Document change resume

2011 7/22

(1) Plus note at SPECIFICATION

※When Aux Powered is DC，The Load Resistance is about 70%

CPF/CPA POWER FACTOR/PHASE ANGLE Transducer

■ FEATURE

- Measuring Power Factor or Phase Angle
- 1P2W, 3P3W, 3P4W Balanced or Unbalanced systems
- Precision measurement even for distorted wave
- Output range programmable by dip-switch
- Low output ripple
- High impulse & Surge protection
- High stability & low cost

■ SPECIFICATION

INPUT: Power Factor / COSθ

Connection	AC Input		Range	Input Burden
	Voltage	Current		
1P2W	110V or 120V	5A (1A) **10A****	Power Factor: 0.5 ~ 1 ~ 0.5 (Lead) (Lag) Phase Angle: 60º ~ 0º ~ 60º (Lead) (Lag)	≦0.10VA or ≦0.15VA
	220V or 240V			
1P3W	220V-110V			
3P3W	110V or 120V			
	220V or 240V			
	380V or 416V			
3P4W	190V$_{ee}$-110V$_{en}$ or 208V$_{ee}$-120V$_{en}$			
	380V$_{ee}$-220V$_{en}$ or 416V$_{ee}$-240V$_{en}$			

* The maximum input is 450V and 5A in standard **(10Amax input available in option),** If the input over the level please connects with CT or PT to the transducer.
* V_{ll} means Voltage of line to line; V_{en} means Voltage of line to neutral.
* The basic ref. value is base on second of PT & CT, and versus the high range of output.

OUTPUT: Power Factor or COSθ O/P Programming by Dip Switch inside

Output Range	Load Resistance	Output Resistance	Output Ripple
0 ~ 0.5 ~ 1 V	≧ 100 ohm	≦ 0.001 ohm	≦0.2% of F.S.
0 ~ 2.5 ~ 5 V	≧ 500 ohm		
0 ~ 5 ~ 10 V	≧ 1000 ohm		
1 ~ 3 ~ 5 V	≧ 500 ohm		
-1 ~0~+1 V	≧ 100 ohm		
-5~0~+5 V	≧ 500 ohm		
-10~0~+10 V	≧ 1000 ohm		
0 ~ 0.5 ~ 1 mA	0 ~ 15K ohm	≧ 20M ohm	
0 ~ 5 mA	0 ~ 3000 ohm	≧ 6M ohm	
0 ~ 5 ~ 10 mA	0 ~ 1500 ohm		
0 ~ 10 ~ 20 mA	0 ~ 750 ohm		
4 ~ 12 ~ 20 mA	0 ~ 750 ohm		
-1~0~+1 mA	0 ~ 11K ohm	≧ 20M ohm	
-5~0~+5 mA	0 ~ 2200 ohm	≧ 6M ohm	
-10~0~+10 mA	0 ~ 1100 ohm		
-20~0~+20 mA	0 ~ 550 ohm		

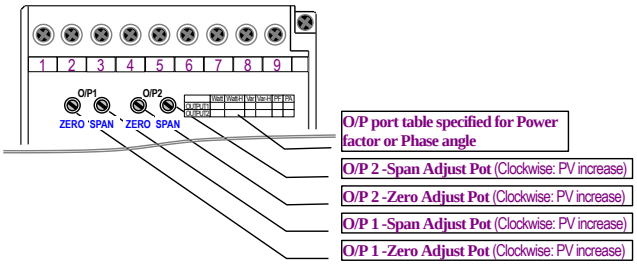
※When Aux Powered is DC，The Load Resistance is about 70%

Accuracy : ≦ ±0.7% 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 m-sec.
Span adjustment: ≦ ±5% of F.S. (or ±20% of F.S. specify)
Zero adjustment: ≦ ±2% of F.S. (or ±20% of F.S. specify)
Output load effect: Current output ≦ 0.1% of F.S.
Voltage output ≦ 0.05% of F.S.
Power supply: AC 115/230V ±15%, 50/60 Hz
AC 380 or 415V ±15%, 50/60 Hz
Option: DC 24V, 48V, 110V, 220V ±10%
Self Powered: Interior connection from input volt
Working volt: ±15% rated of input voltage
Power effect: ≦ 0.05% of F.S.
Power consumption: ≦ 4VA

