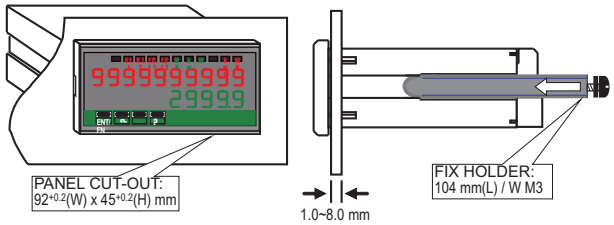
- COM RS 485 Com.: 1 rectangular orange LED,when Rs485 send/receive data,LED blink' blink faster mean data transfer
- RL1 Relay: 1 rectangular red LED,LED light when relay energized

Dimension



Installation

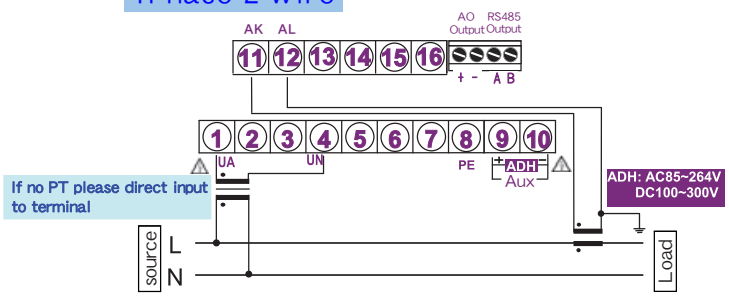
This meter is installed does not exceed the maximum operating temperature and humidity environment.



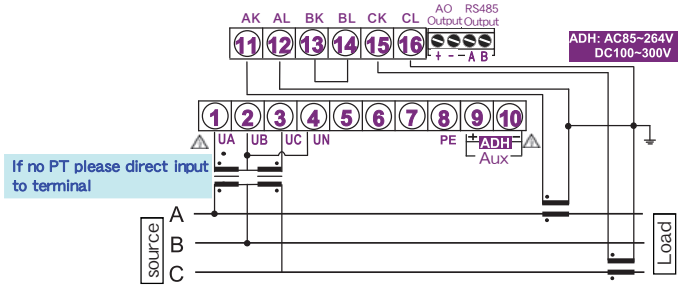
Output wiring

Please check if the voltage is correct and connect to the right terminal number when wiring

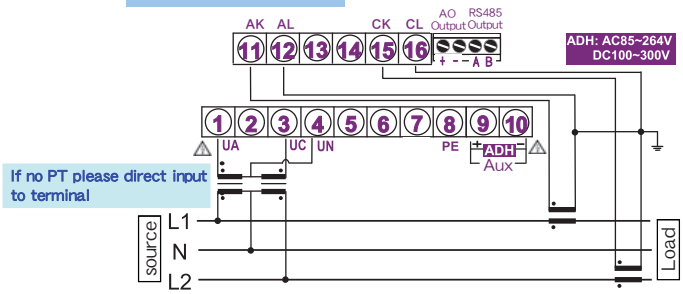
1Phase 2 wire



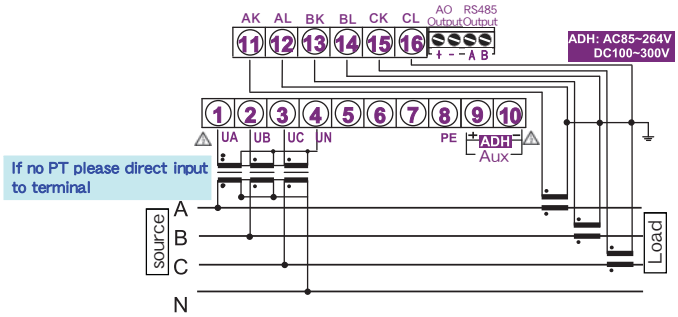
3Phase 3wire 2CT (Unbalanced)



1Phase 3 wire

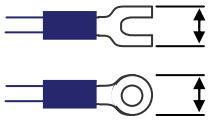


3Phase 4wire 3CT (Unbalanced)

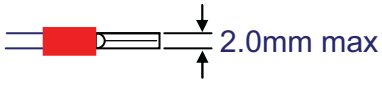


Wire terminal

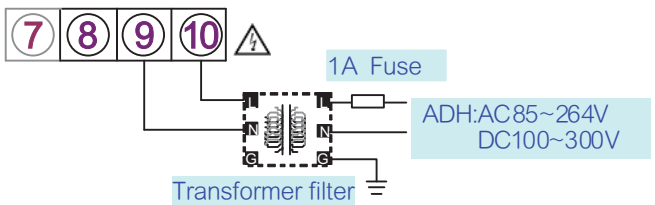
Terminal:A1~A16: 20A/600Vac, M3.5, 22~12AWG;
Max Torque:13Kg-cm



Output Terminal:10A 300Vac, M2.6, 22~16AWG,
Max Torque: 5Kg-cm
Please use flat Pin



