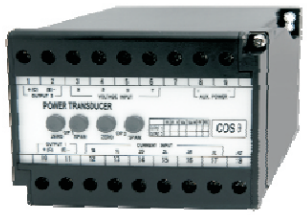
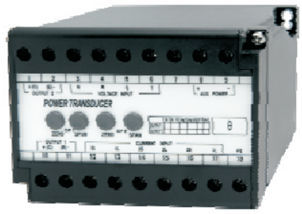
DP/DU POWER FACTOR/PHASE ANGLE TRANSDUCER





■ 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
- CE

■ SPECIFICATION

INPUT: Power Factor / COS θ

Connection	AC Input Voltage	AC Input Current	Range	Input Burden
1P2W	110V or 120V	5A (1A) 10A**	Power Factor: 0.5 ~ 1 ~ 0.5 (Lead) (Lag) Phase Angle: 60° ~ 0° ~ 60° (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 LL-110V LN or 208V LL-120V LN			
	380V LL-220V LN or 416V LL-240V LN			

* 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_{ln} 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 COS θ O/P Programming by Dip Switch inside

Output Range	Load Resistance	Output Resistance	Output Ripple
0 ~ 0.5 ~ 1 V	≧500 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		
0 ~ 0.5 ~ 1 mA	0 ~ 12K ohm	≧20M ohm	
0 ~ 5 mA	0 ~ 2400 ohm	≧6M ohm	
0 ~ 5 ~ 10 mA	0 ~ 1200 ohm		
0 ~ 10 ~ 20 mA	0 ~ 600 ohm		
4 ~ 12 ~ 20 mA	0 ~ 600 ohm		

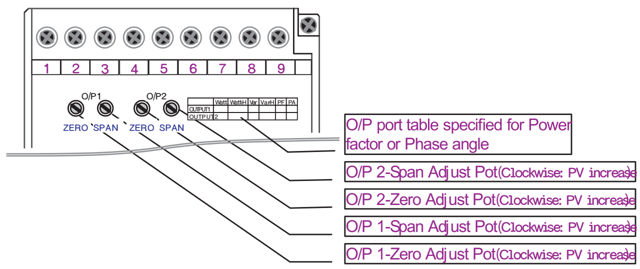
※When Aux Powered is DC, The Load Resistance is about 70%

Accuracy : ≦±0.7% of F.S.
Waveform effect: ≦0.2% of F.S. at 30% distortion
Max. input over 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: ADH:AC 85~264V;DC 100~300V
ADL:AC/DC 20~56V
Self Powered: Interior connection from input volt
Working volt: ?15% rated of input voltage
Power effect: ≦0.05% of F.S.
Power consumption: ≦8VA
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 20~95 %RH, non-condensing
Temperature coefficient: ≦100 PPM/°C

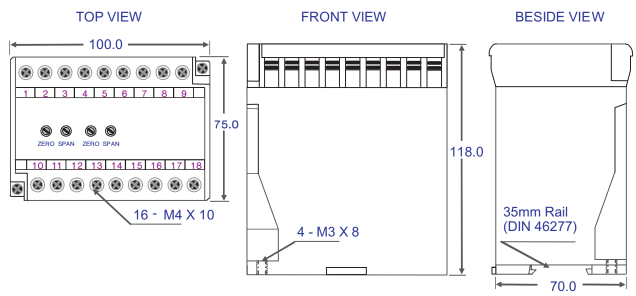
Storage temperature: -10~70 °C
Dielectric Strength: IEC 414, IEC 688:1992, ANSI C37.90a
Between Input / Output / Power / Case
AC 4KV, 50/60Hz, 1 min.
Surge test: IEC 255-4, ANSI C37.90a
6KV, 1.2 x 50 μsec
Common mode & differential mode
Insulation resistance: ≧100M ohm, DC 500V
Safety: IEC 414,BS 5458
Enclosure: IEC 529 (IP50)
Certification Standard
IEC 60688
CE: EMC:EN61326:2003
Safety(LVD): EN61010:2001
Mounting: Wall or DIN rail (EN 50022)
Weight: Under 650g

■ ADJUSTMENT

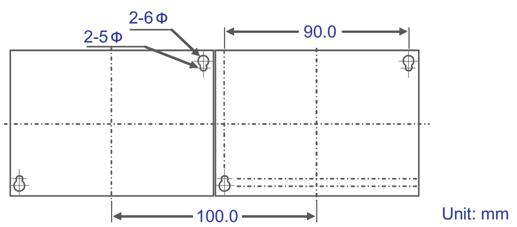
Power Factor or Phase Angle:



■ DIMENSIONS



■ PANEL MOUNTING HOLES



Unit: mm

TMC TAIWAN MARINE

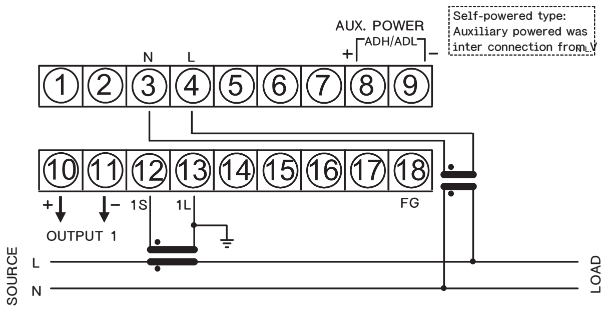
DP/DU POWER FACTOR/PHASE ANGLE TRANSDUCER

■ OUTPUT RANGE PROGRAMMING

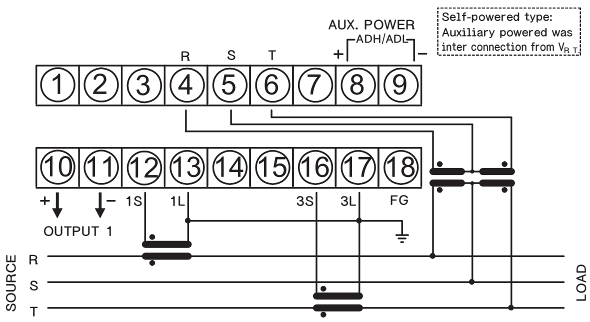
OUTPUT	PCB no. WQHP22									
	DIP SWITCH									
	1	2	3	4	5	6	7	8	9	10
0 ~ 0.5 ~ 1 mA					on				on	on
0 ~ 5 ~ 10 mA					on	on			on	on
0 ~ 10 ~ 20 mA					on		on		on	on
4 ~ 12 ~ 20 mA	on				on		on		on	on
0 ~ 0.5 ~ 1 V		on	on	on				on	on	on
0 ~ 2.5 ~ 5 V			on	on				on	on	on
0 ~ 5 ~ 10 V				on				on	on	on
1 ~ 3 ~ 5 V	on		on	on				on	on	on
2 ~ 6 ~ 10 V	on			on				on	on	on

■ CONNECTION DIAGRAM

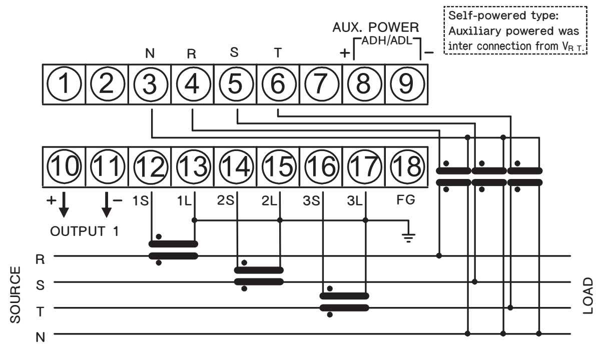
● Power Factor / Phase Angle - 1 Φ2W (Unbalanced Load)



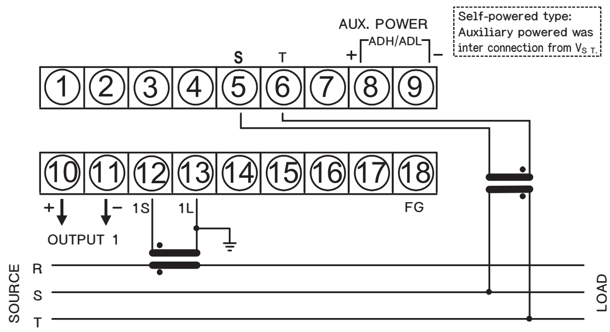
● Power Factor / Phase Angle - 3 Φ3W (Unbalanced)



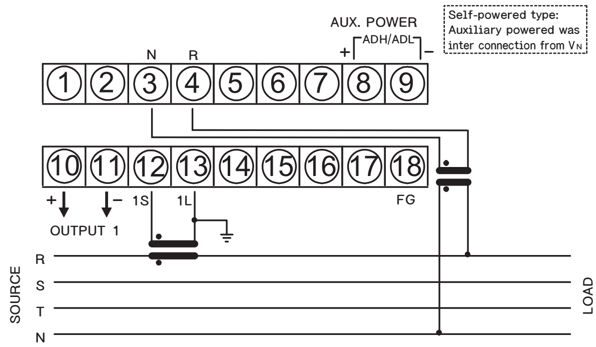
● Power Factor / Phase Angle - 3 Φ4W (Unbalanced Load)



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



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



■ ORDERING INFORMATION

D [Input Type] — [Connection] — [Input] [Input Freq.] — [Output] — [Aux. Power]

CODE	INPUT TYPE
P	Power Factor
U	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	110VLL- 63.5VLN or120VLL- 69.3VLN
	V5	190VLL-110VLN or 208VLL- 120VLN
	V6	380VLL-220VLN or416VLL-240VLN
	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
AO	Specify(mA o/p)	VO	Specify(V o/p)

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

CODE	AUX. POWER
ADH	AC85~264V DC100~300V
ADL	AC/DC20~56V
AS	Self Powered

TMC TAIWAN MARINE