

Features

- Measuring Power Factor or Phase Angle
- 1P2W, 3P3W, 3P4W Balanced or Unbalanced systems
- Precision measurement even for distorted wave
- Output signal programmable by dip-switch
- Low output ripple
- High impulse & Surge protection
- High stability & low cost
- CE certification



Ordering Information

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Input Type	Connection	Input	Input Freq.	Output	Aux. Power																																																																								
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Specification

Input: Power Factor / COS θ

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			
1P3W	220V ~ 110V	10A**	Phase Angle: 60 ~ 0 ~ 60 (Lead) (Lag)	≤ 0.10VA or ≤ 0.15VA
3P3W	110V or 120V			
	220V or 240V			
3P4W	380V or 416V			
	190V _{LL} -110V _{LN} or 208V _{LL} -120V _{LN}			
	380V _{LL} -220V _{LN} or 416V _{LL} -240V _{LN}			

* The maximum input is 450V and 5A in standard (10Amax input available in option), If the input over the level please connects with CT or PT to the transducer.
 * V_{LL} means Voltage of line to line; V_{LN} means Voltage of line to neutral.
 * The basic ref. value is base on second of PT & CT, and versus the high range of output.

OUTPUT: Power Factor or COS θ O/P Programming by Dip Switch inside

Output Range	Load Resistance	Output Resistance	Output Ripple
0 ~ 0.5 ~ 1 V	≥ 500Ω	≤ 0.001Ω	≤ 0.2% of F.S.
0 ~ 2.5 ~ 5 V	≥ 500Ω		
0 ~ 5 ~ 10 V	≥ 1000Ω		
1 ~ 3 ~ 5 V	≥ 500Ω	≥ 20MΩ	
0 ~ 0.5 ~ 1 mA	0 ~ 12KΩ		
0 ~ 5 mA	0 ~ 2400Ω	≥ 6MΩ	
0 ~ 5 ~ 10 mA	0 ~ 1200Ω		
0 ~ 10 ~ 20 mA	0 ~ 600Ω		
4 ~ 12 ~ 20 mA	0 ~ 600Ω		

Accuracy : ≤ ±0.7% of F.S.
 Waveform effect ≤ 0.2% of F.S. at 30% distortion
 Max. input over: 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

Response time: ≤ 250 ms
 Span adjustment: ≤ ±5% of F.S. (or ±20% of F.S. specify)
 Zero adjustment: ≤ ±2% of F.S. (or ±20% of F.S. specify)
 Output load effect: Current output ≤ 0.1% of F.S.
 Voltage output ≤ 0.05% of F.S.

Power Supply

Power supply: ADH : AC 85~264V , DC 100~300V
 ADL : AC / DC 20~56V
 Self Powered: Interior connection from input volt
 Working volt: ±15% rated of input voltage

Power effect: $\leq 0.05\%$ of F.S.
 Power consumption: ≤ 8 VA
 Mutual interference effect: $\leq 0.1\%$ of F.S. between each element
 Magnetic field strength: $400\text{ATM} \leq 0.2\%$ of F.S.

Surge test: IEC 255-4, ANSI C37.90a
 6KV, $1.2 \times 50 \mu\text{sec}$.
 Common mode & differential mode
 Insulation resistance: $\geq 100\text{M}\Omega$, DC 500V
 Safety: IEC 414, BS 5458
 Enclosure: IEC 529 (IP50)
 Certification Standard: IEC 60688(Except 3P3W)
 CE: EMC:EN61326:2003
 Safety(LVD): EN61010:2001

Environmental Conditions

Operating temperature: $0\sim 60^{\circ}\text{C}$
 Operating relative humidity: $20\sim 95\%$ RH, non-condensing
 Temperature coefficient: ≤ 100 PPM/ $^{\circ}\text{C}$
 Storage temperature: $-10\sim 70^{\circ}\text{C}$

