

NEW

Model 820 Infitron®

±2 kV High Impedance Contacting / Non-contacting Voltmeter



The Trek Model 820 Infitron® Voltmeter, which may be used in contacting or noncontacting mode, represents the next generation of precision surface voltage measuring instruments with features not previously available with any other voltmeter. Some specifications may vary depending on whether the instrument is being used in contacting or noncontacting mode. Please refer to the specifications listed on the back of this data sheet.

Trek developed the Model 820 for voltage measurement applications that demand infinitely high loading impedance levels that are far beyond the reach of currently available high impedance voltmeter instruments. These applications include accurate reading of electrostatic voltage levels associated with ESD sensitive components, circuits, and surfaces.

It features an input capacitance of less than 1×10^{-15} F and an input resistance of greater than 1×10^{15} Ω . A guarantee of virtually no modification of the charge (voltage) of the measured object. This allows the Model 820 to indicate, with high precision, the voltage level of both conductive and insulative objects and surfaces.

With virtually zero charge exchange upon probe contact, no ESD events, which would normally cause object damage, can occur. These near infinite impedance features allow direct measurement of such devices as semiconductor components and chips, insulative surfaces, MR head sensors, hand tools, etc.

Note: The Model 820 Infitron® High Impedance Voltmeter is designed to make electrostatic voltage measurements only. For safety, the Model 820 should never be used to perform measurements of "hard" voltage sources or voltage sources which can deliver currents high enough to cause harmful shock.

- **Measurement Range:**
0 to ±2 kV DC or peak AC
at ±0.1% accuracy of
conductive, dissipative or
insulative surfaces

- **Input Characteristics:**
Resistance > 1×10^{15} Ω
Capacitance < 1×10^{-15} F

- **Voltage Monitor Output:**
Scale Factor at 1/200

- **Probe Electrode:**
May be easily replaced
with other sensor tips.

- **Digital Enable:**
Allows an external device
to enable or disable the
measurement

- **Easy-to-read LED display**



Measurement and Power Solutions™

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Model 820 ± 2 kV High Impedance Voltmeter Specifications

Specifications are with the output monitor at 1/200 of the measured value with 5 minute warmup time.

Performance

Measurement Range

0 to ± 2 kV DC or peak AC.

Accuracy

At the Voltage Monitor Output

Better than $\pm 0.1\%$ of full scale.

At the Voltage Display

Better than $\pm 0.1\%$ of reading
 ± 1 digit (referred to measured input).

Large Signal Bandwidth (-3 dB)

DC to greater than 400 Hz for
4 kV pp.

Input Characteristics

Resistance greater than $1 \times 10^{15} \Omega$.
Capacitance less than 1×10^{-15} F.

Stability - Contacting Mode

Drift with Time (at 22 °C)

Less than 6 V/minute,
accumulative [referred to input].

Stability - Noncontacting Mode

Better than 100 ppm/°C.

Speed

Less than 500 μ s for 1 kV input step.

Features

Voltage Display

3½ digit LED display.

Range

0 to ± 1999 V.

Resolution

1 V.

Zero Offset

Less than or equal to ± 1 count.

USB Connector

Allows data transfer to a computer with a sampling rate of 1 ms between data points (stream data or block data transfer protocols). PC software can graph the unit's output.

Reset Button/Connector

A momentary front panel push-button switch or rear panel external TTL input signal initiates a reset function.

Features (cont.)

Voltage Monitor Output

A BNC provides a buffered low-voltage replica of the measured voltage.

Scale Factor

1/200 (standard).

Output Current

± 5 mA (minimum).

Output Noise

Less than 10 mV rms.

Output Impedance

Less than 0.1 Ω .

Digital Enable

A TTL compatible input to enable or disable the unit's high-voltage measurement. A TTL high will disable while a TTL low will enable the measurement.

Probe

The probe connects to the front panel and may be either hand-held or mounted to a holding device.

Model 820 Probe

Sensor

0.8 mm conducting ceramic electrode. The sensors may be easily replaced dependent on the measurement requirements.

Orientation

Pencil probe structure with end contact sensor.

Probe Dimensions

152 mm L x 20 mm Diameter
(6" L x 0.75" Diameter).

Probe Cable Length

1.5 m ± 75 mm (5.3 ft. ± 3 in).

General

Power Requirements

A universal line PFC-type wall cube provides the following input power to the ESVM:

Voltage

24 V DC, $\pm 5\%$ @ 1 Amp.

DC Connector

2.1 mm DC power plug.

Dimensions

10.2 cm H x 22.9 cm W x 33 cm D
(4" H x 9" W x 13" D).

Weight

1 kg (2.2 lb).

Voltage Monitor Connector

BNC connector.

Digital Enable Connector

BNC connector.

Reset Connector

BNC connector.

Ground Receptacle

Threaded ground stud.

Operating Conditions

Temperature

10 °C to 35 °C.

Relative Humidity

To 75%, noncondensing.

Power ON/OFF

A momentary push-button.

Probe Connector Location

Front panel

Accessories Supplied

Operator's Manual, Ground Cord,
Universal Power Cube @ 90 V to 264
V AC.

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