

FEATURES

- Measures Power Factor or Phase Angle
1P2W, 3P3W, 3P4W Balanced / Unbalanced loads
- 0.2% Accuracy
- Output range programmable by dip-switch
- Low output ripple
- 4kV Isolation
- High stability & low cost



SPECIFICATION

INPUT:

Connection	AC Input		Range	Input Burden
	Voltage	Current		
1P2W	110V or 120V	5A (1A)	Power Factor: 0.5 ~ 1 ~ 0.5 (Lead) (Lag)	<0.10VA or <0.15VA
	220V or 240V			
3P3W	110V or 120V			
	220V or 240V			
3P4W	380V or 416V	Phase Angle: 60° ~ 0° ~ 60° (Lead) (Lag)		
	190V _{eff} - 110V _{eff} or 208V _{eff} - 120V _{eff}			
	380V _{eff} - 220V _{eff} or 416V _{eff} - 240V _{eff}			

* The maximum input are 450V and 5A. If the input over the level please connects with CT or PT to the transducer.
* V_{eff} means Voltages of line to line, V_{eff} means Voltages of line to neutral

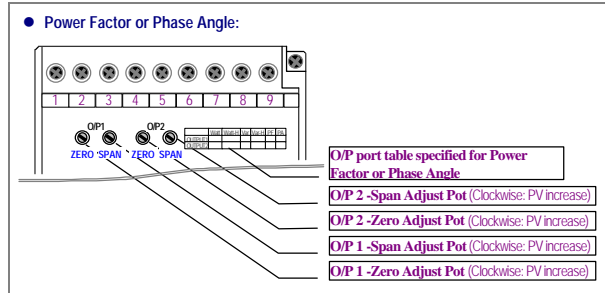
OUTPUT: Programming by Dip Switch inside

Output Range	Load Resistance	Output Resistance	Output Ripple
0 ~ 0.5 ~ 1 V	>50 ohm	<0.001 ohm	<0.2% R.O.
0 ~ 2.5 ~ 5 V	>250 ohm		
0 ~ 5 ~ 10 V	>500 ohm		
1 ~ 3 ~ 5 V	>250 ohm		
-1-0-+1 V	>75 ohm		
-5-0-+5 V	>375 ohm		
-10-0-+10 V	>750 ohm	>20M ohm	
0 ~ 0.5 ~ 1 mA	0 ~ 15K ohm		
0 ~ 5 ~ 10 mA	0 ~ 1500 ohm	>6M ohm	
0 ~ 10 ~ 20 mA	0 ~ 750 ohm		
4 ~ 12 ~ 20 mA	0 ~ 750 ohm	>20M ohm	
-1-0-+1 mA	0 ~ 11K ohm		
-5-0-+5 mA	0 ~ 2200 ohm	>6M ohm	
-10-0-+10 mA	0 ~ 1100 ohm		
-20-0-+20 mA	0 ~ 550 ohm		

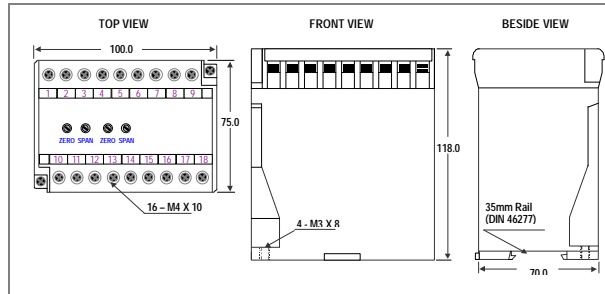
- Accuracy:** $\pm 0.2\%$ R.O. $\pm 0.3^\circ$
- Waveform effect:** $<0.2\%$ R.O. at 30% distortion
- Max. input over capability:** Voltage: 1.5 x rated continuous
2 x rated for 10 seconds
4 x rated for 2 seconds
Current: 3 x rated continuous
10 x rated for 10 seconds
50 x rated for 1 second
- Input frequency:** 50 Hz ± 3 Hz, 60 Hz ± 3 Hz
- Response time:** <250 msec.
- Span adjustment:** $\pm 5\%$ of R.O. (or $\pm 20\%$ of R.O. specify)
- Zero adjustment:** $\pm 2\%$ of R.O. (or $\pm 20\%$ of R.O. specify)
- Output load effect:** Current output $<0.1\%$ R.O.
Voltage output $<0.05\%$ R.O.
- Power supply:** AC 115/230V $\pm 15\%$, 50/60 Hz
AC 380 or 415V $\pm 15\%$, 50/60 Hz
Option: DC 24V, 48V, 110V, 220V $\pm 10\%$
Self Powered: Interior connection from input volt
Working volt: $\pm 15\%$ rated of input voltage
- Power effect:** $<0.05\%$ R.O.
- Power consumption:** <4 VA

