

AC Watt & Watt-Hr / Var & Var-Hr TRANSDUCER

CWHW/CQHQ

FEATURE

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



www.transducersandmeters.com

SPECIFICATION

INPUT: Watt / Var

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

* The maximum input are 450V and 5A. 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 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	$\geq 50 \text{ ohm}$	$\approx 0.001 \text{ ohm}$	$\leq 0.2\% \text{ R.O.}$	
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			$\geq 20M \text{ ohm}$
0 ~ 5 mA	0 ~ 3000 ohm			$\geq 6M \text{ ohm}$
0 ~ 10 mA / 0 ~ 5 ~ 10 mA	0 ~ 1500 ohm			$\geq 20M \text{ ohm}$
0 ~ 20 mA / 0 ~ 10 ~ 20 mA	0 ~ 750 ohm	$\geq 6M \text{ ohm}$		
4 ~ 20 mA / 4 ~ 12 ~ 20 mA	0 ~ 750 ohm	$\geq 20M \text{ ohm}$		
-1 ~ 0 ~ +1 mA	0 ~ 11K ohm	$\geq 6M \text{ ohm}$		
-5 ~ 0 ~ +5 mA	0 ~ 2200 ohm	$\geq 6M \text{ ohm}$		
-10 ~ 0 ~ +10 mA	0 ~ 1100 ohm	$\geq 6M \text{ ohm}$		
-20 ~ 0 ~ +20 mA	0 ~ 550 ohm	$\geq 6M \text{ ohm}$		

OUTPUT:

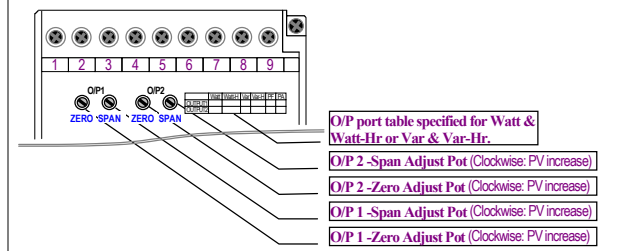
Output Range	Output Mode			
	1 count	Pulse Collect	Open Collect	Relav Contact
Per KWH or Per KVARH	10 counts	DC 15V	DC 30V.100mA (DC 60V)	AC 110.0.5A
	100 counts	10mA		DC 24V. 1A
	1000 counts			
	10000 counts			
	100000 counts			

- Input frequency: 50 Hz ± 3 Hz, 60 Hz ± 3 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 $\leq 0.1\%$ R.O.
Voltage output $\leq 0.05\%$ 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: $\leq 0.05\%$ R.O.
- Power consumption: $\leq 4VA$

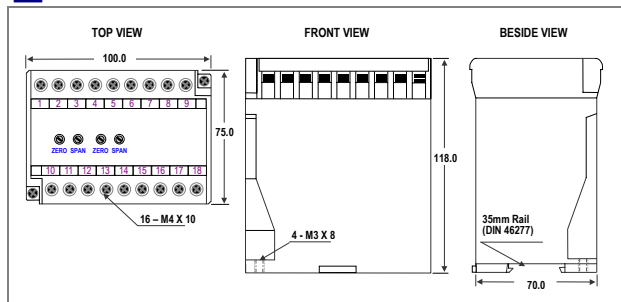
- Mutual interference effect: $\leq 0.1\%$ R.O. between each element
- Magnetic field strength: 400ATM $\leq 0.2\%$ R.O.
- Operating temperature: 0~60 °C
- Operating relative humidity: 20~95 %RH, non-condensing
- Temperature coefficient: $\leq 100 \text{ PPM}/^\circ\text{C}$
- Storage temperature: -10~70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

ADJUSTMENT

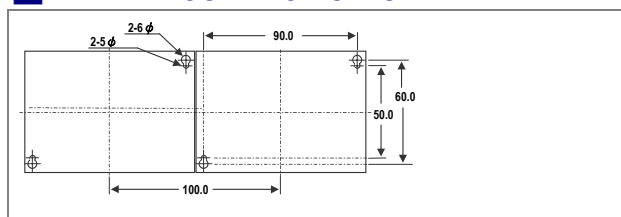
- Watt & Watt-Hr / Var & Var-Hr:



DIMENSIONS



PANEL MOUNTING HOLES



B1-7

AC Watt & Watt-Hr / Var & Var-Hr TRANSDUCER

CWHW/CQHQ

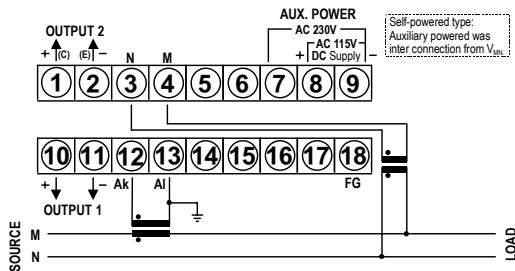
POWER TRUE SYSTEMS CORP.

