

WM3

Digital Watt meter

- Effective power indication by RMS measurement
- No need for a converter through voltage and current measurement methods
- Maximum measurement range of 220 V a.c.
- Various outputs (relay 4-20 mA d.c. open collector)



Specification

Power Supply		100 - 240 V a.c. 50 - 60 Hz Allowable percentage of voltage difference : 85 ~ 110 %
Power consumption		6 VA
Display type		7 Segment LED Display
Insulation resistance		Above 100MΩ (500 V d.c. mega standard) between external terminal and case
Max voltage durability		Above 2000 V a.c. per 1 min between external terminal and case
Max noise durability		Square wave noise due to noise simulator, pulse width 1 μ s $\pm$ 1000 V
Max vibration durability	Malfunction	double amplitude in each 0.5 mm X, Y, Z direction for 1 hour
	Durability	double amplitude in each 0.75 mm X, Y, Z direction for 2 hours
Max shock durability	Malfunction	100 m/s ² each X, Y, Z direction for 3 times
	Durability	300 m/s ² each X, Y, Z direction for 2 times
Ambient temperature		-10 ~ 55 °C (No freezing allowed)
Ambient humidity		Relative humidity 35 ~ 85 % R.H.
Ambient environment		Corrosiveness gas not allowed
Storage ambient temperature		-20 ~ 65 °C (No freezing allowed)
Relay life		Mechanically : 20,000,000 ps Min. Electrically : 100,000 ps Min.
Weight		Approx. 300 g

Suffix code

Model	code				Information
WM	☐	☐	☐	☐	Digital Wattmeter
External dimension	3				External dimension (96mm X 48mm)
Type of phase	1				Single phase 2 W
Measurement input specification		01(*)		XXX: 5A (general C.T uses)	Current transform ratio setup (C.T excluded)
		02(*)		XXX: 1A (general C.T uses)	Current transform ratio setup (C.T excluded)
		03		0 ~ 2.5A(H-1W C.T uses)	0-500.0 W Max(C.T included)
		04		0 ~ 5A(H-1W C.T uses)	0-1100 W Max(C.T included)
		05		0 ~ 10A(H-1W C.T uses)	0-2200 W Max(C.T included)
		06		0 ~ 15A(H-1W C.T uses)	0-3300 W Max(C.T included)
		07		0 ~ 30A(H-2W C.T uses)	0-6600 W Max(C.T included)
		08		0 ~ 50A(H-2W C.T uses)	0-11.00 KW Max(C.T included)
		09		0 ~ 80A(H-4W C.T uses)	0-17.60 K W Max(C.T included)
		10		0 ~ 100A(H-4W C.T uses)	0-22.00 K W Max(C.T included)
		11		0 ~ 150A(H-5W C.T uses)	0-33.00 KW Max(C.T included)
		12		0 ~ 200A(H-5W C.T uses)	0-44.00 K W Max(C.T included)
Output specification (option)		N		only for display	
		0		Relay (HI, GO, LO) + Current output (4 - 20 mA)	
		1		Relay(HI, GO, LO)	
		2		NPN TR(HI, GO, LO) + Current output (4 - 20 mA)	
		3		PNP TR(HI, GO, LO) + Current output (4 - 20 mA)	
		4		NPN TR(HI, GO, LO) + RS485 Output	
		5		PNP TR(HI, GO, LO) + RS485 Output	

■ C.T(Current Transfomers)

※ Spec 01 and 02 use general current transformer and users must set current transform ratio (Refer to setting method of current transform ratio)
spec 03 ~ 12 are accurate measuring wattmeter which uses H series C.T of accuracy 0.2%.

■ Cautious

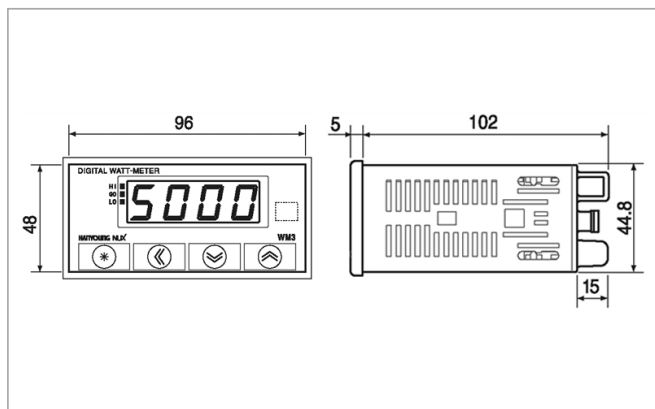
spec of 03 ~ 12 cannot use general current transformer and it is unnecessary to set current transform ratio.

