

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

TREK ELECTROSTATIC VOLTMETER 323

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 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) |



For international contact information,
visit advancedenergy.com.

sales.support@aei.com
+1.970.221.0108

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.

PRECISION | POWER | PERFORMANCE

Specifications are subject to change without notice. Not responsible for errors or omissions. ©2021 Advanced Energy Industries, Inc. All rights reserved. Advanced Energy®, Trek®, and AE® are U.S. trademarks of Advanced Energy Industries, Inc.