

Power Factor and Phase Angle Transducers

mTech offers these devices for producing a DC output linearly proportional to the phase angle difference between two inputs. Outputs are bipolar, so leading and lagging signals can be differentiated. The transducers are single-phase; however, they can be used on three phase, four-wire systems with balanced loads.

Phase Angle: These transducers compare two voltage inputs.

Power Factor: For comparing one voltage and one current input*.

*Conversion is required for linear phase angle information.
A table is available on request.



Standard Features

- 0.25% of rated output accuracy
- Voltage, current, and process outputs
- Low burdens
- Low temperature coefficient
- Transient protected
- Standardized wiring and mounting
- Self-powered or externally powered
- ABS DIN rail mount or metal surface mount cases

Specifications

Accuracy (@ 25°C ±2°C): 0.25% of full scale

Temperature Range: -20°C to +70°C

Temperature Coefficient: 0.01%/°C, 100 ppm typical

Operating Humidity: 0-95% non-condensing

Output Ripple Peak: <0.5% of full scale

Power Factor Range: phase angle, any; power factor, as selected by part number

Burden: Current, 0.5 VA (most options); Voltage, 3.5 VA nominal

Overload: Current, 3 x full scale, continuous, 250 A for 1 s/hr; Voltage, 1.2 x full scale continuous

Dielectric Test: 2,000 Vrms for 1 minute

Surge Withstand: ANSI C37.90a (IEEE 472); BEAMA 219; special 5 kV

Response Time: 200 msec to 90%, 400 msec to 99%

Calibration Adjustment: ±10% standard

Zero Adjustment: ±2% standard

Operating Frequency: 60 Hz unless specified otherwise by suffix to part number

Available Models – Power Factor/ Phase Angle Transducers

To Order, Specify:

A. ENCLOSURE		
Extruded Aluminum Metal, Surface Mount	(no prefix)	
ABS DIN, Rail Mount	D	
B. MODEL		
Phase Angle	PA	
Power Factor	PF	
C. NOMINAL INPUT VOLTAGE ($\pm 25\%$)		
120 V	0	
69 V	1	
240 V	2	
460 V	3	
600 V	4	
Special	X	
D. PA - NOMINAL INPUT VOLTAGE		
120 V	0	
69 V	1	
240 V	2	
460 V	3	
600 V	4	
Special	X	
PF - INPUT CURRENT		
1 - 5 A	0	
0.2 - 1 A	1	
0.4 - 2 A	2	
2 - 10 A	3	
5 - 25 A	4	
Special	X	
E. Power Factor Phase Angle		
± 1	$\pm 90^\circ$	0
$\pm .7$	$\pm 60^\circ$	1
$\pm .5$	$\pm 45^\circ$	2
$\pm .3$	$\pm 30^\circ$	3
$\pm .2$	$\pm 15^\circ$	4
Special	Special	X
F. OUTPUT		
0 - 1 mA	(0 - 10,000 Ohms)	0
0 \pm 1 mA	(0 - 10,000 Ohms)	1
0 \pm 0.5 mA	(0 - 20,000 Ohms)	2
0 \pm 50 mV	(2,000 Ohms min.)	3
0 \pm 100 mV	(2,000 Ohms min.)	4
0 \pm 1 V	(2,000 Ohms min.)	5
0 \pm 10 V	(2,000 Ohms min.)	6
1 - 5 V	(2,000 Ohms min.)	7
4-20 mA	(0-750 Ohms)	8
0 \pm 10 mA	(0-1,000 Ohms)	9
Special		X

G. SUFFIX (If Applicable)	
25 - 125% Calibration Adjustment	A
50 Hz	C
400 Hz	D
External Power, 120 VAC	E
External Power, 230 VAC	F
Case ground terminal ^①	G
DC Aux Power (Please Specify)	K
L-L Calibration, Delta Systems	L
4 - 20 mA two-wire loop output	T
Special	X
^① Metal case models only.	

EXAMPLE: DPA-1-2-0-2-3-D is the ordering code for a Phase Angle Transducer in a DIN rail mount case, 69 VAC input voltage, 240 V, $\pm 90^\circ$, 0 \pm 50 mV 10 Ohms min. output, 400 Hz power.

See page 36 for connections.