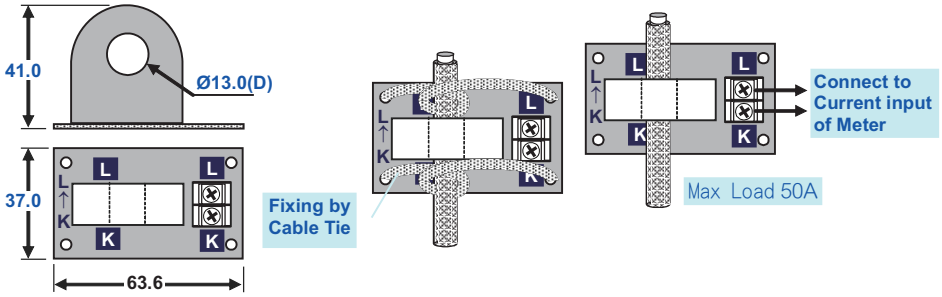
AUX



Output wiring

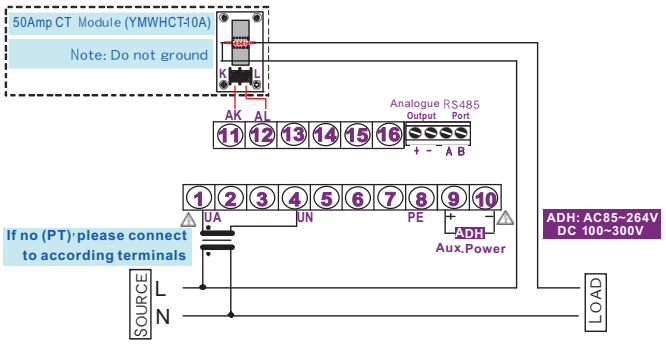
Please check if the voltage is correct and connect to the right terminal number when wiring

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

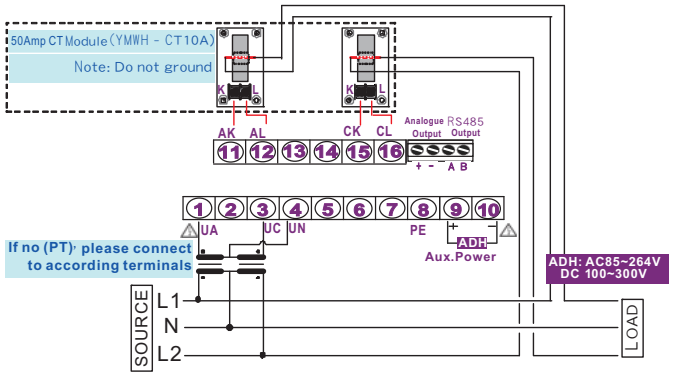


Do not ground the use of CT module - YMWH-CT10A

With YMWH-CT10A(CT Module) 1P2W 1Phase 2 wire

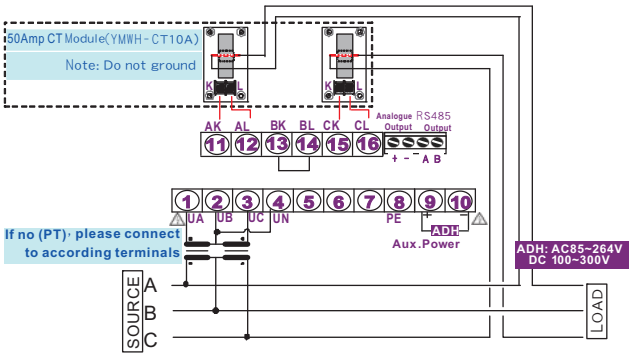


With YMWH-CT10A(CT Module) 1P3W 1Phase 3 wire



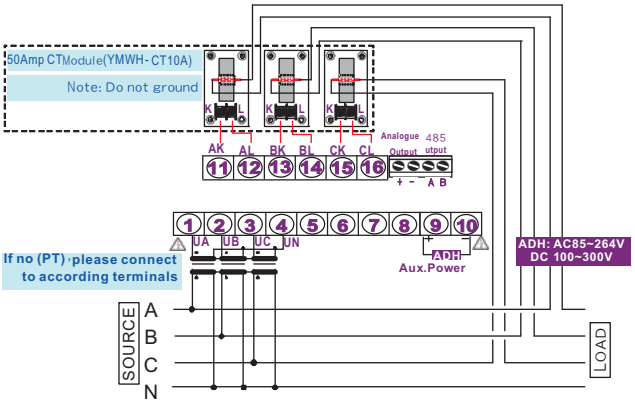
3Phase 3wire 2CT (Unbalanced)

With YMWH-CT10A(CT Module) 3P3W



3Phase 4wire 3CT (Unbalanced)

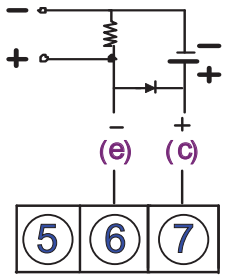
With YMWH-CT10A(CT Module) 3P4W



Pulse or relay output

Due to limitation on number of terminal , pulse and relay output is having same terminal, choose either one

Open collector:(OPC1)

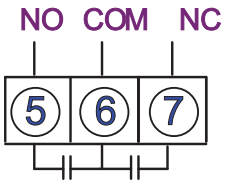


Max load
30V/60mA

Relay Pulse output:(OPR1)

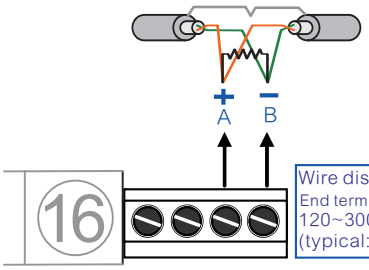
Contact:
1A/230V , 3A/115V

Action frequency
less than 30HZ



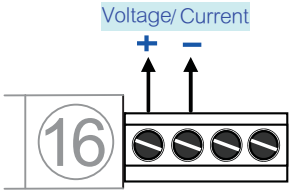
RS485 Com.

