

# AC Power Factor TRANSDUCERS

## MODELS OFFERED

**TPF-12:** 1 Phase, 2 Wire – 1 Element

**TPF-33:** 3 Phase, 3 Wire – 2 Element

**TPF-34:** 3 Phase, 4 Wire – 3 Element

- Accurate measurement of the Power Factor (Cos  $\phi$ ) of a three phase system with balanced or unbalanced loads.
- The output signals are isolated load independent DC mA or DC V, representing the measured value of the Power Factor (Cos  $\phi$ ).



ABS DIN RAIL MOUNT CASE **D**



SCREW MOUNT METAL CASE **R**

## FEATURES

- Uses Time Division Multiplication (TDM) for precision measurement of even distorted signals.
- High accuracy  $\pm 0.5\%$  of Rated Output (R.O.).
- High immunity to external noise.
- Quick and easy mounting to 35mm DIN Rail (DIN46277) or screw mounting.
- Many input and output signal combinations.

## GENERAL SPECIFICATIONS

|                             |                                                                                                                                                                                                                                        |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accuracy .....              | $\pm 0.2\%$ R.O. Standard for 10 to 100% of rated output<br>$\pm 0.1\%$ R.O. (Special Option)                                                                                                                                          |
| Temp. coefficient .....     | $\leq 100\text{ppm}/^\circ\text{C}$ of span<br>$\leq 60\text{ppm}/^\circ\text{C}$ for ambient temperature of $25^\circ\text{C} \pm 10^\circ\text{C}$                                                                                   |
| Temp. range .....           | Storage temperature range $-20^\circ\text{C}$ to $60^\circ\text{C}$ ( $-4^\circ\text{F}$ to $140^\circ\text{F}$ )<br>Operating temperature range $0^\circ\text{C}$ to $50^\circ\text{C}$ ( $32^\circ\text{F}$ to $122^\circ\text{F}$ ) |
| Humidity range .....        | Up to 95% RH non condensing                                                                                                                                                                                                            |
| Isolation .....             | Between Input/Output/Power/Case                                                                                                                                                                                                        |
| Dielectric test .....       | DIN-IEC 688<br>2K Vrms/1 min, Between terminal to terminal<br>2.8K Vrms/1 min, Between terminal to case                                                                                                                                |
| Surge test .....            | DIN-IEC 255-4, ANSI C37 90a/1974 5KV(1.2x50 $\mu\text{s}$ )                                                                                                                                                                            |
| Insulation Resistance ..... | Greater than 100 M $\Omega$ at 500V DC                                                                                                                                                                                                 |
| Housing material .....      | ABS Resin(94V-0) or metal                                                                                                                                                                                                              |
| Mounting .....              | Screw mount on metal case or Plastic case on DIN Rail 35mm                                                                                                                                                                             |
| Auxiliary Power .....       | AC 115/230V $\pm 15\%$ , 50/60Hz, 3VA<br>DC 24V $\pm 20\%$ (optional) 125V DC $\pm 20\%$ (optional)                                                                                                                                    |

## INPUT SPECIFICATIONS

|                            |                                                                                                                                                 |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Measuring Range .....      | Power Factor<br>Lead (capacitive) 0.5 .... 1 .... Lag (Inductive) 0.5                                                                           |
| AC Voltage Input .....     | 30 to 600V                                                                                                                                      |
| AC Current Input .....     | 0 to 5A AC                                                                                                                                      |
| Frequency .....            | 60Hz $\pm 3\text{Hz}$ , 50Hz $\pm 3\text{Hz}$ , 400Hz $\pm 3\text{Hz}$                                                                          |
| Burden .....               | $\leq 0.2\text{VA}$ per current circuit, $\leq 0.1\text{VA}$ per voltage circuit.                                                               |
| Response Sensitivity ..... | $\leq 0.5\%$ of measuring range to maximum input range                                                                                          |
| Input Voltage .....        | 600V AC rms continuous (absolute maximum)                                                                                                       |
| Overload Capacity .....    | 1.25 times the rated input Voltage continuously.<br>2 times the rated input Voltage for 10 secs.<br>4 times the rated input Voltage for 5 secs. |
| Input Current .....        | 3 times the rated input current continuously.                                                                                                   |
| Overload Capacity .....    | 10 times the rated input current for 10 secs.<br>50 times the rated input current for 1 sec.<br>80 times the rated input current for 0.5 secs   |

## OUTPUT SPECIFICATIONS

Output Variables..... DCmA or DCV (Power Factor. Cos  $\phi$ )  
 Ripple..... < 0.5% of rated output. Peak to Peak (maximum)  
 Response Time..... < 400 milliseconds to go from 0 to 99% of output  
 Zero Adjustment.....  $\pm$  5% of rated output (minimum)  
 Span Adjustment.....  $\pm$  10% of rated output (minimum)

## CONNECTION DIAGRAM