- Type of measuring spec is single phase 2 lines and when current transformer is 200 A : 5 A, then please purchase WM2-101 and use it. (if current transformer is 200A : 1A then please use WM3-101)
- Initial current transformer setting for spec 01 and 02 is set with 100 A
- Output spec 0 ~ 5 are option
- PV (output displaying value)
- RS485 output spec is coming soon

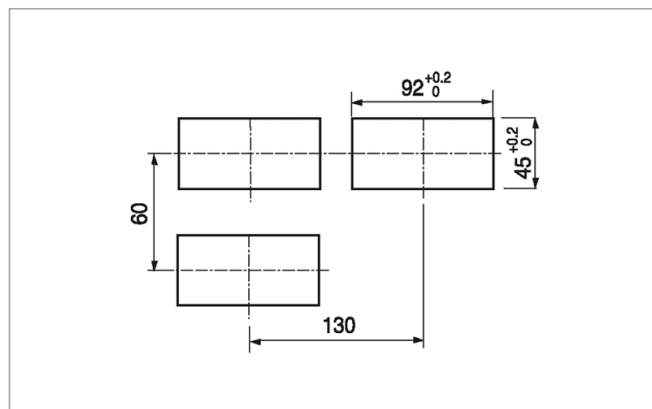
■ Dimension & Panel cutout

[Unit : mm]

■ Dimension



■ Panel cutout

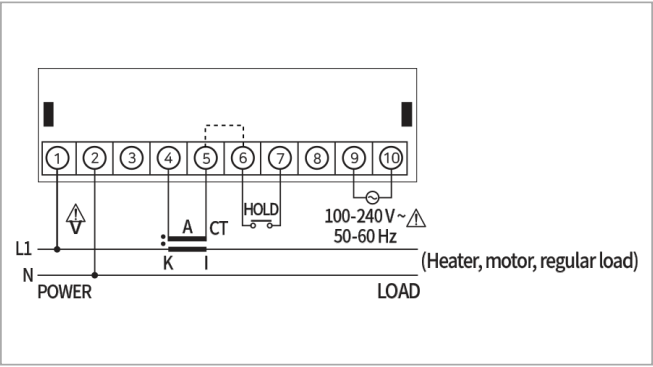


■ Function

Measurement type	Cycle measuring type, cos ϕ = LEDAD 0.8 - 1 - LAG 0.8
Display cycle	Min. : 0.1 second, Max. 2 second
Displayable number of digits	-1999 ~ 9999 (4 digits standard)
Measuring list	Power consumption
Input range	0 - 240 V a.c. 50 - 60 Hz
Function of decimal point	Selection due to internal parameter
Function of scaling	Function of displaying temporal numerical values which is converted from measured (input)
Hold function	Automatic max and min Peak value detection hold and external hold
Control	Displaying value hold
Other functions	▪ Remote local switching (communication output type) ▪ Display max/min value by frontkey ▪ Function of handling average value and delaying displaying cycle ▪ Changing comparative output setting ▪ Set value changing protective function
Output type	▪ Relay contact output ▪ Transistor output (NPN, PNP) ▪ Current output (4 - 20 mA) ▪ Communication output (RS485)

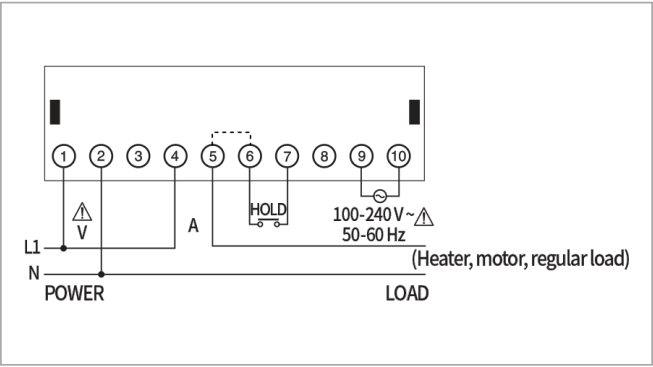
■ Connection diagram

■ WM3-1□□□



- **Current transformer used**
use specific current transformer or general current transformer