⚠Please earth isolation net to maintain signal quality



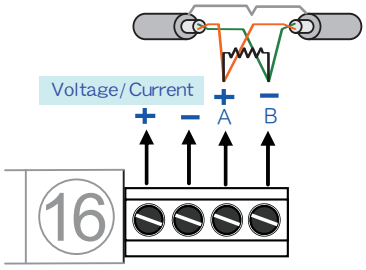
Wire distance 1200M
End terminal ohm :
120~300 ohm/0.25W
(typical: 150ohm)

Analogue output



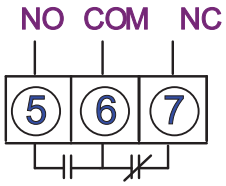
Output mode: Selectable within parameters setting, voltage or current output need to short J2 & J3 on output PCB module.

Analogue + RS485

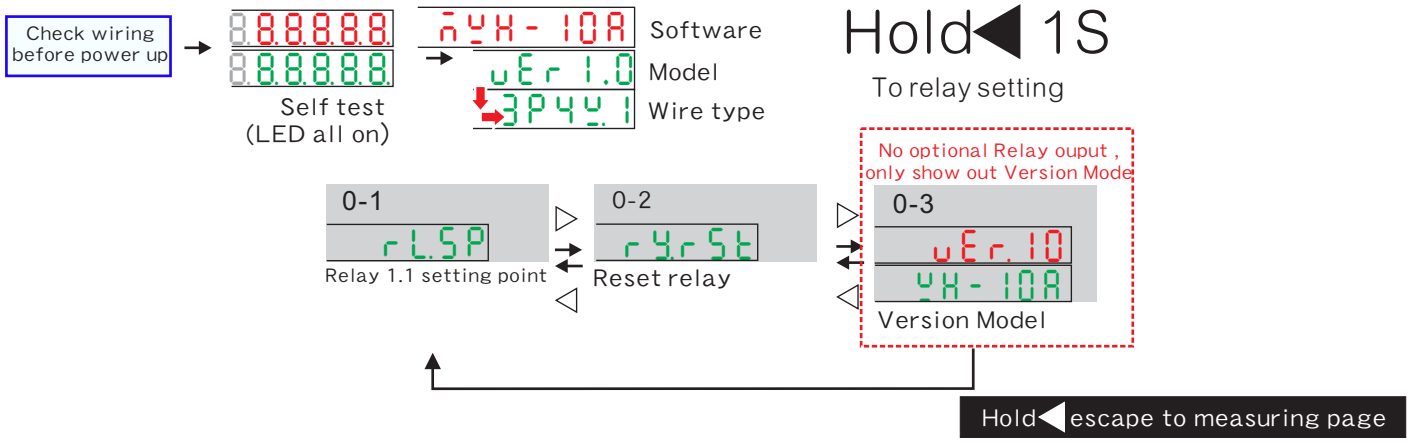


Alarm Relay output:(OR1)

