

# DIGITAL POWER METER OF PROGRAMMABLE



## FEATURES

- Accuracy 0.25% F.S. (watt, var, power factor)
- Wide switchable readout range
- Dielectric strength 2KVac (input/output/power)
- Surge test 4KV (1.2 x 50µs)
- High stability & Dimension small

## 1. MODEL: PF-M [Color Code]

NO	Input Type	NO	Input Unit	NO	Input Voltage (range)	NO	Input Current (range)	NO	Input Frequency	NO	Output Voltage	NO	Output Current	NO	Aux. Power
WW	Watt	1	1Ø2W	1	0-120V (85-150V)	1	0-1 A (0-1.2A)	A	50 Hz	11	DC 0-1V	21	DC 0-1 mA	1	AC 110/220V(50/60Hz)
VV	Var	3	3Ø3W	2	0-240V (180-300V)	2	0-5 A (0-6A)	B	60 Hz	12	DC 0-5 V	22	DC 0-5 mA	2	DC 24V
PF	Power Factor	4	3Ø4W	3	0-400V (320-480V)	3	SPECIFIED	C	400 Hz	13	DC 1-5 V	23	DC 0-10 mA	3	DC 48V
PA	Phase Angle	9	SPECIFIED	9	SPECIFIED					14	DC 0-10 V	24	DC 0-20 mA	4	DC 110V
									• Frequency ±10%	16	DC 2-10V	25	DC 4-20 mA	5	DC 220V
										19	SPECIFIED	29	SPECIFIED	6	AC 90~260V
														9	SPECIFIED
															• ±20% of rate, less 3.5VA for AC input • ±20% of rate, less 3W for DC input • ±10% of rate, less 3.5VA for AC switching input

## 2. Specification

- Aux. power supply : AC110 & 220 ±20% (50 or 60Hz) (Optional DC 24V or 48V or 110V or 220V switching AC 90~260V±10%)
- Measuring accuracy : 0.25% F.S. (watt, var, phase angle) 0.25% F.S.±0.25° (Power Factor) (-0.3~1, 0.3-1)
- Temp. coefficient : 100ppm/°C (0-50°C)
- Input burden : ≤ 0.2VA (Voltage); ≤0.2VA (Current)
- Max. input over : 3 x rated continuous (Current) 2 x rated continuous (Voltage)
- Sampling time : 3 cycles/sec.
- Display : Red high efficiency LEDs high 14.22mm (0.56")
- Output ripple (p-p) : < 0.1% F.S
- Response time : ≤ 300ms (0-90%)
- Output drive capability : ≤ 10mA for voltage mode ≤ 10V for current mode
- Dielectric strength : 2KVac/1 min. (power/input/output)
- Surge test : ANSI C37.90/1974, DIN-IEC255-4 impulse voltage 4KV (1.2x50µs)
- Operating condition : 0~50°C (20 to 90% RH non-condensed)
- Storage condition : 0~70°C (20 to 90% RH non-condensed)

## 3. Standard analog calibration table (SAC)

Model		Element connection	Standard analog calibration (Watts or Vars)					
Watts	Vars		V = 120V		V = 240V		V = 400V	
			1A	5A	1A	5A	1A	5A
PW1	PV1	1Ø2W	100	500	200	1K	400	2K
PW3	PV3	3Ø3W	200	1K	400	2K	800	4K
PW4	PV4	3Ø4W	300	1.5K	600	3K	1.2K	6K

## 4. Outside dimension and connection diagram

• Input range span (GAIN) selection

Span setting % =  $\sum N$

N%	1	2	4	8	10	20	40	80
P	1	2	3	4	5	6	7	8

(Status off: enable, All poles off  $\sum n = 165\%$  All poles on  $\sum n = 0\%$ )

## 5. Programming formula

- DR: display range
- SAC: standard analog calibration
- PR: PT ratio
- CR: CT ratio
- Y: percent output (0-100%)