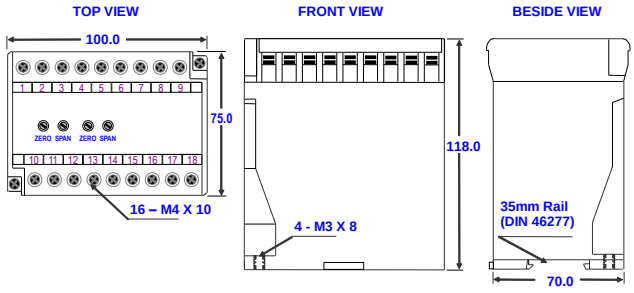
Mutual interference effect: ≦ 0.1% of F.S. between each element
Magnetic field strength: 400ATM ≦ 0.2% of F.S.
Operating temperature: 0~60 °C
Operating relative humidity: 20~95 %RH, non-condensing
Temperature coefficient: ≦ 100 PPM/°C
Storage temperature: -10~70 °C
Dielectric Strength: IEC 414, IEC 688:1992, 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.
Common mode & differential mode
Safety: IEC 414,BS 5458
Enclosure: IEC 529 (IP50)
Isolation: Input / Output / Power / Case
Insulation resistance: ≧ 100M ohm, DC 500V
Performance: Designed it comply with IEC 688
Mounting: Wall or DIN rail (EN 50022)
Weight: Under 650g

■ ADJUSTMENT

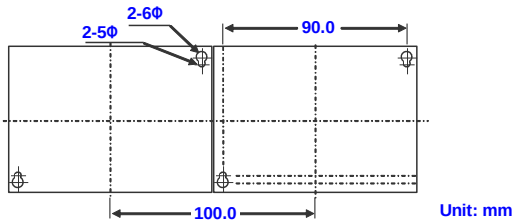
Power Factor or Phase Angle:



■ DIMENSIONS



■ PANEL MOUNTING HOLES



Unit: mm

CPF/CPA

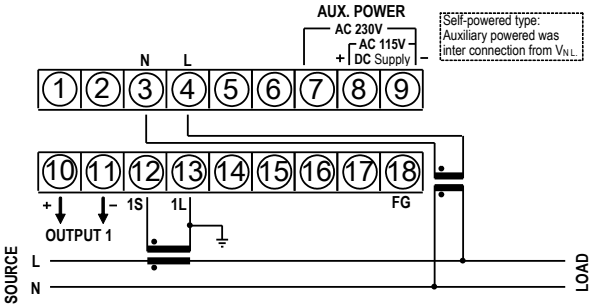
OUTPUT RANGE PROGRAMMING

OUTPUT	pcb no. WQHP2-2										
	DIP SWITCH									JUMPER	
	1	2	3	4	5	6	7	8	9	10	CN10	CN11
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		
-1 ~ 0 ~ +1 mA					on						▬	
-5 ~ 0 ~ +5 mA					on	on				on	▬	
-10 ~ 0 ~ +10 mA					on	on					▬	
-20 ~ 0 ~ +20 mA					on		on				▬	
0 ~ 0.5 ~ 1 V		on	on	on				on	on	on		
0 ~ 2.5 ~ 5 V			on	on				on	on	on		
0 ~ 5 ~ 10 V				on				on	on	on		
1 ~ 3 ~ 5 V	on		on	on				on	on	on		
2 ~ 6 ~ 10 V	on			on				on	on	on		
-1 ~ 0 ~ +1 V		on	on	on				on			▬	
-5 ~ 0 ~ +5 V			on	on				on			▬	
-10 ~ 0 ~ +10 V				on				on			▬	

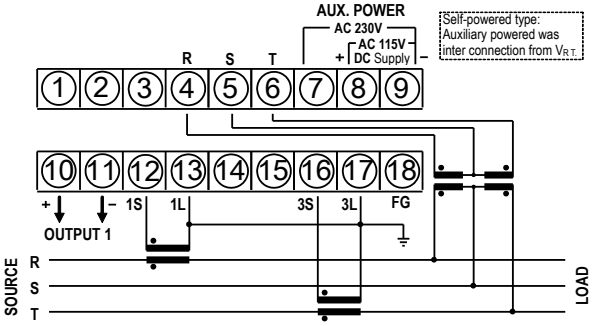
* JUMPER: (1) " ▬ " closed by jumper; (2) blank field mean open.

