

# CW/CQ AC Watt / Var Transducer

## FEATURES

- Measuring Watts, Vars or Watts & Vars
- 1P2W, 1P3W, 3P3W, 3P4W Balanced or Unbalanced systems
- Precision measurement even for distorted waveforms with our True RMS option
- Output range programmable by dip-switch
- Low output ripple
- High impulse & surge protection
- High stability & low cost



## SPECIFICATIONS

INPUT: Watt / Var

Connection	AC Input		Basic Ref. Value Watt or Var	Input Burden
	Voltage	Current		
1P2W	110V or 120V	5A (1A)	± 0.5 K (± 0.1K)	≤ 0.10VA or ≤ 0.15VA
	220V or 240V		± 1.0 K (± 0.2K)	
1P3W	220V-110V		± 1.0 K (± 0.2K)	
3P3W	110V or 120V		± 1.0 K (± 0.2K)	
	220V or 240V		± 2.0 K (± 0.4K)	
	380V or 416V		± 3.0 K (± 0.6K)	
3P4W	190V <sub>LL</sub> -110V <sub>LN</sub> or 208V <sub>LL</sub> -120V <sub>LN</sub>	± 1.5 K (± 0.3K)		
	380V <sub>LL</sub> -220V <sub>LN</sub> or 415V <sub>LL</sub> -240V <sub>LN</sub>	± 3.0 K (± 0.6K)		

\* The maximum input is 450V and 5A as standard (10A option), if the input is above this level then a CT or VT needs to be connected to the transducer.  
 \* V<sub>LL</sub> means Voltage line to line; V<sub>LN</sub> means Voltage line to neutral.  
 \* The basic reference value is based on the VT & CT secondaries.

OUTPUT: Watt or Var O/P Programming by Dip Switch inside

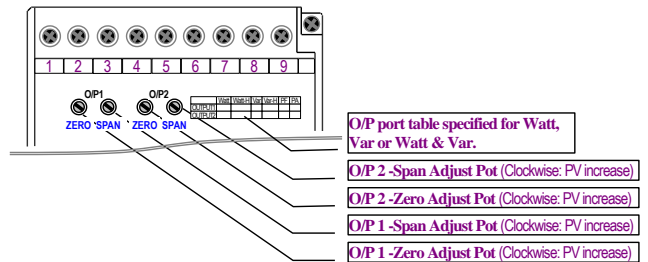
Output Range	Load Resistance	Output Resistance	Output Ripple
0 ~ 1 V / 0 ~ 0.5 ~ 1 V	≥ 500Ω	≤ 0.001 Ω	≤ 0.2% of F.S.
0 ~ 5 V / 0 ~ 2.5 ~ 5 V	≥ 500Ω		
0 ~ 10 V / 0 ~ 5 ~ 10 V	≥ 1000Ω		
1 ~ 5 V / 1 ~ 3 ~ 5 V	≥ 500Ω		
0 ~ 1 mA / 0 ~ 0.5 ~ 1 mA	0 ~ 12KΩ	≥ 20MΩ	
0 ~ 5 mA	0 ~ 2400Ω	≥ 6MΩ	
0 ~ 10 mA / 0 ~ 5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

- Accuracy:** ≤ ±0.2% of F.S.
- Waveform effect:** ≤ 0.2% of F.S. 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 mS
- Span adjustment:** ≤ ±5% of F.S.
- Zero adjustment:** ≤ ±2% of F.S.
- Output load effect:** Current output ≤ 0.1% F.S.  
 Voltage output ≤ 0.05% F.S.
- Power supply:** ADH: 85-264V AC; 100-300V DC  
 ADL: 20-56V AC/DC  
 Self-Powered: Internal connection from input  
 Working voltage: ±15% rated of input voltage
- Power effect:** ≤ 0.05% F.S.
- Power consumption:** ≤ 8VA
- Mutual interference effect:** ≤ 0.1% between each element
- Magnetic field strength:** 400ATM ≤ 0.2% of F.S.
- Operating temperature:** 0-60°C
- Operating relative humidity:** 20-95 %RH, non-condensing
- Temperature coefficient:** ≤ 100 PPM/°C

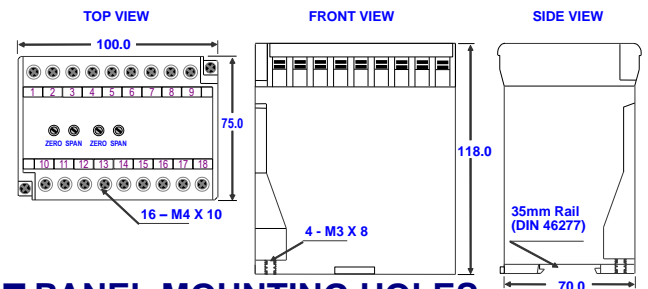
- Storage temperature:** -10~70 °C
- Surge test:** IEC 414, IEC 688:1992, ANSI C37.90a  
 Input / Output / Power / Case  
 AC 4KV, 50/60Hz, 1 minute  
 IEC 255-4, ANSI C37.90a  
 6KV, 1.2 x 50 μsec.  
 Common mode & differential mode  
 ≥ 100MΩ, DC 500V
- Insulation resistance:** IEC 414, BS 5458
- Safety:** IEC 529 (IP58)
- Enclosure:** IEC 60688
- Performance:** EMC: EN61326:2003
- CE:** EN61010:2001
- LVD:** ABS Non-flammable (UL 94V-0)
- Case material:** Wall or DIN rail (EN 50022)
- Mounting:** Approx. 750g
- Weight:**

