

AC WATT-Hr / VAR-Hr TRANSDUCER

CWH/CQH

► FEATURES

- Measures Watt-hrs, Var-hrs or both (Dual output)
- 1P2W, 1P3W, 3P3W, 3P4W systems
- 0.2% fs Accuracy and 4kV/1min dielectric strength
- Output range programmable by dip-switch
- Low output ripple
- High impulse & Surge protection
- High stability & low cost



► SPECIFICATION

INPUT: Watt / Var.

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

* The maximum inputs are 450V and 10A. If the input over this level please connect with CT or VT to the transducer.

* V_{LN} means Voltage of line to line; V_{LN} means Voltage of line to neutral.

* Basic ref. value are secondary values of VT & CT converted to Watts/Vars

OUTPUT: Programming by Dip Switch

Output Range		Output Mode		
Per KWH or Per KVARH	1 count	V Pulse	Open Collect	Relay Contact
	10 counts	DC 15V	DC 30V, 100mA	AC 110V, 0.5A
	100 counts	10mA	(DC 60V)	DC 24V, 1A
	1000 counts			Max. Freq.: 10Hz
	10000 counts			

Accuracy :	$\leq \pm 0.2\%$ of F.S.
Waveform effect:	$\leq 0.01\%$ of F.S. at 15% 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:	$\leq \pm 5\%$ of OF F.S. (or $\pm 20\%$ of F.S. specify)
Zero adjustment:	$\leq \pm 2\%$ of OF F.S. (or $\pm 20\%$ of F.S. specify)
Output load effect:	Current output $\leq 0.1\%$ of F.S. Voltage output $\leq 0.05\%$ of F.S.
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 volts Working Voltage: $\pm 15\%$ rated of input
Power effect:	$\leq 0.05\%$ of F.S.
Power consumption:	$\leq 4\text{VA}$
Mutual interference effect:	$\leq 0.1\%$ of F.S. between each element
Magnetic field strength:	400ATM $\leq 0.2\%$ 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
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 μsec .

Safety:

Enclosure:

Isolation:

Performance:

Mounting:

Weight:

Common mode & differential mode

IEC 414, BS 5458

IEC 529 (IP50)

Input / Output / Power / Case

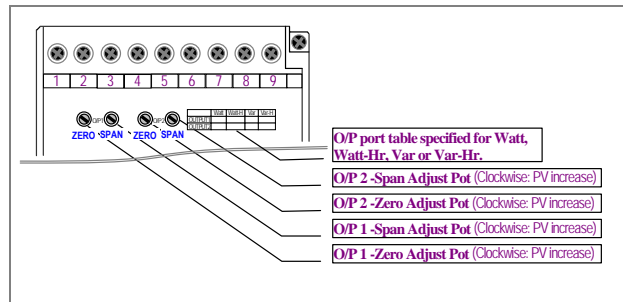
$\geq 100\text{M ohm}$, DC 500V

Designed it comply with IEC 688

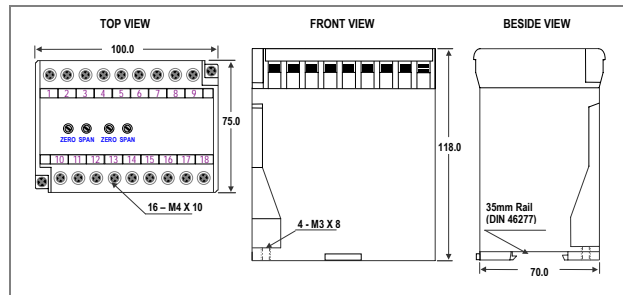
Wall or DIN rail (EN 50022)

