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 Model 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
- CE compliant
- 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

TECHNICAL DATA

Performance Specifications[1]			
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 Specifications[1]	
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 Specifications[1]	
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)

Environmental Specifications[1]	
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	A front panel potentiometer that adjusts the speed/noise inter-relationship of the Trek 323 AC response	
Voltage Display	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 Hewelett 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	
3230-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)

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

AE's power solutions enable customer innovation in complex semiconductor and industrial thin film plasma manufacturing processes, demanding high and low voltage applications, and temperature-critical thermal processes.

With deep applications know-how and responsive service and support across the globe, AE builds collaborative partnerships to meet rapid technological developments, propel growth for its customers and power the future of technology.

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