CONNECTION DIAGRAM

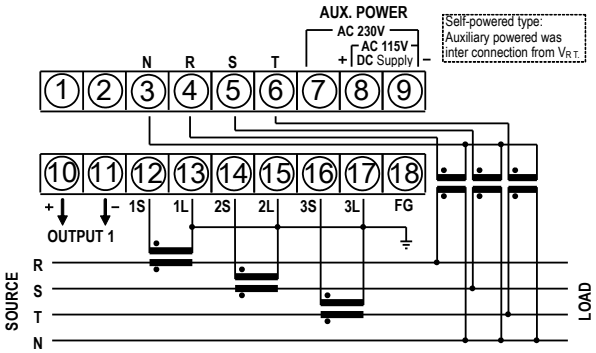
- Power Factor / Phase Angle - 1Φ2W (Unbalanced Load)



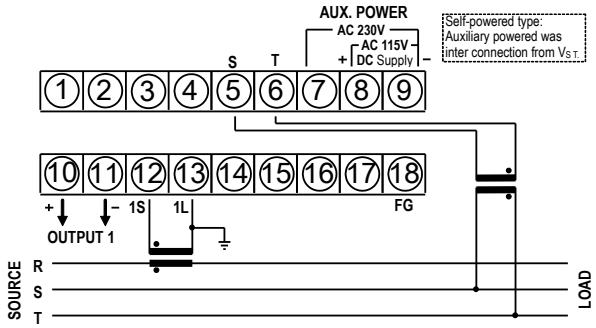
- Power Factor / Phase Angle - 3Φ3W (Unbalanced)



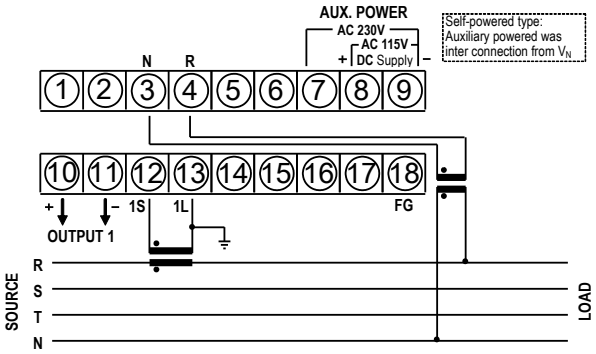
- Power Factor / Phase Angle - 3Φ4W (Unbalanced Load)



- Power Factor / Phase Angle - 3Φ3W (balanced Load)



- Power Factor / Phase Angle - 3Φ4W (balanced Load)



ORDERING INFORMATION

C — Input Type — Connection — Input — Input Freq. — Output — Aux. Power

CODE	INPUT TYPE
PF	Power Factor
PA	Phase Angle

CODE	CONNECTION
12	1P2W Unbalanced
13	1P3W Unbalanced
33	3P3W Unbalanced
34	3P4W Unbalanced
35	3P3W Balanced
36	3P4W Balanced

CODE		INPUT RANGE
A1		0 ~ 1 A
A5		0 ~ 5 A
	V1	110V or 120 V
	V2	220V or 240V
	V3	380V or 416V
	V4	110$V_{\ell\ell}$- 63.5$V_{\ell n}$ or 120$V_{\ell\ell}$- 69.3$V_{\ell n}$
	V5	190$V_{\ell\ell}$ -110$V_{\ell n}$ or 208$V_{\ell\ell}$ - 120$V_{\ell n}$
	V6	380$V_{\ell\ell}$ -220$V_{\ell n}$ or416$V_{\ell\ell}$ - 240$V_{\ell n}$
	V7	220V-110V(1P3W)
AO	VO	Specify(A or V o/p)

*V4, V5, V6 will be selected in 3P4W connection.

CODE	INPUT FREQ.
5	50Hz ±3Hz
6	60Hz ±3Hz
F	Specify

CODE	OUTPUT	CODE	OUTPUT
A6	0 ~ 0.5 ~ 1mA	V5	0 ~0.5 ~ 1V
A7	0 ~ 5 ~ 10mA	V6	0 ~ 2.5 ~ 5V
A8	0 ~ 10 ~ 20mA	V7	0 ~ 5 ~ 10V
A9	4 ~ 12 ~ 20mA	V8	1 ~ 3 ~ 5V
AA	-1 ~ 0 ~ + 1mA	V9	-1 ~ 0 ~ +1V
AB	-5 ~ 0 ~ +5mA	VA	-5 ~ 0 ~ +5V
AC	-10 ~ 0 ~ 10mA	VB	-10 ~ 0 ~ +10V
AD	-20 ~ 0 ~ 20mA	VO	Specify(V o/p)
AO	Specify(mA o/p)		

*If the output range above have a middle point., (EX. **A9**: 4~12~20mA), it means bi-polar output.

CODE	AUX. POWER
A1	AC 115/230 V
A2	AC 380 V
A3	AC 416 V
D2	DC 24 V
D4	DC 48 V
D1	DC 110 V
D3	DC 220 V
AS	Self Powered
DO	Specify DC
AO	Specify AC