- Mutual interference effect:** $<0.1\%$ R.O. between each element
- Magnetic field strength:** 400ATM $<0.2\%$ R.O.
- Operating temperature:** 0-60 °C
- Operating relative humidity:** 20-95 %RH, non-condensing
- Temperature coefficient:** <100 PPM/°C
- Storage temperature:** -10-70 °C
- Dielectric Strength:** IEC 414, IEC 688:1992, ANSI C37.90a
Between Input / Output / Power / Case
AC 4KV, 50/60Hz, 1 min.
IEC 255-4, ANSI C37.90a
6KV, 1.2 x 50 μ sec.
Common mode & differential mode
- Surge test:** IEC 255-4, ANSI C37.90a
6KV, 1.2 x 50 μ sec.
Common mode & differential mode
- Safety:** IEC 414, BS 5458
- Enclosure:** IEC 529 (IP50)
- Isolation:** Input / Output / Power / Case
- Insulation resistance:** >100 M ohm, DC 500V
- Performance:** Designed it comply with IEC 688
- Mounting:** Wall or DIN rail (EN 50022)
- Weight:** Under 650g

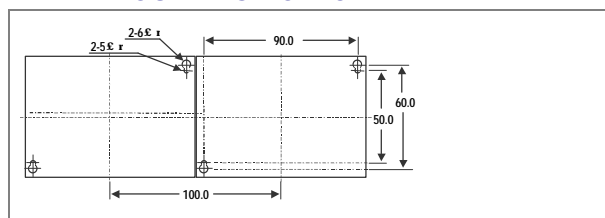
ADJUSTMENT



DIMENSIONS



PANEL MOUNTING HOLES



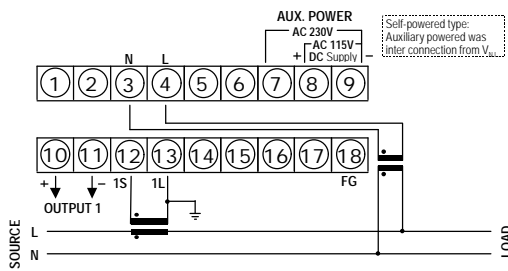
OUTPUT RANGE PROGRAMMING

OUTPUT	pcb no. WQHP2-2										JUMPER	
	DIP SWITCH										CN10	CN11
	1	2	3	4	5	6	7	8	9	10		
0 - 0.5 - 1 mA					on				on	on		
0 - 5 - 10 mA					on	on			on	on		
0 - 10 - 20 mA					on	on	on		on	on		
4 - 12 - 20 mA	on				on	on	on		on	on		
-1 - 0 - +1 mA					on							
-5 - 0 - +5 mA					on	on						
-10 - 0 - +10 mA					on	on						
-20 - 0 - +20 mA					on	on						
0 - 0.5 - 1 V		on	on	on				on	on	on		
0 - 2.5 - 5 V			on	on				on	on	on		
0 - 5 - 10 V			on	on				on	on	on		
1 - 3 - 5 V	on		on	on				on	on	on		
2 - 6 - 10 V	on		on	on				on	on	on		
-1 - 0 - +1 V		on	on	on				on				
-5 - 0 - +5 V			on	on				on				
-10 - 0 - +10 V			on	on				on				