www.transducersandmeters.com

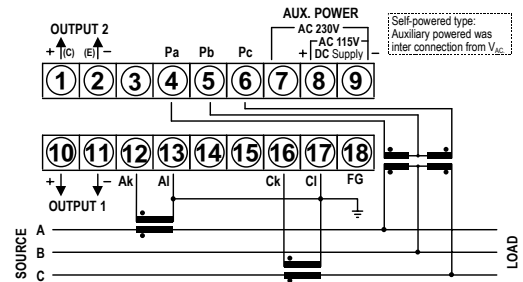
info@transducersandmeters.com

CONNECTION DIAGRAM

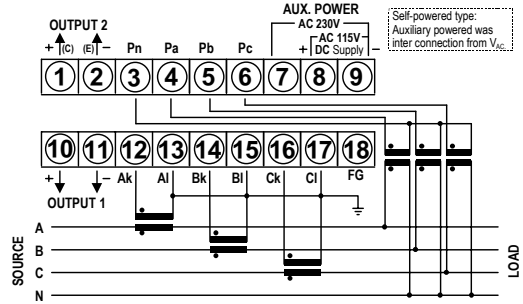
Watt & Watt-Hr / Var & Var-Hr - 1Φ2W (Unbalanced Load)



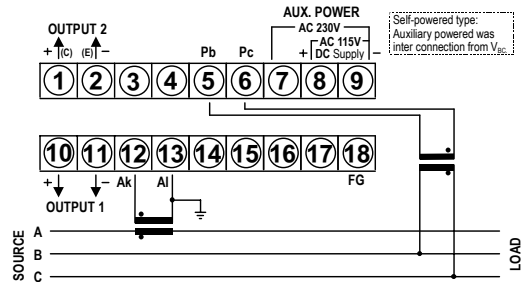
Watt & Watt-Hr / Var & Var-Hr - 3Φ3W (Unbalanced)



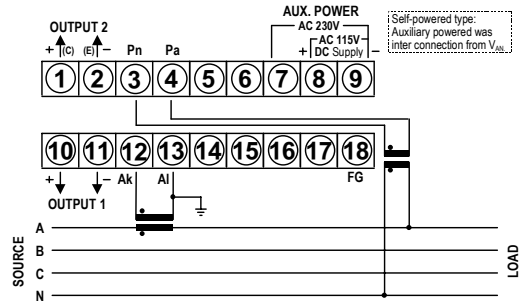
Watt & Watt-Hr / Var & Var-Hr - 3Φ4W (Unbalanced Load)



Watt & Watt-Hr / Var & Var-Hr - 3Φ3W (balanced Load)



Watt & Watt-Hr / Var & Var-Hr - 3Φ4W (balanced Load)



ORDER INFORMATION

C		Input Type	Connection	Input	Input Freq.	Watt (Var) Output	WH (VarH) Output	Aux. Power					
CODE	INPUT TYPE	CODE	INPUT RANGE	CODE	INPUT FREQ.	C	OUTPUT	C	OUTPUT	CODE	OUTPUT RANGE	CODE	AUX. POWER
WHW	Watt & Watt-Hr	A1	0 ~ 1 A	5	50Hz ±3Hz	A1	0~1 mA	V1	0~1 V	A	1 P / KWH (KVARH)	A1	AC 115/230 V
QHQ	Var & Var-Hr	A5	0 ~ 5 A	6	60Hz ±3Hz	A2	0~5 mA	V2	0~5 V	B	10 P / KWH (KVARH)	A2	AC 380 V
		V1	110V or 120 V	O	Specify	A3	0~10 mA	V3	0~10 V	C	100 P / KWH (KVARH)	A3	AC 416 V
		V2	220V or 240V			A4	0~20 mA	V4	1~5 V	D	1000 P / KWH (KVARH)	D2	DC 24 V
		V3	380V or 416V			A5	4~20 mA	V5	0~0.5~1V	E	10000 P / KWH (KVARH)	D4	DC 48 V
		V4	110V _{eff} - 63.5V _{eff} or 120V _{eff} - 69.3V _{eff}			A6	0~0.5~1mA	V6	0~2.5~5V	O	Specify	D1	DC 110 V
		V5	190V _{eff} - 110V _{eff} or 208V _{eff} - 120V _{eff}			A7	0~5~10mA	V7	0~5~10V	P	15V Pulse	D3	DC 220 V
		V6	380V _{eff} - 220V _{eff} or 416V _{eff} - 240V _{eff}			A8	0~10~20mA	V8	1~3~5V	C	Open Collect	AS	Self Powered
		AO VO	Specify			A9	4~12~20mA	V9	-1~0~+1V	R	Relay Contact	O	Specify
						AA	-1~0~+1mA	VA	-5~0~+5V	O	Specify		
						AB	-5~0~+5mA	VB	-10~0~+10V				
						AC	-10~0~10mA	VO	Specify(V)				
						AD	-20~0~20mA	AO	Specify(mA)				

B1-8