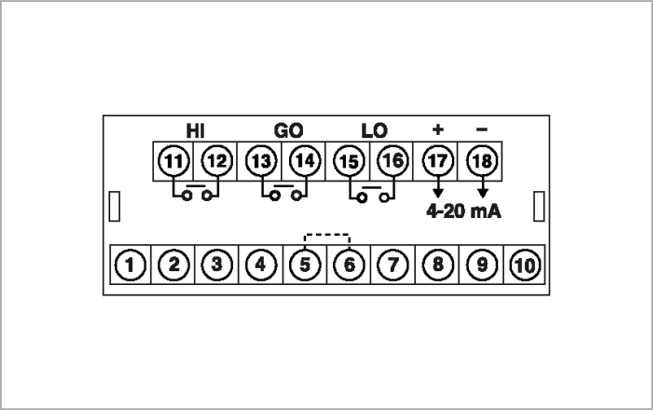
■ WM3-101□



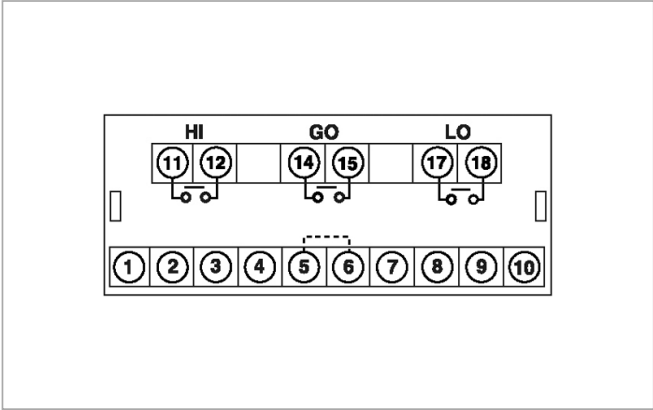
- **Current transformer not used**
 - When measuring below 5 A, wire directly : WM3 - 101 - X
 - When measuring below 1 A, wire directly : WM3 - 102 - X
- * Cautious | cannot wire directly within product suffix code number 03 ~ 12

■ Sub output

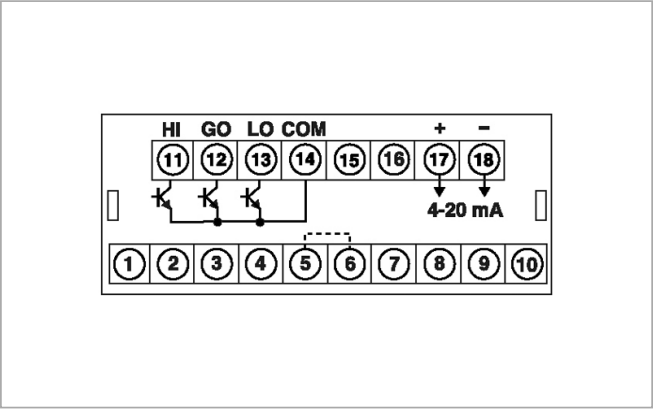
■ WM3-1□□0 (Relay output, 4 - 20 mA current output)



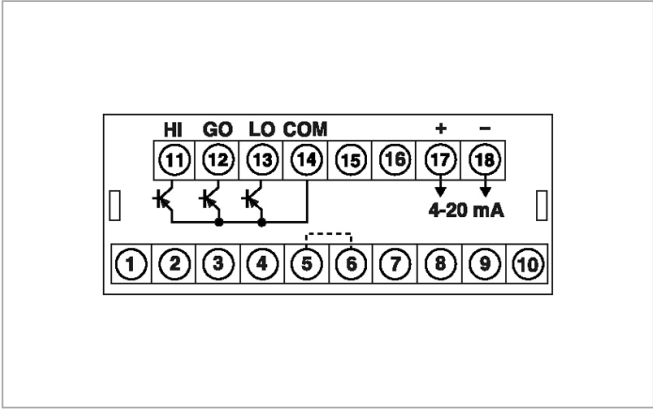
■ WM3-1□□1 (Relay output)