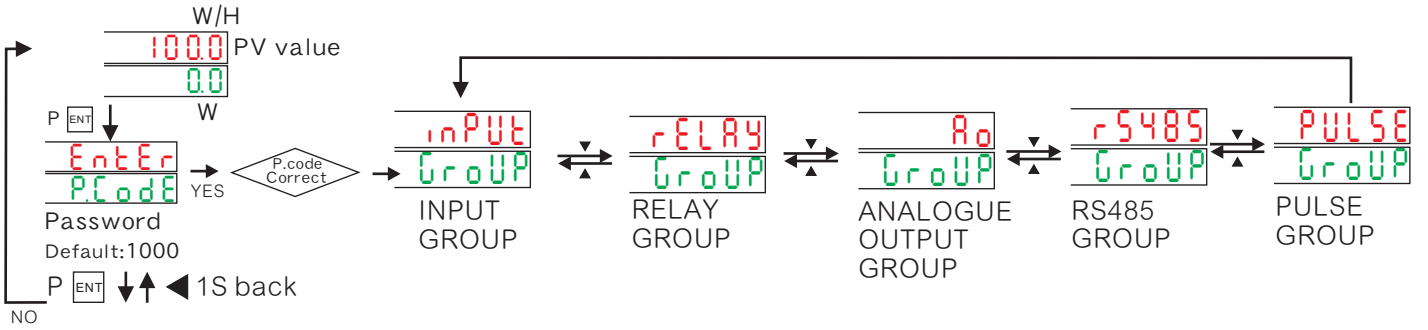
Contact:
1A/230V , 3A/115V

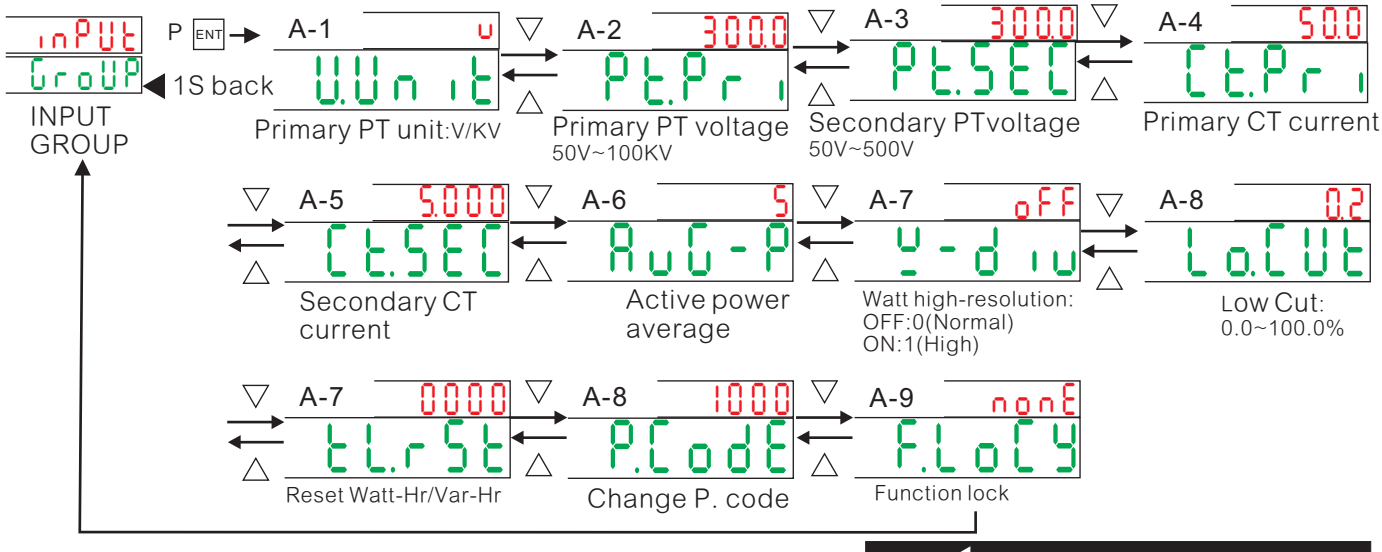


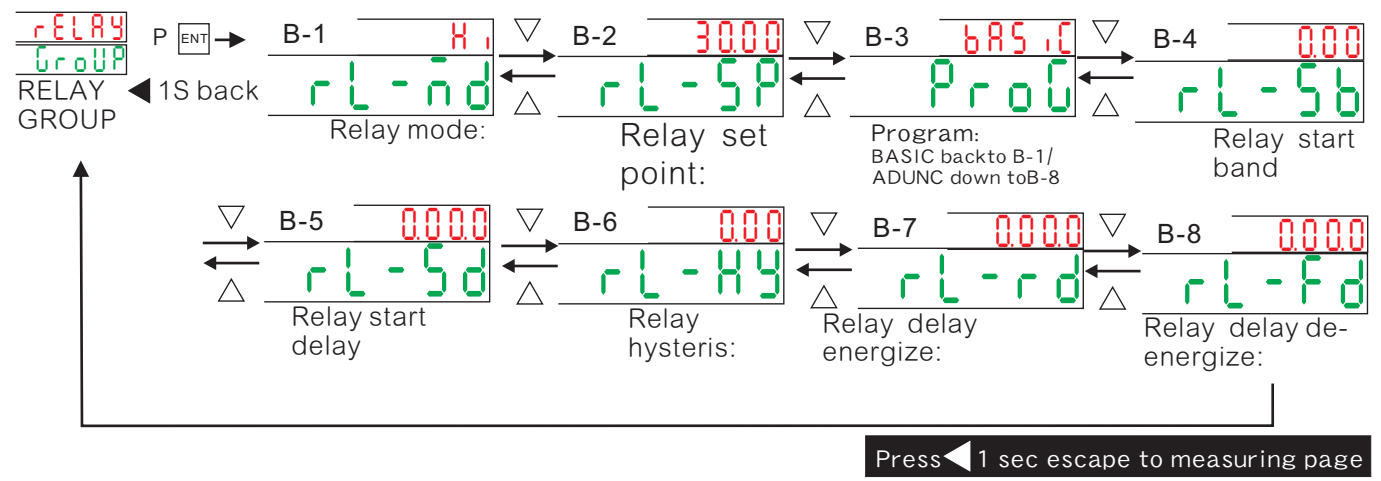
Operation flow chart:

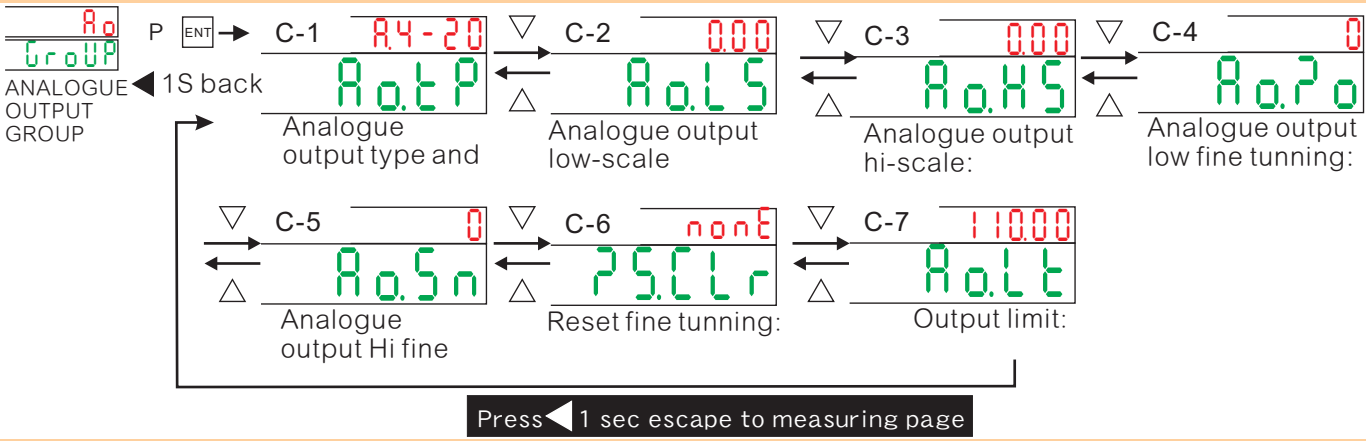


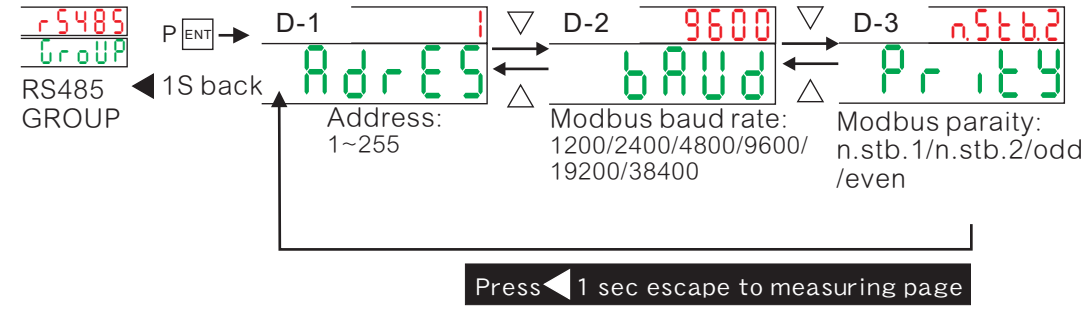
Engineer level

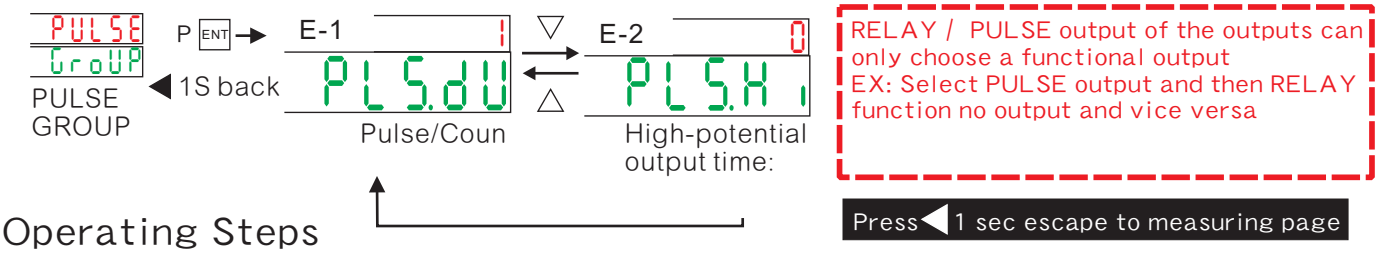












■Operating Steps

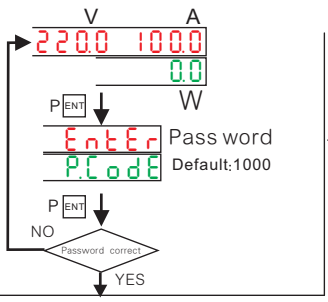
User Level

Parameters	Display	Setting	Operation
Power on Check the wiring 8.8.8.8.8. 8.8.8.8.8.	Self test LED all on		No need to set
nYH-10-A uEr 1.0 ▲ ↑↓ ▼	Wiring Model Version	Press ◀ 1Sec Into the relay function	
0-1 10000 rL-SP ▲ ↑↓ ▼	Relay funtion setting	Relay value range: -19999~29999	◀ Shift ▲ Increase ▼ Decrease ENTER Enter Press ENTER values blink,press ▲ & ▼ change value or selection when done press ENTER to next setting or hold ◀ 1 sec to previous selection list.
0-2 no rY.rSt ▲ ↑↓ ▼	Reset relay function	Select:YES /no	◀ Shift ▲ Increase ▼ Decrease ENTER Enter Press ENTER values blink,press ▲ & ▼ change value or selection when done press ENTER to next setting or hold ◀ 1 sec to previous selection list.
0-3 uEr.10 YH 10A ▲ ↑↓ ▼	Version Model	There is no relay functions Will only display version	View only Press ▼ 1 sec escape to begining page
Back to 0-1	Press ◀ 1 sec escape to measuring page.		

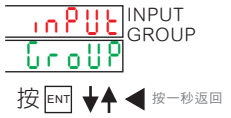
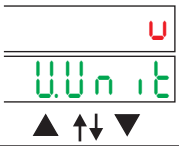
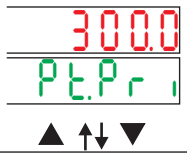
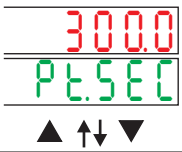
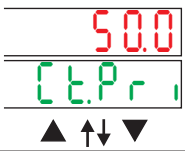
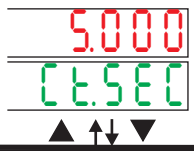
■Operating Steps

Engineer level

Shift Increase Decrease Enter

Parameters	Display	Setting	Operation
	Measurement Display		

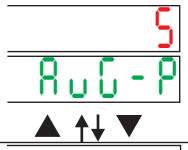
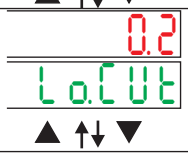
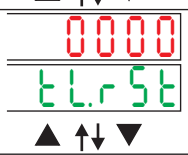
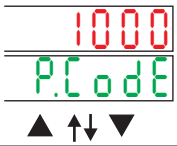
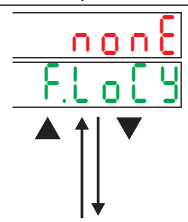
RELAY / PULSE output of the outputs can only choose a functional output
EX: Select PULSE output and then RELAY function no output and vice versa

