

# AC WATT / VAR TRANSDUCER

CW/CQ

## FEATURE

- Measuring Watt, Var or Watt & Var  
1P2W, 3P3W, 3P4W Balanced or Unbalanced systems
- Precision measurement even for distorted wave
- Low output ripple
- High impulse & Surge protection
- High stability & low cost



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## SPECIFICATION

### INPUT: Watt / Var

Connection	AC Input		Basic Ref. Value	Input Burden
	Voltage	Current		
1P2W	110V or 120V	5A (1A)	$\pm 0.5\text{ K} (\pm 0.1\text{K})$	$\leq 0.10\text{VA}$ or $\leq 0.15\text{VA}$
	220V or 240V		$\pm 1.0\text{ K} (\pm 0.2\text{K})$	
3P3W	110V or 120V	5A (1A)	$\pm 1.0\text{ K} (\pm 0.2\text{K})$	
	220V or 240V		$\pm 2.0\text{ K} (\pm 0.4\text{K})$	
	380V or 416V		$\pm 3.0\text{ K} (\pm 0.6\text{K})$	
3P4W	$190V_{\ell\ell} - 110V_{\ell n}$ or $208V_{\ell\ell} - 120V_{\ell n}$	5A (1A)	$\pm 1.5\text{ K} (\pm 0.3\text{K})$	
	$380V_{\ell\ell} - 220V_{\ell n}$ or $416V_{\ell\ell} - 240V_{\ell n}$		$\pm 3.0\text{ K} (\pm 0.6\text{K})$	

\* The maximum input are 450V and 5A. If the input over the level please connects with CT or PT to the transducer.  
\*  $V_{\ell\ell}$  means Voltage of line to line;  $V_{\ell n}$  means Voltage of line to neutral.  
\* The basic ref. value are base on second of PT & CT, and versus the high range of output.

### OUTPUT:

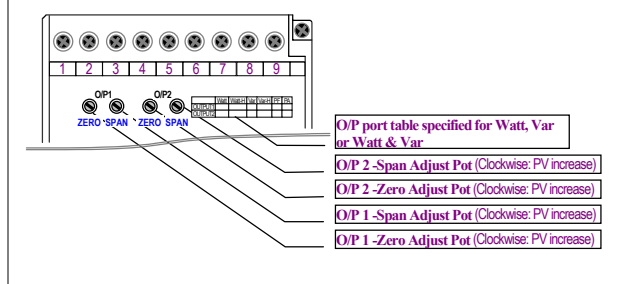
Output Range	Load Resistance	Output Resistance	Output Ripple	
0 ~ 1 V / 0 ~ 0.5 ~ 1 V	$\geq 50\text{ ohm}$	$\geq 0.001\text{ ohm}$	$\leq 0.2\% \text{ R.O.}$	
0 ~ 5 V / 0 ~ 2.5 ~ 5 V	$\geq 250\text{ ohm}$			
0 ~ 10 V / 0 ~ 5 ~ 10 V	$\geq 500\text{ ohm}$			
1 ~ 5 V / 1 ~ 3 ~ 5 V	$\geq 250\text{ ohm}$			
-1 ~ 0 ~ 1 V	$\geq 75\text{ ohm}$			
-5 ~ 0 ~ +5 V	$\geq 375\text{ ohm}$			
-10 ~ 0 ~ +10 V	$\geq 750\text{ ohm}$			
0 ~ 1 mA / 0 ~ 0.5 ~ 1 mA	0 ~ 15K ohm			$\geq 20\text{M ohm}$
0 ~ 5 mA	0 ~ 3000 ohm			$\geq 6\text{M ohm}$
0 ~ 10 mA / 0 ~ 5 ~ 10 mA	0 ~ 1500 ohm			
0 ~ 20 mA / 0 ~ 10 ~ 20 mA	0 ~ 750 ohm			
4 ~ 20 mA / 4 ~ 12 ~ 20 mA	0 ~ 750 ohm			
-1 ~ 0 ~ +1 mA	0 ~ 11K ohm	$\geq 20\text{M ohm}$		
-5 ~ 0 ~ +5 mA	0 ~ 2200 ohm	$\geq 6\text{M ohm}$		
-10 ~ 0 ~ +10 mA	0 ~ 1100 ohm			
-20 ~ 0 ~ +20 mA	0 ~ 550 ohm			

