

Voltage Touch Monitor

Model: VTM

a measurable difference...

IDM[®]

instruments

The Voltage Touch Monitor enables the identification of voltage problems that usually remain hidden. It can detect as little as 1/10 volt in two modes: DC and AC/Spikes (ESD transients). In the DC mode, the displayed voltage is either positive or negative, and is usually very low if grounding is being worn and is functioning properly. Higher DC voltages (even while grounded) occur if a DC ionizer is blowing too close or if the person rubs against a high-static material or comes in contact with metal at a DC potential. In the AC/Spikes mode, any transient voltage spike at least 1/2 millisecond long is temporarily displayed. If there are several consecutive spikes, only the highest is displayed, regardless of polarity. If the signal is a repetitive (AC) wave, the peak voltage is displayed, but always as a positive number. Even when proper grounding is worn, several tens of volts often occur with transients and AC. Maximum error for DC and AC is only 2% of the reading +/- 0.1 volt.

With the touch of a finger, Voltage Touch Monitor can be reliably used to warn and educate those who work in the most static-sensitive environments, including areas in which a fraction of a volt is critical. When used to verify the operation of wrist straps and conductive footwear, it detects problems in the *entire* system. This includes unexpected bad ground plugs, bad floor conductance, voltage transients or AC that may be present from the air near ionizers or from contact with equipment that has a ground fault.

Accurate high-voltage DC measurement, without drawing current, has been difficult to achieve prior to this monitor. Accurate DC measurement had required an internal power supply voltage that was at least as high as the maximum measured voltage. A device with this type of power supply (2000 volts) had drawbacks in terms of safety, power consumption, and expense. However, precise voltage measurement is critical both in establishing safe procedures and in certifying compliance with maximum voltage limits, and monitors that contain a high voltage supply are generally very precise. The Voltage Touch Monitor is the only low supply voltage device that achieves the same precision.



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Applications:

- Various

Specifications:

- Range: 0 to +/- 1999.9 VDC (+/- 1000.0 VAC)
- Resolution: 1/10 V
- Accuracy: Initially +/- 2% of reading +/- 0.1 V
- Drift: If the finger is held in place a long time, the monitor will continue to display the voltage, updating 2.5 times/sec. The AC voltage does not drift, but DC drift is an additional +/- 1% of the reading per minute. Added to that is an offset drift of +/- 0.2 V per minute. When the finger is taken away, the monitor resets, and all offsets disappear.
- Circuit Loading: Minimum resistance is 100 T ohms (10^{14} ohms). Maximum capacitance at the sensor plate is 10 pF.
- AC function: 2% accuracy is for 50-60 Hz only; it is less sensitive to higher harmonics. Press the AC button while simultaneously holding finger on the sensor square. A red light indicates AC. Display shows *average absolute value* of the 50-60 Hz voltage present. (If the source is a sine wave, peak voltage is 1.57x the reading, and RMS voltage is 1.11x the reading.)
- Environment: Temperature range for use and storage: -10 to +50 C. RH: 0 to 85%. Sensor plate can withstand low-current static up to +/- 20kV. Not intended for measuring an electrostatic pinning machine or connection to a high-voltage supply over 2kV.
- Display speed: 2.5 updates per second. Full response to a sudden change is 1/2 second.
- Dimensions: 14cm (5.7") H / 9cm (3.5") W / 4.5cm (1.75") T. Weight: 240 grams.
- Power: AC adaptor (included) 12 VDC unregulated, center positive. Approximately 10 ma of current is used. Accidental reverse polarity up to 25V will not harm the meter.
- Includes: Monitor, AC adaptor, 20 foot grounding cable, hard carry case, and Calibration Certificate. As shipped, the monitor is ready to use.
- Warranty: Two years.