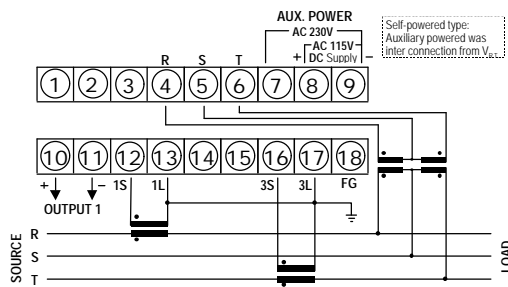
* JUMPER: (1) " " closed by jumper; (2) blank field mean open

CONNECTION DIAGRAM

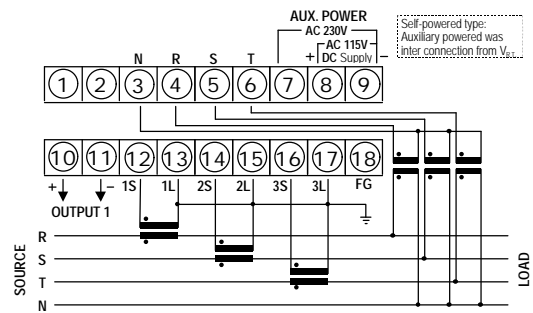
Power Factor / Phase Angle - 1P2W (Unbalanced Load)



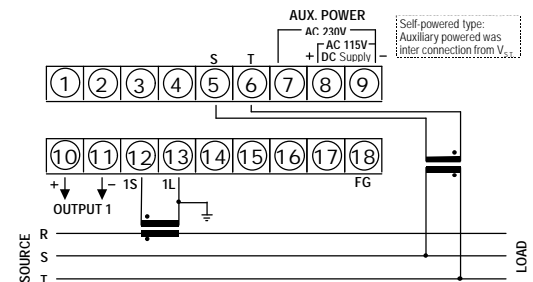
Power Factor / Phase Angle - 3P3W (Unbalanced Load)



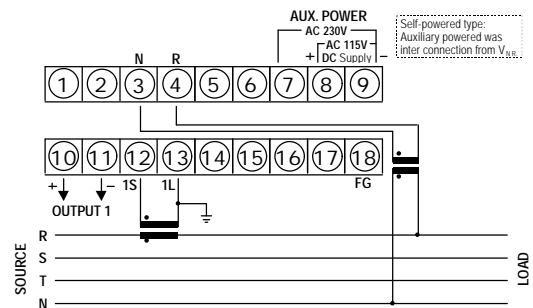
Power Factor / Phase Angle - 3P4W (Unbalanced Load)



Power Factor / Phase Angle - 3P3W (balanced Load)



Power Factor / Phase Angle - 3P4W (balanced Load)



ORDER INFORMATION

C		Input Type	Connection	Input	Input Freq.	Output	Aux. Power				
CODE	INPUT TYPE	CODE	INPUT RANGE	CODE	INPUT FREQ.	CODE	OUTPUT RANGE	CODE	OUTPUT RANGE	CODE	AUX. POWER
PF	Power Factor	A1	0 - 1 A	5	50Hz ±3Hz	A6	0 - 0.5 - 1 mA	V5	0 - 0.5 - 1 V	A1	AC 115/230 V
PA	Phase Angle	A5	0 - 5 A	6	60Hz ±3Hz	A7	0 - 5 - 10 mA	V6	0 - 2.5 - 5 V	A2	AC 380 V
		V1	110V or 120 V	0	Specify	A8	0 - 10 - 20 mA	V7	0 - 5 - 10 V	A3	AC 416 V
		V2	220V or 240V			A9	4 - 12 - 20 mA	V8	1 - 3 - 5 V	D2	DC 24 V
		V3	380V or 416V			AA	-1 - 0 - +1 mA	V9	-1 - 0 - +1 V	D4	DC 48 V
		V4	110V _r -63.5V _m or 120V _r -69.3V _m			AB	-5 - 0 - +5 mA	VA	-5 - 0 - +5 V	D1	DC 110 V
		V5	190V _r -110V _m or 208V _r -120V _m			AC	-10 - 0 - +10 mA	VB	-10 - 0 - +10 V	D3	DC 220 V
		V6	380V _r -220V _m or 416V _r -240V _m			AD	-20 - 0 - +20 mA	VO	Specify (V o/p)	AS	Self Powered
		AO	VO	Specify		AO	Specify (mA o/p)			O	Specify