	INPUT GROUP Display		
A-1 	Primary PT voltage unit:V.Unit	V / KV Default :V	Range :U /KU Press ENTER values blink,press, ▲&▼ change value or selection when done press ENTER to next setting or hold ◀ 1 sec. to previous selection list
A-2 	Primary voltage setting range	Setting range: 50.0V~100.00KV Default:300.0	◀ Shift ▲ Increase ▼ Decrease ENTER Enter ※Please note that this setting is the choice of the corresponding primary voltage units. For example, if Vunit kv, while this pTpri set to 45) 0, then the set primary voltage for 450.0KV.。
A-3 	Secondary voltage setting range	Setting range: 50.0V~500.0V Default:300.0	Press ENTER values blink,press, ▲&▼ change value or selection when done press ENTER to next setting or hold ◀ 1 sec. to previous selection list
A-4 	Primary CT setting range	Setting range:1.0A~2999.9A Default:50.00	Press ENTER values blink,press, ▲&▼ change value or selection when done press ENTER to next setting or hold ◀ 1 sec. to previous selection list
A-5 	Secondary CT setting range	(VIEW ONLY) Default:5.000	

■Operating Steps

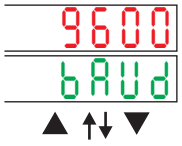
Engineer level

Shift Increase Decrease Enter

Parameters	Display	Setting	Operation
A-6 	Active power average value setting range:	Setting range:2~99 Default:5	Shift Increase Decrease Enter ※System may have interference or signal unstable sometimes, causing display unstable: This function help to decrease rapid change on the display. Increasing average value make display more stable,
A-7 	Watt high-resolution	Setting range: OFF:0(Normal) ON:1(High) Default:OFF	Shift Increase Decrease Enter Press values blink,press, & change value or selection when done press to next setting or hold 1 sec. to previous selection list
A-8 	Low Cut	Setting range: 0.0~100.0% Default:0.2	Shift Increase Decrease Enter Press values blink,press, & change value or selection when done press to next setting or hold 1 sec. to previous selection list
A-9 	Reset watt-hr/var-hr to zero	Password:0~9999 ※Rs485 Key in 0 to reset。	Shift Increase Decrease Enter Press values blink,press, & change value or selection when done press to next setting or hold 1 sec. to previous selection list
A-10 	Change parameters level password:	Password:0000~9999 Default:1000	Shift Increase Decrease Enter Press values blink,press, & change value or selection when done press to next setting or hold 1 sec. to previous selection list
A-11  Return to A-1		Function lock select: NONE/USER/ENG/ALL Default:NONE	Shift Increase Decrease Enter nonE(None): No function lock, user can enter and change setting USEr (User Level):User level lock,can view setting cant change parameters value EnG (Programming Level): Parameters setting lock ,can view setting cant change parameters value ALL (All Level): All level lock , can view setting cant change parameters value
		Press 1 sec to measuring page	

Engineer level (RS485 Output)

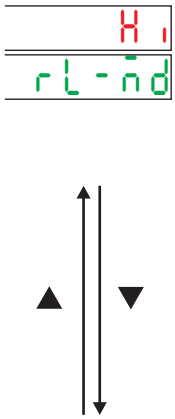
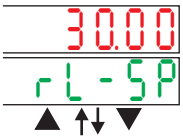
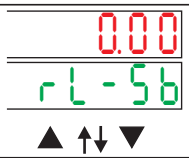
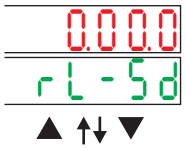
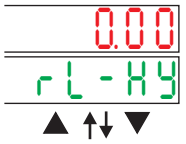
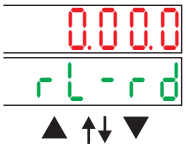
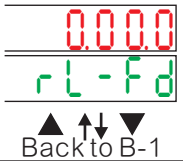
Shift Increase Decrease Enter

Parameters	Display	Setting	Operation
 RS485 GROUP 按 ENT ▼▲ 按一秒返回	RS485 GROUP Display		Press 1 sec to [rS485 GroUP]
D-1 	Address setting:	Setting range:1~255 Default:1	Press values blink,press, & change value or selection when done press to next setting or hold 1 sec. to previous selection list
D-2 	Modbus Baud rate:	Setting range: 1200/2400/4800/9600/ 19200/38400 Default:9600	Press values blink,press, & change value or selection when done press to next setting or hold 1 sec. to previous selection list
D-3 	Modbus pairty bit:	Setting range: n.stb.1/n.stb.2/odd/even Default:n.stb.2	Cycle Enter n.Stb.1(n.Stb.1): None, 1 stop bit n.Stb.2(n.Stb.2): None, 2 stop bit odd(odd): odd EuEn(EvEn): Even
Back to D-1	Press 1 sec to measuring page		

■Operating Steps

Engineer level (Raely Output)

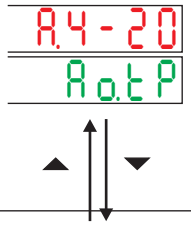
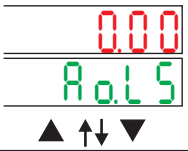
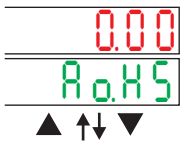
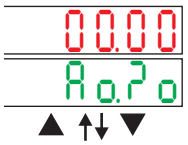
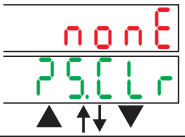
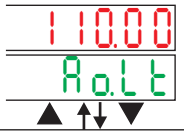
Shift Increase Decrease Enter