- Accuracy :  $\leq \pm 0.2\% \text{ R.O.}$
- Waveform effect:  $\leq 0.2\% \text{ R.O.}$  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  $\pm 3\text{ Hz}$ , 60 Hz  $\pm 3\text{ Hz}$
- Response time:  $\leq 250\text{ msec.}$
- Span adjustment:  $\leq \pm 5\%$  of R.O. (or  $\pm 20\%$  of R.O. specify)
- Zero adjustment:  $\leq \pm 2\%$  of R.O. (or  $\pm 20\%$  of R.O. specify)
- Output load effect: Current output  $\leq 0.1\% \text{ R.O.}$   
Voltage output  $\leq 0.05\% \text{ R.O.}$
- Power supply: AC 115/230V  $\pm 15\%$ , 50/60 Hz  
Option: 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:  $\leq 0.05\% \text{ R.O.}$
- Power consumption:  $\leq 4\text{VA}$

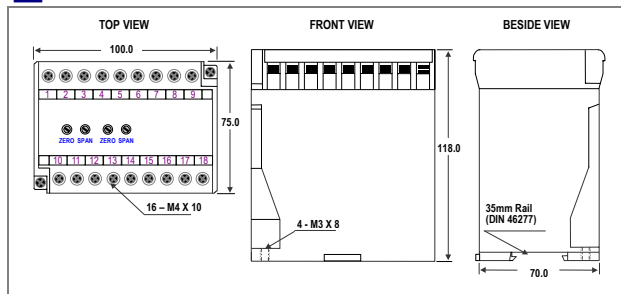
- Mutual interference effect:  $\leq 0.1\% \text{ R.O.}$  between each element
- Magnetic field strength: 400ATM  $\leq 0.2\% \text{ R.O.}$
- Operating temperature: 0~60 °C
- Operating relative humidity: 20~95 %RH, non-condensing
- Temperature coefficient:  $\leq 100 \text{ PPM}/^\circ\text{C}$
- Storage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

## ADJUSTMENT

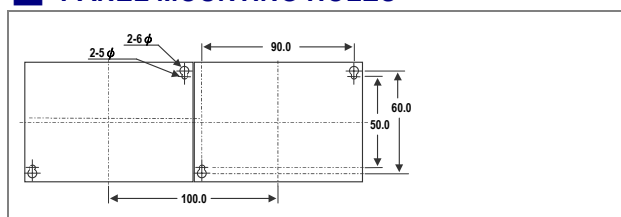
- Watt / Var / Watt & Var:



## DIMENSIONS



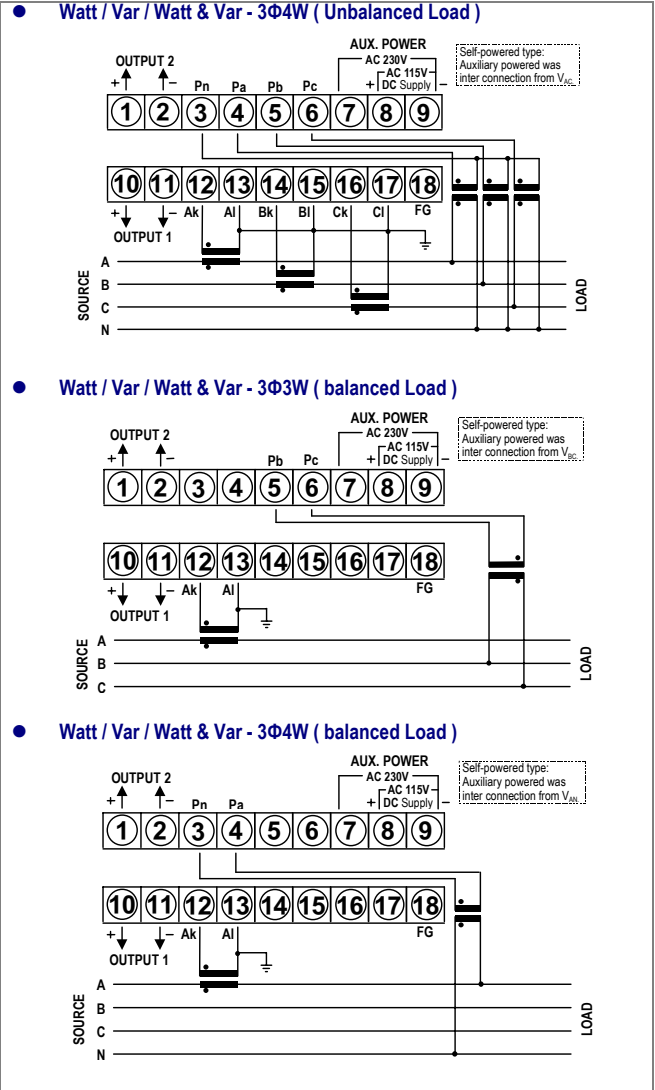
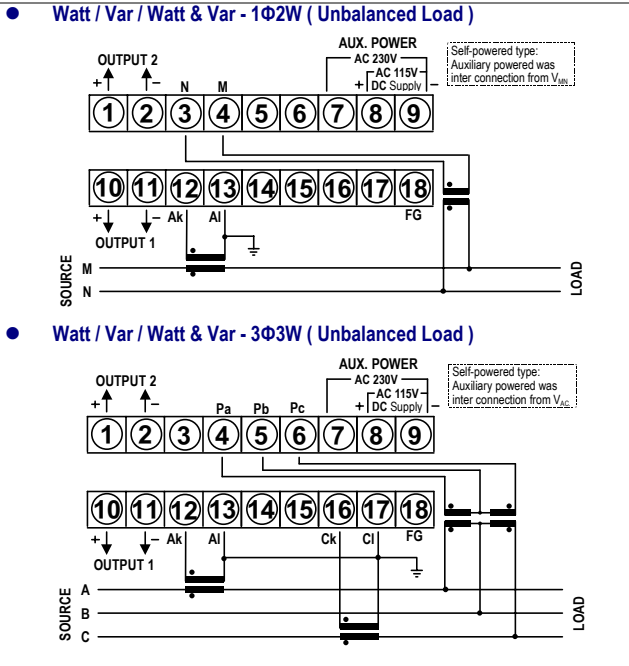
## PANEL MOUNTING HOLES