Electrical Safety

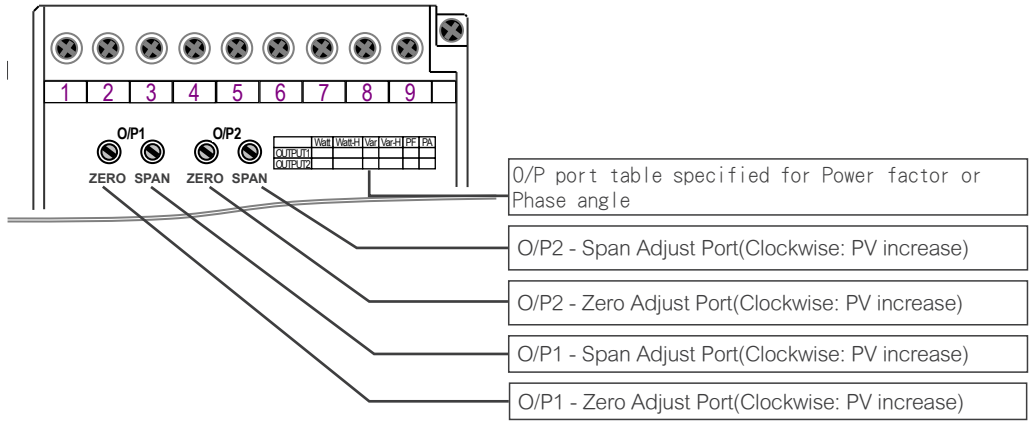
Dielectric Strength: IEC 414, IEC 688:1992, ANSI C37.90a
 Between Input / Output / Power / Case
 AC 4KV, 50/60Hz, 1 min.

Mechanical Structure

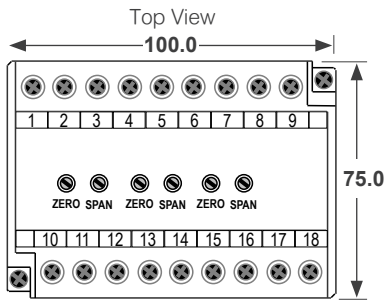
Case material: ABS Non-flammable (UL 94V-0)
 Mounting: Wall or DIN rail (EN 50022)
 Weight: under 650g

Adjustment

Power Factor or Phase Angle:

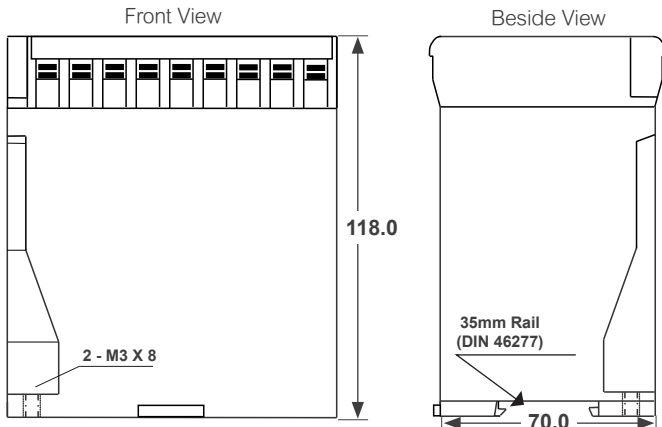
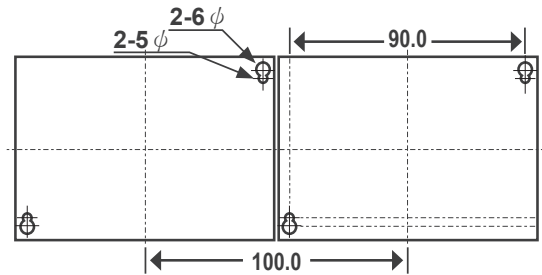