Parameters	Display	Setting	Operation
B-1 	Relay mode:	Setting type: Lo./Hi./Lo.HLd./Hi.HLd./ /oFF. Default:Hi	Shift Increase Decrease Enter Press values blink,press, & change value or selection when done press to next setting or hold 1 sec. to previous selection list Lo : PV＜Setpoint，relay energized。 Hi : PV＞Setpoint，relay energized。 Lo.HLd : Display＜Setpoint，relay energized, and hold energized status。 Hi.HLd : Display＞Setpoint，relay energized, and hold energized status。 oFF : Close relay function,when relay is off ,relay remain open, LED will not light。
B-2 	Relay value setting:	Setting range: -19999~29999 Default:30.00	Press values blink,press, & change value or selection when done press to next setting or hold 1 sec. to previous selection list
B-3 	Program selection:	prog (Programming for basic or advance setting): Default:basic	Shift Increase Decrease Enter In parameters setting level, default is basic，during setting , it only show common functions,advance functions is hidden.User can change setting in each group , [ProG] set it AdunC (advance) to show all functions.
B-4 	Relay stard band:	Setting range:00.00~99.99 Default:0.00	Shift Increase Decrease Enter When display exceed set start band and after Start delay time ,then relay compare PV value, energized.
B-5 	Relay start delay time:	Setting range: 0.00.00~9.59.9 Default:0.00.0	Press values blink,press, & change value or selection when done press to next setting or hold 1 sec. to previous selection list
B-6 	Relay hysteresis time:	Setting range: 0.00~50.00 Default:0.00	Press values blink,press, & change value or selection when done press to next setting or hold 1 sec. to previous selection list
B-7 	Relay start delay time:	Setting range:0.00.0~9.59.9 Default:0.00.0	Press values blink,press, & change value or selection when done press to next setting or hold 1 sec. to previous selection list
B-8  Back to B-1	Relay de-energized delay time:	Setting range: 0.00.0~9.59.9 Default:0.00.0	Press values blink,press, & change value or selection when done press to next setting or hold 1 sec. to previous selection list

■Operating Steps

Engineer level (AO Output)

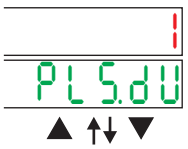
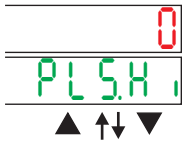
Shift Increase Decrease Enter

Parameters	Display	Setting	Operation
C-1 	Analogue output range	Setting range:Voltage/Current	Shift Increase Decrease Enter 電流: 0-10:0~10A 0-20:0~20A 4-20:4~20A 4.6.20.:4~12~20A 6 10.:±10A 6.20.:±20A 電壓: 0-5:0~5V 1-5:1~5V 0-10:0~10V 0.6.5:0~2.5~5V 1.6.5:0~3~5V 0.6.10:0~5~10V 6.5:±5V 6.10:±10V
C-2 	A/O Low scale range:	Setting range: -19999~29999	Shift Increase Decrease Enter Ex: When A/O set 4-20 (4~20mA) display value as 0~199.99 user may set [Ao.LS] (Ao.LS) 5 so when, display value is 5 , A/O will give 4mA output
C-3 	A/O high scale range:	Setting range: -19999~29999	Shift Increase Decrease Enter Ex: When A/O set 4-20 (4~20mA) display value as 0~199.99 user may set [Ao.HS] (Ao.HS)15so when, display value is 1 5 , A/O will give 20mA output
C-4 	A/O signal zero fine tunning:	Setting range: -32768~32767 Default:0000	Shift Increase Decrease Enter When A/O low value is different from display (low),fine tunning can be done from front panel. During tunning please connect a higher accuracy meter, to measure output signal, so as calibration is within accuracy
C-5 	A/O signal span fine tunning:	Setting range: -32768~32767 Default:0000	Shift Increase Decrease Enter When A/O high value is different from display (high),fine tunning can be done from front panel. During tunning please connect a higher accuracy meter, to measure output signal, so as calibration is within accuracy。
C-6 	Clear fine tunning value:	Setting range: NONE/AO.ZRO/AO.SPN/BOTH Default:NONE	Cycle Enter nonE 9.None0.: None clear Ao.Pro 9.Ao.Zro0.: Zero clear Ao.SPn 9.Ao.SPn0.: Span clear both 9.both0.:Zero 7 span clear
C-7 	A/O range limit:	Setting range in %:0~110%	Shift Increase Decrease Enter Press Enter values blink,press, ▲&▼ change value or selection when done press Enter to next setting or hold ◀ 1 sec. to previous selection list
Back to C-1	Press ◀ 1 sec to measuring page		

■Operating Steps

Engineer level (Pulse Output)

Shift Increase Decrease Enter

Parameters	Display	Setting	Operation
 按 ENT ▲▼ ◀ 按一秒返回	PULSE GROUP Display		Press ◀ 1 sec to [PULSE GroUP]
E-1 	Pulse output /Count setting:	Setting range:1~9999 Default:1	Shift Increase Decrease Enter ※When set 1,mean 1 count watt hr give 1 pulse: When set 1000, mean 1000 count watt hr give 1 pulse ,
E-2  Back to E-1	Hi-voltage output time:	Setting range: 0(AUTO)~5000 (x 4ms) Default:AUTO	Shift Increase Decrease Enter ※When set 0, mean Duty cycle.is 50% ; setting 1~5000(x4ms.) time length , please beware at long time length, high frequency the output may remain at H-voltage and not completing a full pulse cycle, resulting data not readable.
Press ◀ 1 sec to measuring page		RELAY / PULSE output of the outputs can only choose a functional output EX: Select PULSE output and then RELAY function no output and vice versa	

