

# Type VMN Voltage Monitoring Resistor Networks

**New**

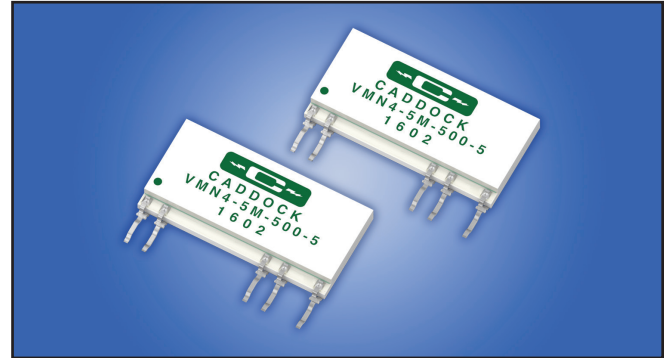
**Transient Tolerant**

**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<br>Normal<br>Operating<br>Voltage<br>(AC rms) | ⑧<br>Maximum<br>Operating<br>Voltage<br>(AC rms) | ①<br>Voltage<br>Divider<br>Ratio | Resistance |      |                                  | ②<br>Ratio<br>Tol. | ③<br>Ratio<br>T.C. | ④<br>Ratio<br>V.C. | ⑤<br>Overload<br>Voltage<br>Rating | ⑥<br>Impulse<br>(Surge)<br>Voltage |
|---------------|-------------------------------------------------|--------------------------------------------------|----------------------------------|------------|------|----------------------------------|--------------------|--------------------|--------------------|------------------------------------|------------------------------------|
|               |                                                 |                                                  |                                  | R1         | R2   | Total<br>Resistance<br>(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