- DR = PR x CR x SAC
- Span → X = [DR/200]%

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## 6. Application

### ▲ Example 1: PF-PWW1-12B

Input range ..... (PR = 110V/110V = 1)  
 (1ø2W, 60Hz) (CR = 100A/5A = 20)  
 (SAC = 500W)

Display range ..... (DR = PR x CR x SAC  
 = 1 x 20 x 500W  
 = 10000W)

• (Span) X = (10000/200)% = 50%

• X → 

1	2	3	4	5	6	7	8
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 ON  
 OFF  
 (P<sub>5</sub>-P<sub>7</sub>-off & the rest on → ΣN = 50%)

• Setting decimal point all off

### ▲ Example 2: PF-PWW3-12B

Input range ..... (PR = 69KV/115V = 600)  
 (3ø3W, 60Hz) (CR = 1000A/5A = 200)  
 (SAC = 1KW)

Display range ..... (DR = PR x CR x SAC  
 = 600 x 200 x 1KW  
 = 120.00MW)

• (Span) X = (12000/200)% = 60%

• X → 

1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---

 ON  
 OFF  
 (P<sub>6</sub>-P<sub>7</sub>-off & the rest on → ΣN = 60%)

• Setting decimal point "3" on

### ▲ Example 3: PF-PWW4-32B

Input range ..... (PR = 440V/440V = 1)  
 (3ø4W, 60Hz) (CR = 1000A/5A = 200)  
 (SAC = 6KW)

Display range ..... (DR = PR x CR x SAC  
 = 1 x 200 x 6KW  
 = 1200.0KW)

• (Span) X = (12000/200)% = 60%

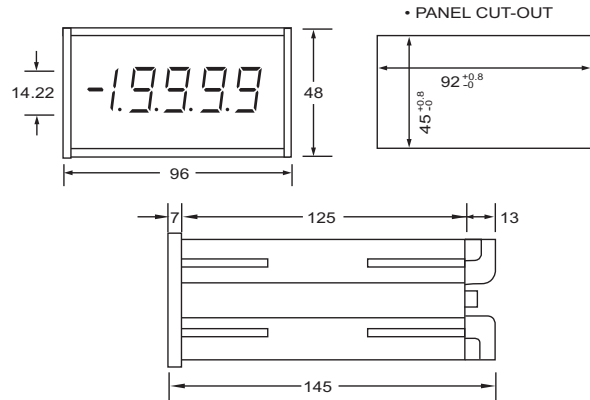
• X → 

1	2	3	4	5	6	7	8
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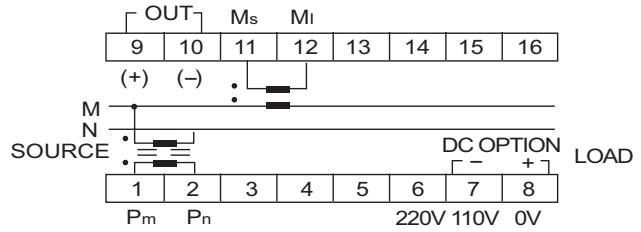
 ON  
 OFF  
 (P<sub>6</sub>-P<sub>7</sub>-off & the rest on → ΣN = 60%)

• Setting decimal point "4" on

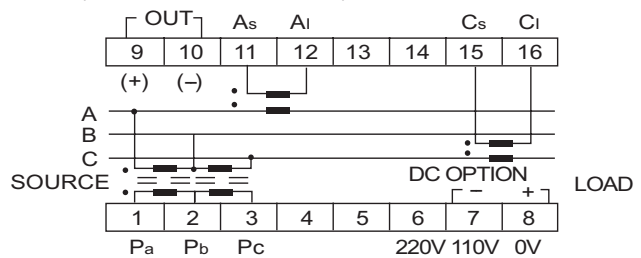
## 7. Outside dimension and connection diagram



### 1ø2W



### 3ø3W (Watt & Var Power Factor)



### 3ø4W