MWH-10-A MODBUS ADDRESS TABLE**Address number are Hexadecima

(User Level)

Name	Address	Range	Explain	Initial	Write/Read	Note
totAL*	0000h	0~9999999999	Energy *(High Word)		R	
totAL*	0001h		Energy *(Mid Word)		R	
totAL*	0002h		Energy *(Low Word)		R	
rL-SP*	0008h	-19999~29999	Relay1 Set Point (for watt only)	3000	R/W	
AoLS*	000Eh	-19999~29999	Analogue Output Low Scale (for watt only)	0	R/W	
AoHS*	0011h	-19999~29999	Analogue Output High Scale (for watt only)	5000	R/W	
Pu*	0019h	-19999~29999	Present Value		R	
PtPr i*	0021h	500~10000	Primary Voltage of PT *(Low Word)	5000	R/W	
CtPr i*	0023h	10~29999	Primary Current of CT *(Low Word)	500	R/W	
RELAY STATUS	002Ch	0~1	RELAY STATUS 0=Relay off 1=Relay on	0	R	

SYSTEM STATUS	002Eh	0~1	SYSTEM STATUS
			bit0 =1 EEP fail;
			bit1 =1 Input calibration fail;
			bit2 =1 Input calibration NG;
			bit3 =1 Analogue Output calibration fail;
			bit4 =1 Analogue Output calibration NG
					R	

rESEt	0031h	0~1	The Reset for Energy and Batch Energy 0:No(no) 1:Yes(YES)	0	R/W	

(Engineer Level)

(Input Group)

Name	Address	Range	Explain	Initial	Write/Read	Note
uUnit	0034h	0~1	Unit for Primary Voltage of PT 0: V (u) 1: kV (Ku)	0	R/W	
PtSEC	0035h	500~5000	Secondary Voltage of PT	3000	R/W	
CtSEC	0036h	1000/5000	Secondary Current of CT	5000	R	
YUnit	0037h	0~6	Unit and Resolution of Power 0: 0.1W (0.1W) 1: 1W (1W) 2: 0.01KW (0.01KW) 3: 0.1KW (0.1W) 4: 1KW (1KW) 5: 0.01MW (0.01MW) 6: 0.1MW (0.1MW) 7: 1MW (1MW)		R	
YHUnt	0038h	0~6	Unit and Resolution of Energy 0: 0.1W (0.1W) 1: 1W (1W) 2: 0.01KW (0.01KW) 3: 0.1KW (0.1W) 4: 1KW (1KW) 5: 0.01MW (0.01MW) 6: 0.1MW (0.1MW) 7: 1MW (1MW)		R	
Y-diu	003Ch	0~1	Watt high-resolution 0:OFF(Normal) 1:ON(High)	0	R/W	
LoCUt	003Dh	0~1000	Low Cut 0.0~100.0%	2	R/W	
AuG-P	003Eh	2~99	Average display for Power(Watt)	5	R/W	
PLSdu	0040h	1~9999	Pulse devider	1	R/W	
PCodE	0041h	0000~9999	Pass Code	1000	R/W	
FLoCK	0042h	0~3	Function Lock 0: none(nonE) 1: User Level(USEr) 2: Engineer Level(EnG) 3: All(ALL)	0	R/W	

(Relay Group)

Name	Address	Range	Explain	Initial	Write/Read	Note
rL-Sb	0045h	0000~9999	Start Band of input for relay energized	0	R/W	
rL-Sd	0046h	0000~5999 (0.1second)	Start Delay Time of input 1 for relay energized	0	R/W	
rL-Md	0047h	0~1	Relay 1 Energized Mode 0: oFF (no use); 1: Lo (Low Energized); 2: H i (High Energized) 3: Lo HoLd (Low Energized Hold) 4: H i HoLd (High Energized Hold)	2	R/W	
rL-HY	0048h	0000~5000	Hysteresis of Relay 1	0	R/W	
rL-rd	0049h	0000~5999 (0.1second)	Energized Delay Time of Relay 1	0	R/W	
rL-Fd	004Ah	0000~5999 (0.1second)	De-Energized Delay Time of Relay 1	0	R/W	
rYrSt	004Fh	0~1	Reset for Relay Energized Latch 0: No(no) 1: Yes(yes)	0	R/W	

(AO Group)

Name	Address	Range	Explain	Initial	Write/Read	Note
AotP	0058h	0~5	Analog Output Type 0: 0~5V 1: 1~5V 2:0~5V 3: 0~2.5~5V 4: 1~3~5V 5:0~5~10V 6: ±5V 7:± 10V 8: 0~10mA 9: 0~20mA 10:4~20mA 11:4~12~20mA 12:± 10 mA 13:± 20 mA	10	R/W	
PSCLr	005Ah	0~3	The clear of Analogue output zero and Analogue output span 0: None(nonE) 1: Analogue output zero (AoPro) 2: Analogue output span (AoSPn) 3: Both(botH)	0	R/W	
AoLMt	005Bh	00.00%~110.00%	Analogue Output High Limit	11000	R/W	

(RS485 Group)

Name	Address	Range	Explain	Initial	Write/Read	Note
AdrES	005Eh	1~255	RS485 address	1	R/W	
bAUd	005Fh	0~5	RS485 baud rate 0:1200 **1**: 2400 2:4800 3:9600 4:19200 5:38400	3	R/W	
Pr itY	0060h	0~3	RS485 parity 0: n-8-1(nStb1) **1**: n-8-2(nStb2) 2: odd(odd) 3: even(EuEn)	1	R/W	