

AC WATT-Hr / VAR-Hr TRANSDUCER

CWH/CQH

FEATURE

- Measuring Watt-Hr, Var-Hr or Watt-Hr & Var-Hr
1P2W, 3P3W, 3P4W Balanced or Unbalanced systems
- Precision measurement even for distorted wave
- Output range programmable by dip-switch
- High impulse & Surge protection
- High stability & low cost



SPECIFICATION

INPUT: Watt / Var.

Connection	AC Input		Basic Ref. Value	Input
	Voltage	Current	Watt or Var	Burden
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		$\pm 1.0 K (\pm 0.2K)$	
	220V or 240V		$\pm 2.0 K (\pm 0.4K)$	
3P4W	380V or 416V		$\pm 3.0 K (\pm 0.6K)$	
	190V _{LL} -110V _{LN} or 208V _{LL} -120V _{LN}		$\pm 1.5 K (\pm 0.3K)$	
	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: Programming by Dip Switch inside

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			
	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 volt
Working Volt: $\pm 15\%$ rated of input voltage
- Power effect: $\leq 0.05\%$ of F.S.
- Power consumption: $\leq 4VA$
- 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 μ sec.

Common mode & differential mode

IEC 414, BS 5458

IEC 529 (IP50)

Input / Output / Power / Case

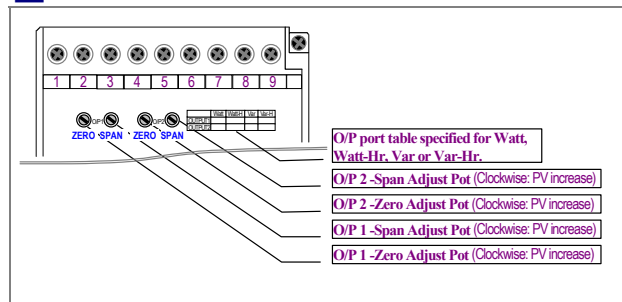
$\geq 100M$ ohm, DC 500V

Designed it comply with IEC 688

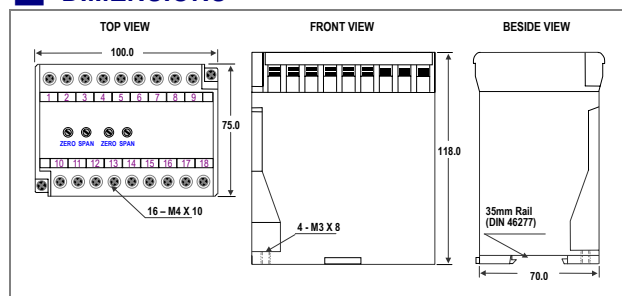
Wall or DIN rail (EN 50022)

Under 650g

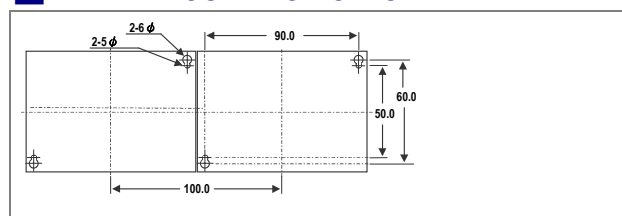
ADJUSTMENT



DIMENSIONS



PANEL MOUNTING HOLES



B1-5

AC WATT-Hr / VAR-Hr TRANSDUCER

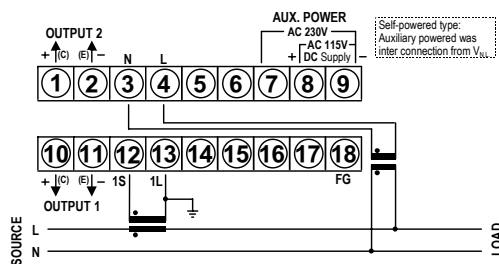
CWH/CQH

OUTPUT RANGE PROGRAMMING

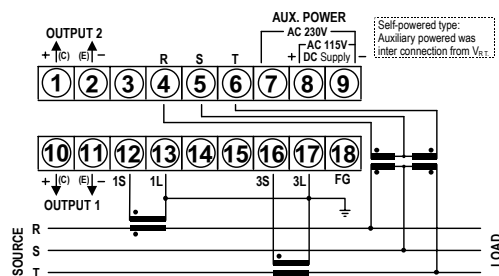
OUTPUT	DIP SWITCH WQHP2-2										DIP SWITCH WQHP-HR2								WQHP-HR1 (Test Point)
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	
1 p / KWh (1 p / KVARh)	on		on	on	on	on	on	on	on	on	on	on							4.6205K Hz
10 p / KWh (10 p / KVARh)	on	on		on	on	on	on	on	on	on						on	on		9.9556K Hz
100 p / KWh (100 p / KVARh)			on	on	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

