

# TREK 820 INFINITRON®

High impedance voltmeter with contacting or non-contacting modes to acquire precision surface voltage measurements.



The  $\pm 2$  kV Trek® 820 InfiniTron® voltmeter may be used in either contacting or non-contacting mode to acquire precision surface voltage measurements. It is especially beneficial when used with applications that demand infinitely high loading impedance levels far beyond the reach of currently available high impedance voltmeter instruments. The Trek 820 comes with a guarantee of virtually no modification of the object being measured. This allows the instrument to indicate, with high precision, the voltage level of both conductive and insulative objects and surfaces.

## PRODUCT HIGHLIGHTS

- Voltage monitor output scale factor at 1/200
- Probe electrode may be easily replaced with other sensor tips
- Monitor provides a low voltage replica of the measured electrostatic potential for monitoring purposes or for use as a feedback signal in a closed loop system
- Digital Enable allows an external device to turn ON/OFF the internal HV power supply
- Easy-to-read LED display
- Designed to be operated on a bench top
- NIST-traceable Certificate of Calibration provided with each unit

## APPLICATIONS

- Accurate reading of electrostatic voltage levels associated with ESD sensitive components, circuits, and surfaces

## AT A GLANCE

### Measurement Range

0 to  $\pm 2$  kVDC or peak AC

### Measurement Accuracy

Better than  $\pm 0.1\%$  of full scale (voltage monitor output)

### Speed of Response

Less than 500  $\mu$ s for a 1 kV input step

### Input Characteristics - Resistance

Greater than  $1 \times 10^{15} \Omega$

### Input Characteristics - Capacitance

Less than  $1 \times 10^{-15}$  F

## TREK ELECTROSTATIC VOLTMETER 820

### TECHNICAL DATA

Performance Specifications <sup>1</sup>		
Measurement Range	0 to ±2 kVDC or peak AC	
Measurement Accuracy	Voltage Monitor Output	Better than ±0.1% of full scale
	Voltage Display	Better than ±0.1% of reading, ±1 digit (referred to measured input)
Speed of Response	Less than 500 μs for 1 kV step (10% to 90%)	
Large Signal Bandwidth	DC to greater than 200 Hz for 4 kV pp (-3 db)	
Stability	Contacting - Drift with time at 22°C	Less than 6 V/minute, cumulative (referred to input)
	Non-contacting	Better than 100 ppm/°C
Input Resistance	Greater than $1 \times 10^{15} \Omega$	
Input Capacitance	Less than $1 \times 10^{-15} \text{ F}$	

Voltage Monitor	
Output	A BNC output provides a buffered low voltage replica of the measured voltage
Ratio	1/200th (standard)
Output Current	±5 mA (minimum)
Output Noise	Less than 10 mV rms
Output Impedance	Less than 0.1 Ω

Front Panel Meter	
Voltage Display	3 ½ digit LED display
Range	0 to ±1.9 kV
Resolution	1 V
Zero Offset	Less than or equal to ±1 count
Sampling Rate	1 ms between data points

Mechanical Specifications	
Dimensions (H x W x D)	10.2 x 22.9 x 33 cm (4 x 9 x 13 in)
Weight	1.8 kg (4 lb)
BNC Connectors	Voltage Monitor, Digital Enable, Reset
USB Port	Allows data transfer to a computer with a sampling rate of 1 ms between data points
Ground Receptacle	Threaded ground stud
Power ON/OFF	A momentary push-button
Probe Connector Location	Front panel

Operation Conditions <sup>1</sup>	
Temperature	10°C to 35°C (50°F to 95°F)
Relative Humidity	0 to 75%, noncondensing
Altitude	To 2000 m (6561.68 ft.)

Electrical Specifications <sup>1</sup>	
AC Line Cord Receptacle	A universal line PFC-type wall cube provides input power to the ESVM
Line Voltage	24 VDC, ±5% @ 1 A
DC Connector	2.1 mm DC power plug

<sup>1</sup> All specifications measured with a 5-minute warmup time.

## TECHNICAL DATA

Trek 820 Probe Specifications	
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)
Aperture Size (W x L)	1.5 m ±75 mm (5.3 ft ±3 in.)

Features	
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.
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.

## REFERENCE NUMBERS

Included Accessories	
24003	Operator's Manual with Software
N9082	Ground Cord
L5190	AC/DC Universal Power Cube (at 90 V to 264 VAC)
820P	Trek 820P Probe
-	Probe Tip, Ceramic tip of 0.8 mm diameter

Optional Accessories <sup>1</sup>	
820P	Trek 820P Probe
-	Probe Tip, Ceramic tip of 0.8 mm diameter

<sup>1</sup> Additional tip sizes and custom options available; please contact the factory for more information