## ADJUSTMENT

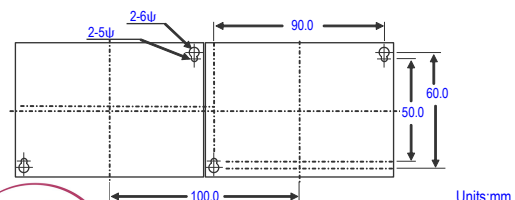
Watt / Var / Watt & Var:



## DIMENSIONS



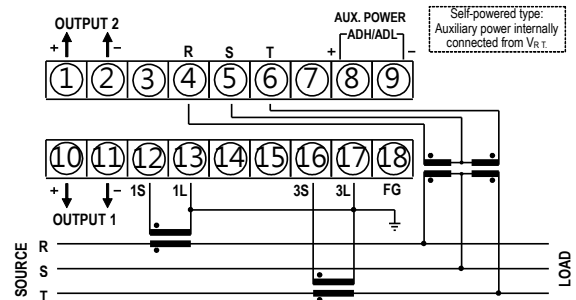
## PANEL MOUNTING HOLES



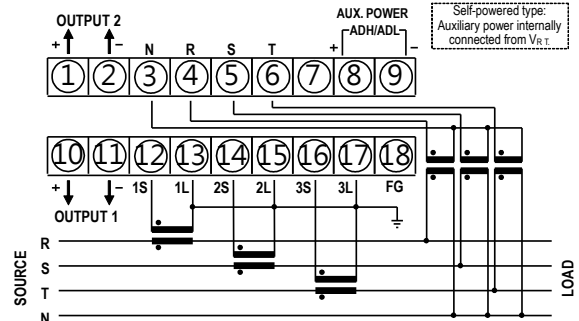
## OUTPUT RANGE PROGRAMMING

OUTPUT	Internal PCB Reference #WQHP-2									
	DIP SWITCH									
	1	2	3	4	5	6	7	8	9	10
0 ~ 1 mA					on					
0 ~ 5 mA					on	on				on
0 ~ 10 mA					on	on				
0 ~ 20 mA					on		on			
4 ~ 20 mA	on				on		on			
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 ~ 1 V		on	on	on					on	
0 ~ 5 V			on	on					on	
0 ~ 10 V				on					on	
1 ~ 5 V	on		on	on					on	
2 ~ 10 V	on			on					on	
0 ~ 0.5 ~ 1 V		on	on	on					on	on
0 ~ 2.5 ~ 5 V			on	on					on	on
0 ~ 5 ~ 10 V				on					on	on
1 ~ 3 ~ 5 V	on		on	on					on	on
2 ~ 6 ~ 10 V	on			on					on	on

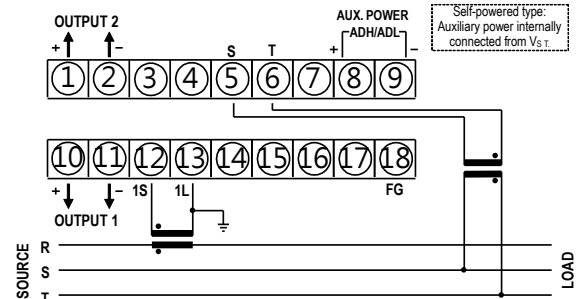
### Watt / Var / Watt & Var - 3Φ3W (Unbalanced)



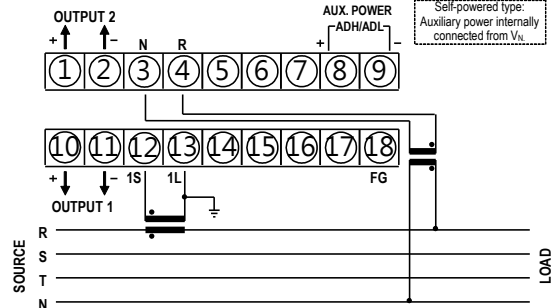
### Watt / Var / Watt & Var - 3Φ4W (Unbalanced Load)



### Watt / Var / Watt & Var - 3Φ3W (Balanced Load)

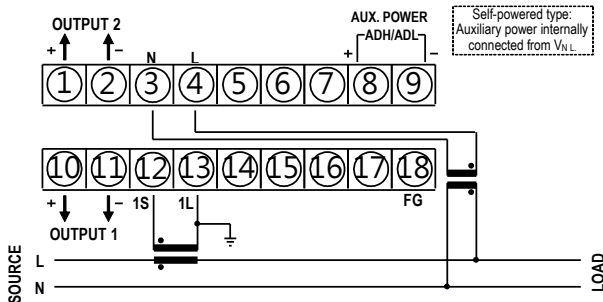


### Watt / Var / Watt & Var - 3Φ4W (Balanced Load)



## CONNECTION DIAGRAM

### Watt / Var / Watt & Var - 1Φ2W (Unbalanced Load)



## ORDERING INFORMATION