B1-3

POWER TRUE SYSTEMS CORP.

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## ORDER INFORMATION

C		Input Type	Connection	Input	Input Freq.	Output	Aux. Power				
<b>CODE</b>	<b>INPUT TYPE</b>	<b>CODE</b>	<b>INPUT RANGE</b>	<b>CODE</b>	<b>INPUT FREQ.</b>	<b>CODE</b>	<b>OUTPUT RANGE</b>	<b>CODE</b>	<b>OUTPUT RANGE</b>	<b>CODE</b>	<b>AUX. POWER</b>
W	Watt	A1	0 ~ 1 A	5	50Hz ±3Hz	A1	0 ~ 1 mA	V1	0 ~ 1 V	A1	AC 115/230 V
Q	Var	A5	0 ~ 5 A	6	60Hz ±3Hz	A2	0 ~ 5 mA	V2	0 ~ 5 V	A2	AC 380 V
WQ	Watt & Var	V1	110V or 120 V	O	Specify	A3	0 ~ 10 mA	V3	0 ~ 10 V	A3	AC 416 V
		V2	220V or 240V			A4	0 ~ 20 mA	V4	1 ~ 5 V	D2	DC 24 V
		V3	380V or 416V			A5	4 ~ 20 mA	V5	0 ~ 0.5 ~ 1 V	D4	DC 48 V
		V4	110V <sub>eff</sub> - 63.5V <sub>eff</sub> or 120V <sub>eff</sub> - 69.3V <sub>eff</sub>			A6	0 ~ 0.5 ~ 1 mA	V6	0 ~ 2.5 ~ 5 V	D1	DC 110 V
		V5	190V <sub>eff</sub> - 110V <sub>eff</sub> or 208V <sub>eff</sub> - 120V <sub>eff</sub>			A7	0 ~ 5 ~ 10 mA	V7	0 ~ 5 ~ 10 V	D3	DC 220 V
		V6	380V <sub>eff</sub> - 220V <sub>eff</sub> or 416V <sub>eff</sub> - 240V <sub>eff</sub>			A8	0 ~ 10 ~ 20 mA	V8	1 ~ 3 ~ 5 V	AS	Self Powered
		AO	Specify			A9	4 ~ 12 ~ 20 mA	V9	-1 ~ 0 ~ +1 V	O	Specify
						AA	-1 ~ 0 ~ +1 mA	VA	-5 ~ 0 ~ +5 V		
						AB	-5 ~ 0 ~ +5 mA	VB	-10 ~ 0 ~ +10 V		
						AC	-10 ~ 0 ~ +10 mA	VO	Specify (V o/p)		
						AD	-20 ~ 0 ~ +20 mA	AO	Specify (mA o/p)		