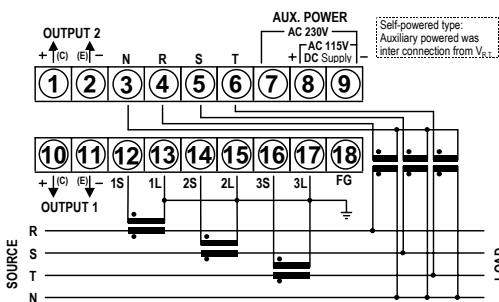
Watt-Hr / Var-Hr / Watt-Hr & Var-Hr - 1Φ2W (Unbalanced Load)



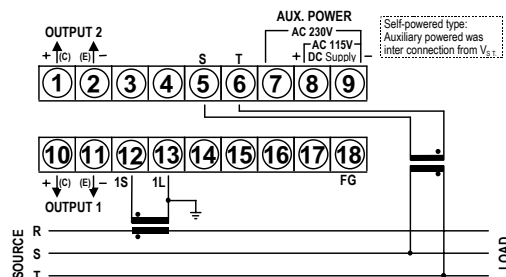
Watt-Hr / Var-Hr / Watt-Hr & Var-Hr - 3Φ3W (Unbalanced)



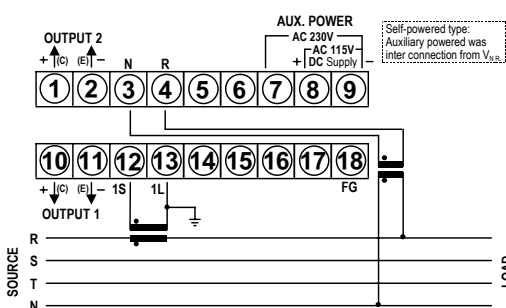
Watt-Hr / Var-Hr / Watt-Hr & Var-Hr - 3Φ4W (Unbalanced Load)



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



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



ORDER INFORMATION

C		Input Type	Connection	Input	Input Freq.	Output	Aux. Power							
CODE	INPUT TYPE		CODE	INPUT RANGE		CODE	INPUT FREQ.		CODE	OUTPUT RANGE		CODE	AUX. POWER	
WH	Watt-Hr		A1	0 ~ 1 A		5	50Hz ±3Hz		A	1 count / KWH (KVARH)		A1	AC 115/230 V	
QH	Var-Hr		A5	0 ~ 5 A		6	60Hz ±3Hz		B	10 counts / KWH (KVARH)		A2	AC 380 V	
WQH	Watt-Hr & Var-Hr		V1	110V or 120 V		O	Specify		C	100 counts / KWH (KVARH)		A3	AC 416 V	
			V2	220V or 240V					D	1000 counts / KWH (KVARH)		D2	DC 24 V	
			V3	380V or 416V					E	10000 counts / KWH (KVARH)		D4	DC 48 V	
			V4	110V _{LL} - 63.5V _{LN} or 120V _{LL} - 69.3V _{LN}					O	Specify		D1	DC 110 V	
			V5	190V _{LL} - 110V _{LN} or 208V _{LL} - 120V _{LN}					P	15V Pulse		D3	DC 220 V	
			V6	380V _{LL} - 220V _{LN} or 416V _{LL} - 240V _{LN}					C	Open Collect		AS	Self Powered	
			AO	VO Specify					R	Relay Contact		DO	Specify DC	
									O	Specify		AO	Specify DC	
CODE	CONNECTION													
12	1P2W Unbalanced Load													
33	3P3W Unbalanced Load													
34	3P4W Unbalanced Load													
35	3P3W Balanced Load													
36	3P4W Balanced Load													