Dimensions



Unit: mm

Installation

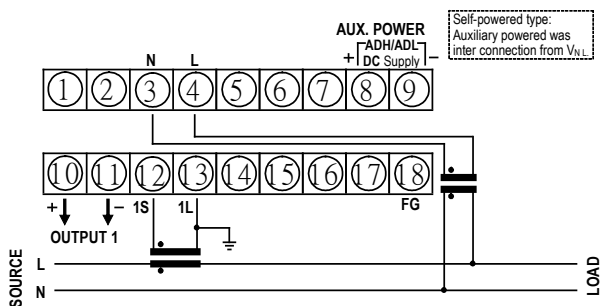


Output Range Programming

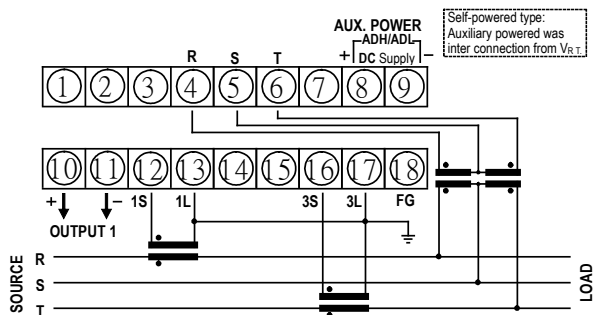
Output	PCB no. WQHP2-2									
	DIP Switch									
	1	2	3	4	5	6	7	8	9	10
0 ~ 0.5 ~ 1 mA					on				on	on
0 ~ 5 ~ 10 mA					on	on			on	on
0 ~ 10 ~ 20 mA					on		on		on	on
4 ~ 12 ~ 20 mA	on				on		on		on	on
0 ~ 0.5 ~ 1 V		on	on	on				on	on	on
0 ~ 2.5 ~ 5 V			on	on				on	on	on
0 ~ 5 ~ 10 V				on				on	on	on
1 ~ 3 ~ 5 V	on		on	on				on	on	on
2 ~ 6 ~ 10 V	on			on				on	on	on

Pin Assignment

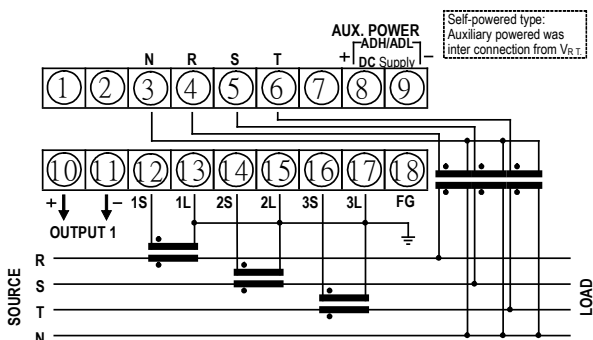
- Power Factor/Phase Angle - 1Φ2W (Unbalanced Load)



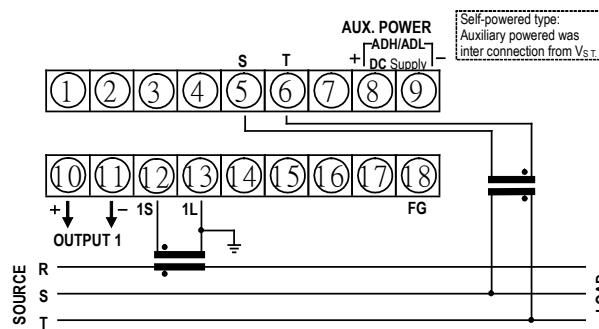
- Power Factor/Phase Angle - 3Φ3W (Unbalanced Load)



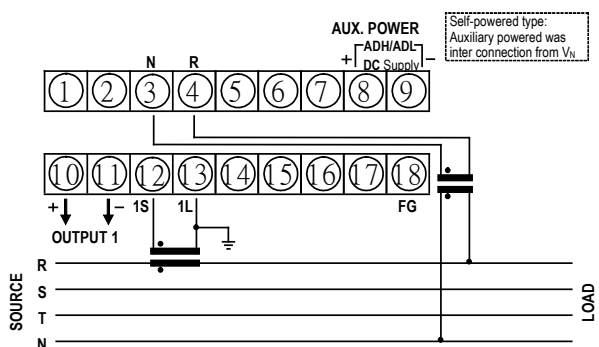
- Power Factor/Phase Angle - 3Φ4W (Unbalanced Load)



- Power Factor/Phase Angle - 3Φ3W (Unbalanced Load)



- Power Factor/Phase Angle - 3Φ4W (Balanced Load)



CPF/CPA

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