



MODELS OFFERED

- TWQ-12:** 1 Phase, 2 Wire – 1 Element
TWQ-13: 1 Phase, 3 Wire – 2 Element
TWQ-33: 3 Phase, 3 Wire – 2 Element
TWQ-34: 3 Phase, 4 Wire – 3 Element

- Accurate measurement of the active power and reactive power (Watts and VARs) of a single/ three phase system with balanced or unbalanced loads.
- The output signals are isolated load independent DC mA or DC Volts, representing the measured value of the active and reactive power (Watts and VARs).

FEATURES

- Uses Time Division Multiplication (TDM) for precision measurement of even distorted signals.
- High accuracy $\pm 0.2\%$ of Rated Output (R.O.)
- Super high accuracy $\pm 0.1\%$ of Rated Output (R.O.) available as a special order.*
- 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 $\pm 0.1\%$ R.O. (Special Option)
Temp. coefficient.....	$\leq 100\text{ppm}/^\circ\text{C}$ of span $\leq 60\text{ppm}/^\circ\text{C}$ for ambient temperature of $25^\circ\text{C} \pm 10^\circ\text{C}$
Temp. range.....	Storage temperature range -20°C to 60°C (-4°F to 140°F) Operating temperature range 0°C to 50°C (32°F to 122°F)
Humidity range	Up to 95% RH non condensing
Isolation	Between Input/Output/Power/Case
Dielectric test.....	DIN-IEC 688 2K Vrms/1 min, Between terminal to terminal 2.8K Vrms/1 min, Between terminal to case
Surge test	DIN-IEC 255-4, ANSI C37 90a/1974 5KV(1.2x50 μs)
Insulation Resistance	Greater than 100 M Ω at 500V DC
Housing material	ABS Resin(94V-0) or metal
Mounting.....	Screw mount on metal case or Plastic case DIN Rail 35mm
Auxiliary Power.....	AC 115/230V $\pm 15\%$, 50/60Hz, 3VA DC 24V $\pm 20\%$ (optional), 125V DC $\pm 20\%$ (optional)

INPUT SPECIFICATIONS

AC Input	120V/5A AC, 240V/5A AC for 1 ϕ /2 wire, 240V/120V, 5A AC for 1 ϕ / 3 Wire 120V/5A AC, 240V/5A AC for 3 ϕ /3 Wire & 3 ϕ / 4 Wire custom input (600V max /10A AC max)
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. 2 times the rated input Voltage for 10 secs. 4 times the rated input Voltage for 5 secs.
Input Current.....	3 times the rated input current continuously. 10 times the rated input current for 10 secs.
Overload Capacity	50 times the rated input current for 1 sec. 80 times the rated input current for 0.5 secs

OUTPUT SPECIFICATIONS

Output Variables	DC mA or DC Volts
Ripple	< 0.5% of rated output. Peak to Peak (maximum)
Response Time	< 400 milliseconds to go from 0 to 99% of output
Zero Adjustment	± 5% of rated output (minimum)
Span Adjustment	± 10% of rated output (minimum)
Load Resistance	10 kΩ maximum for 0 to 1mA output 500 Ω maximum for 4 to 20mA output 500 Ω minimum for 0 to 10V output

To calculate the actual Watts and VARs Maximum Input range value, the CT and PT ratios have to be factored in

Maximum input Range for Watts = (CT Ratio) X (PT Ratio) X (Nominal Watts)

Maximum Input range value for VARs = (CT Ratio) X (PT Ratio) X (Nominal VARs)

For example:

If CT = 200A:5A PT is 3300V:110V Nominal Watts = 1000 Nominal VARs = 1000

then CT Ratio = 40 then PT Ratio = 30 and

Maximum input range value for Watts = $40 \times 30 \times 1000 = 1200\text{KWatts}$

Maximum input range value for VARs = $40 \times 30 \times 1000 = 1200\text{KVARs}$

CONNECTION DIAGRAM