Under 650g

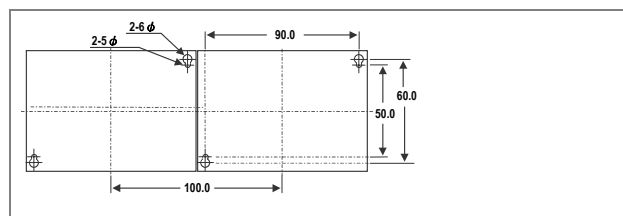
► ADJUSTMENT



► DIMENSIONS



► PANEL MOUNTING HOLES



AC WATT-Hr / VAR-Hr TRANSDUCER

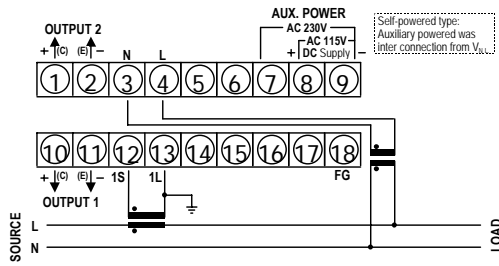
CWH/CQH

OUTPUT RANGE PROGRAMMING

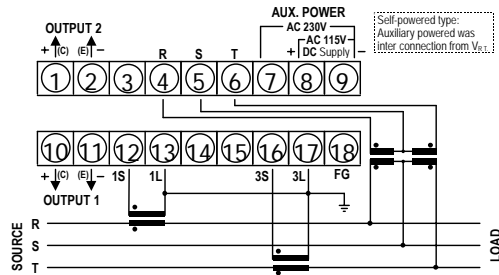
OUTPUT	DIP SWITCH WQHP2-2								DIP SWITCH WQHP-HR2								WQHP-HR1 (Test Point) Freq.(T1, Gnd)
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	
1 p / KWh (1 p / KVARh)	on																4.6205K Hz
10 p / KWh (10 p / KVARh)	on	on														on	9.9556K Hz
100 p / KWh (100 p / KVARh)			on	on	on	on	on	on								on	9.9556K Hz
1000 p / KWh (1000 p / KVARh)		on	on				on									on	9.9556K Hz
10000 p / KWh (10000 p / KVARh)	on	on														on	9.9556K Hz

CONNECTION DIAGRAM

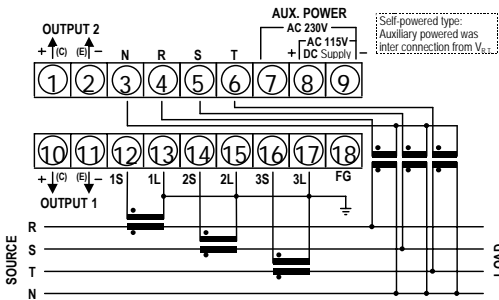
Watt-Hr / Var-Hr / Watt-Hr & Var-Hr - 1Φ2W (Unbalanced Load)



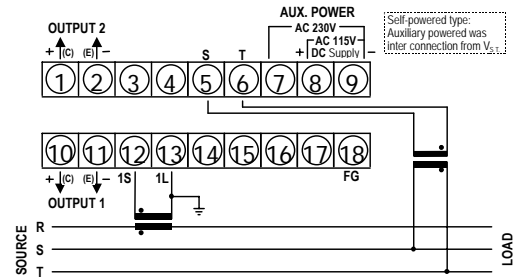
Watt-Hr / Var-Hr / Watt-Hr & Var-Hr - 3Φ3W (Unbalanced)



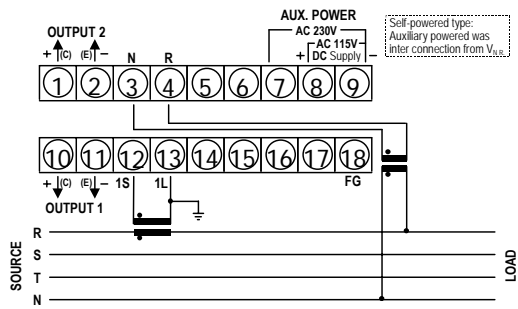
Watt-Hr / Var-Hr / Watt-Hr & Var-Hr - 3Φ4W (Unbalanced Load)



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



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



ORDER CODING

