

# Type VMN Voltage Monitoring Resistor Networks

New

## Transient Tolerant

Voltage Dividers for Industrial Power Quality and Power Consumption Metering Applications  
Ratio Tolerance of 0.1% or 0.02%, Ratio TC of 10 ppm/°C or 5 ppm/°C

The Type VMN Transient Tolerant Voltage Monitoring Networks are designed for use in the voltage measurement circuits of Power Quality Monitoring Equipment, Kilowatt-Hour Meters, and other Power and Energy Measurement Equipment, where precision electrical service voltage monitoring is required.

The VMN Networks are manufactured with Tetrinox®, Caddock's Ultra-Stable Low-TC Resistance Film System. The Tetrinox film system, combined with Caddock's Ceramic Sandwich Resistor Network construction, provides outstanding long-term stability in industrial applications with electrical surges, transient conditions, and high humidity exposure.

For Custom Type VMN Voltage Monitoring Networks developed to meet your program requirements, contact Applications Engineering at Caddock.



Part Number	⑦ Normal Operating Voltage (AC rms)	⑧ Maximum Operating Voltage (AC rms)	① Voltage Divider Ratio	Resistance			② Ratio Tol.	③ Ratio T.C.	④ Ratio V.C.	⑤ Overload Voltage Rating	⑥ Impulse (Surge) Voltage
				R1	R2	Total Resistance (R1 + R2)					
VMN4-2M-400	450 Volts	600 Volts	400 : 1	1.995 Meg	5 K	2 Meg	0.1%	10 ppm/°C	0.03 ppm/V	1,000 Volts	10 kV
VMN4-2M-400-5	450 Volts	600 Volts	400 : 1	1.995 Meg	5 K	2 Meg	0.02%	5 ppm/°C	0.03 ppm/V	1,000 Volts	10 kV
VMN4-5M-500	700 Volts	900 Volts	500 : 1	4.990 Meg	10 K	5 Meg	0.1%	10 ppm/°C	0.02 ppm/V	1,500 Volts	10 kV
VMN4-5M-500-5	700 Volts	900 Volts	500 : 1	4.990 Meg	10 K	5 Meg	0.02%	5 ppm/°C	0.02 ppm/V	1,500 Volts	10 kV

### Specifications

- ① **Ratio:** (R1+R2) : R2 (Voltage Divider Ratio)
- ② **Ratio Tolerance:** measured at 100 Volts at +23°C ambient
- ③ **Ratio T.C.:** measured at -40°C and +85°C, ref. to +25°C
- ④ **Ratio V.C.:** measured at 100 Volts DC and 600 Volts DC  
**Absolute Tolerance:** ±1%  
**Absolute T.C.:** 30 ppm/°C, measured at -40°C and +85°C, referenced to +25°C  
**Ratio Stability:**
- ⑦ **Normal Operating Voltage** applied to R1 and R2 connected in series at +85°C. Change in Ratio after 2,000 hours is ±0.02% maximum.
- ⑧ **Maximum Operating Voltage** applied to R1 and R2 connected in series at +85°C. Change in Ratio after 2,000 hrs is ±0.04% maximum.
- ⑤ **Overload Voltage and Stability:** Overload Voltage applied for 10 seconds to R1 and R2 connected in series at +25°C. Change in Ratio is 0.01% maximum.
- ⑥ **Impulse Voltage and Stability:** 1.2/50 microsecond waveform. The impulse voltage wave shape shall have a rise time of 1.2 microseconds to 90% of the impulse voltage peak, followed by a fall time of 50 microseconds to 50% of the impulse voltage peak. Impulse applied to Pin 1 (with R1 and R2 connected in series), with Pin 5 held near ground. After 20 pulses applied, the Change in Ratio is 0.01% maximum.

**Operating Temperature Range:** -40°C to +85°C