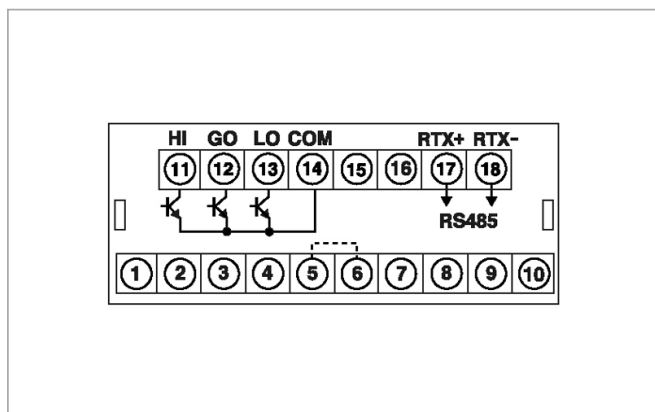
■ WM3-1□□2 (NPN TR, 4 - 20 mA current output)



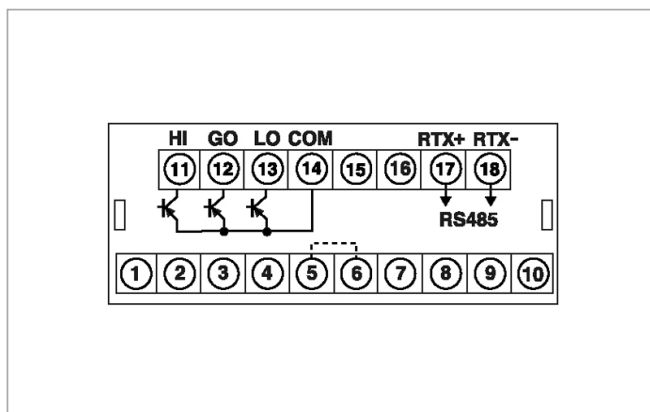
■ WM3-1□□3 (PNP TR, 4 - 20 mA current output)



■ WM3-1□□4 (NPN TR, RS485)



■ WM3-1□□5 (PNP TR, RS485)



Parameter setting

Parameter set up method using current transformer (C.T) ratio

Current Transformers		Parameter1 setting value	Calculated value (power factor = 1) Input voltage(V) X input current(I)
Primary	Secondary		
5 A	5 A or 1 A	5	220 V x 5 A = 1100 W
10 A		10	220 V x 10 A = 2200 W
15 A		15	220 V x 15 A = 3300 W
20 A		20	220 V x 20 A = 4400 W
25 A		25	220 V x 25 A = 5500 W
30 A		30	220 V x 30 A = 6600 W
40 A		40	220 V x 40 A = 8800 W
50 A		50	220 V x 50 A = 11.00 kW
60 A		60	220 V x 60 A = 13.20 kW
75 A		75	220 V x 75 A = 16.50 kW
100 A		100	220 V x 100 A = 22.00 kW
120 A		120	220 V x 120 A = 26.40 kW
150 A		150	220 V x 150 A = 33.00 kW
200 A		200	220 V x 200 A = 44.00 kW
240 A		240	220 V x 240 A = 52.80 kW
250 A		250	220 V x 250 A = 55.00 kW
300 A		300	220 V x 300 A = 66.00 kW
400 A		400	220 V x 400 A = 88.00 kW
500 A		500	220 V x 500 A = 110.0 kW
600 A		600	220 V x 600 A = 132.0 kW
750 A		750	220 V x 750 A = 165.0 kW
800 A		800	220 V x 800 A = 176.0 kW
1000 A		1000	220 V x 1000 A = 220.0 kW
1200 A		1200	220 V x 1200 A = 264.0 kW
1500 A		1500	220 V x 1500 A = 330.0 kW

- Does not apply to specific current transformer that uses spec number 03 ~ 12

Output specification

PARAMETER	MODE	WM3
PARAMETER 1	Ct_{r}	100
	2A_{dc}	10
	3.5CH	0
	4.5CL	0
	$5.\text{dPP}$	0000
	$6.\text{PdH}$	oFF
	$7.\text{LoC}$	oFF
	$8.\text{A}_{\text{dr}}$	00
	$9.\text{bPS}$	96k
PARAMETER 2	HHP_{v}	-
	LLP_{v}	-
	HSE_{t}	5000
	LSE_{t}	2000
	$\text{PS}_{\text{o}}_{\text{t}}$	oFF
	HYSE_{t}	01

- A_{dr} and bPS may not be displayed depends on spec.
- Ct_{r} and dPP may vary depends on spec.

