

TREK 323

Highly sensitive versatile instrument used for a variety of electrostatic applications including material evaluation, electret studies, charge accumulation, etc.



The Trek® 323 electrostatic voltmeter performs highly sensitive voltage measurements using a variety of Trek sideview probes with various body types (round, square). The Trek 323 is specifically designed for high sensitivity applications and performs highly accurate, non-contacting measurement of electrostatic potentials of 0 to 100 V over a wide range of probe-to-surface distances.

The Trek 323 is a versatile instrument used for a variety of electrostatic applications including materials evaluation, electret studies, charge accumulation on disk drive assemblies, and other extremely sensitive ESD sensitive components.

PRODUCT HIGHLIGHTS

- Response speed control adjusts the speed/noise trade-off of the AC response
- Drift/spacing null adjustment minimizes the variation in zero offset voltage as the probe-to-test surface spacing changes
- Easy-to-read front panel 3.5 digit LED display
- Monitor the detected output voltage through a 1:1 voltage monitor output and a switch selectable scale of 10:1 or 20:1 voltage monitor output
- Patented low impedance probes assure measurement accuracy essentially independent of probe-to-test-surface spacing, humidity conditions, and contamination such as airborne dust, toner, ions and chemicals
- NIST-traceable Certificate of Calibration provided with each unit

AT A GLANCE

Measurement Range

0 to ±100 VDC or peak AC

Sensitivity

5 mV

Speed of Response

Less than 300 ms for a 100 V step

Measurement Accuracy

Better than 0.05% of full scale

Null Voltage Source

10 volt nulling supply

Response Speed Control

AC response adjusted for speed/noise

Drift Spacing/Null Adjustment

Minimizes variations in voltage values as probe-to-test surface spacing changes

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TECHNICAL DATA

Performance Specifications¹

Measurement Range	0 to ±100 VDC or peak AC		
Sensitivity	5 mV		
Accuracy	DC Accuracy	Better than 0.05% of full scale	
	Voltage Monitor Output	Better than ±0.05% of full scale	
	Voltage Display	Better than or equal to ±2 counts, referred to the voltage monitor	
Speed of Response	Less than 300 ms for a 100 V step (adjustable) (10 to 90%)		
Stability	Drift with Time	Less than 50 ppm/hour, noncumulative	
	Drift with Temperature	1:1 monitor output	Less than 10 ppm/°C
		10:1 monitor output	Less than 5 ppm/°C
		20:1 monitor output	Less than 5 ppm/°C

Mechanical Specifications¹

Dimensions (H x W x D)	108 x 223 x 380 mm (4.25 x 8.75 x 15 in)
Weight	3.6 kg (8 lb)
Voltage Monitor Connector	BNC connector
Ground Receptacle	Banana jack
AC Line Cord Receptacle	Standard three-prong line cord with integral fuse holder

Electrical Specifications¹

Line Supply	Factory set for one of two voltage ranges: 90 to 127 VAC or 180 to 250 VAC, at 48 to 63 Hz (specify when ordering)
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Environmental Specifications¹

Operating Conditions Temperature	0 to 40°C (32 to 104°F)
Relative Humidity	To 90%, noncondensing

Features

Null Voltage Source	A calibrated 10-turn dial representing a 10-volt supply, with switch selectable polarity, used to produce zero volts output when the probe is coupled to a known zero volt surface. Also used to null contact potentials on dissimilar surfaces.		
	Range	±10 volts	
	Accuracy	1%	
	Resolution	20 mV	
Probe-to-Surface Separation	1 to 3 mm		
Response Speed Control Voltage Display	A front panel potentiometer that adjusts the speed/noise inter-relationship of the Trek 323 AC response		
	3½ digit LED display.		
	Range	Switch selectable for ±10 V or ±100 V full scale	
	Resolution	10 V Range: 0.01 V	
		100 V Range: 0.1 V	
	Zero Offset	±2 counts, referred to the voltage monitor	
Sampling Rate	3 readings per second		
Drift/Spacing Null Adjustment	This back panel adjustment minimizes the variation in monitored voltage values as the probe-to-test surface spacing changes.		

¹ All specifications are with a Trek 6000B-8 probe with a probe-to-surface separation of 1 mm.

TECHNICAL DATA

Features (Continued)		
Voltage Monitor Output (1:1 ratio)	A buffered 0 to ± 100 V output providing a replica of the measured voltage	
	Scale Factor	1:1 of the measured voltage
	Output Noise	Less than 20 mV rms (measured using the true rms feature of the Hewlett Packard Model 34401A digital multimeter)
	Output Current	5 mA
	Output Impedance	100 Ω , nominal
Voltage Monitor Output	A buffered 0 to ± 10 V output providing a replica of the measured voltage.	
	Scale Factors	10:1 of the measured voltage or 20:1 of the measured voltage (switch selectable)
	Output Current	5 mA.
	Output Impedance	0.1 Ω , nominal.

REFERENCE NUMBERS

Trek 323 Electrostatic Voltmeter	
323-L	Trek 323-L (90 to 127 VAC)
323-H	Trek 323-H (180 to 250 VAC)

Probes	
17054	Trek 6000B-8 Probe (side-viewing, round body)
17047	Trek 6000B-16 Probe (side-viewing, square body)