

TREK 347

Non-contacting electrostatic voltmeter provides precision and value for surface voltage measurements in the range of ± 3 kVDC or peak AC.



The Trek[®] 347 non-contacting electrostatic voltmeter provides precise surface voltage measurements in the range of ± 3 kVDC or peak AC. The Trek 347 utilizes a field-nulling technique for non-contacting voltage measurement that achieves DC stability and high accuracy, with no need for fixed probe-to-surface spacing. This permits the accurate measuring of stationary or moving surfaces. Patented probe design enhances noise and drift performance in the presence of contaminating particulate or under conditions of high humidity and/or wide temperature ranges.

PRODUCT HIGHLIGHTS

- Superb noise and drift performance
- Precision voltage monitor output
- 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
- Digitalenable allows an external device to turn the internal HV power supply on/off
- Well suited for automated or computer-controlled systems
- Easy-to-read LED display
- Large selection of optional probes offer versatility (order separately)
- Operated on a bench top, or with optional hardware, in a standard 19-inch rack
- NIST-traceable Certificate of Calibration provided with each unit

TYPICAL APPLICATIONS

- Surface voltage measurements of photoconductors or dielectric surfaces
- Charge monitoring in semiconductor production
- Measuring of electrostatic potentials on film, polymers, and paper

AT A GLANCE

Measurement Range

0 to ± 3 kVDC or peak AC

Measurement Accuracy

Better than $\pm 0.05\%$ of full scale

Speed of Response

Less than 3 ms for a 1 kV step
(10 to 90%)

TREK ELECTROSTATIC VOLTMETER 347

TECHNICAL DATA

Performance Specifications		
Measurement Range	0 to ± 3 kVDC or peak AC	
Accuracy	Voltage Monitor: Better than $\pm 0.05\%$	Voltage Display: Better than $\pm 0.1\%$ of full scale, referred to the voltage monitor.
Speed of Response	Less than 3 ms for a 1 kV step change (10 to 90%)	
Stability	Drift with Time: Less than 100 ppm/hour, noncumulative	Drift with Temperature: Less than 100 ppm/ $^{\circ}$ C

Voltage Monitor	
Output	A buffered output provides a low-voltage replica of the measured voltage
Ratio	1/100th of the measured voltage (Other scale factors available)
Output Noise	Less than 2 mV rms ¹
Output Impedance	Less than 0.1 Ω

Front Panel Meter	
Voltage Display	3 3/4 digit LED display
Range	0 to ± 3 kV
Resolution	1 V
Zero Offset	± 1 count
Sampling Rate	2.5 readings per second

Mechanical Specifications	
Dimensions (H x W x D)	108 x 233 x 357 mm (4.25 x 8.75 x 14 in)
Weight	3 kg (6.6 lb)
Voltage Monitor Output Connector	BNC connector
Ground Receptacle	Banana jack
AC Line Cord Receptacle	Standard three-prong line cord receptacle

Operation Conditions	
Temperature	0 to 40 $^{\circ}$ C (32 to 104 $^{\circ}$ F)
Relative Humidity	To 90%, noncondensing
Altitude	To 2000 m (6561.68 ft)

Electrical Specifications	
AC Line Cord Receptacle	Standard 3-prong with integral power switch and fuse holder
Line Voltage	Factory set for one of two ranges: 90 to 127 V AC or 180 to 250 V AC, at 48 to 63 Hz
Power Consumption	50 VA, maximum

Features	
Zero Control	A multi-turn control to produce zero volts output when the probe is coupled to a known zero volt surface
Automatic Gain Control	A ten-position push-button switch that adjusts the gain of the Trek 347 to optimize the AC response. The response control is normally adjusted when changing the type of probe being used or when changing the probe-to-surface separation.
Digital Enable	An open collector, TTL compatible input to turn on and off the internal high voltage power supply. A TTL high will turn off the high voltage. A TTL low will turn on the high voltage.

¹Measured using the true rms feature of the Hewlett Packard Model 34401A digital multimeter

REFERENCE NUMBERS

Included Accessories	
23106	Operator's Manual
N5002	Line Cord, for 100 to 115 VAC
Varies	Line Cord, for 180 to 250 VAC (determined by geographical destination)

Optional Accessories	
17126	6003B Probe Line Driver (required when a very long probe extension cable is used)
17102	6004B-EC Probe Extension Cable (from 344 to line driver)
17127	6005B-EC Probe Extension Cable (from 344 to probe)
603RA	Full Rack Mount Kit
604RA	Half Rack Mount Kit

Probes	
Standard Resolution	
17053	Trek 6000B-7C (end-viewing, round body)
17054	Trek 6000B-8 (side-viewing, round body).
17046	Trek 6000B-15C (end-viewing, square body)
17047	Trek 6000B-16 (side-viewing, square body)
High Resolution	
17051	Trek 6000B-5C (end-viewing, round body)
17052	Trek 6000B-6 (side-viewing, round body).
17044	Trek 6000B-13C (end-viewing, square body)
17045	Trek 6000B-14 (side-viewing, square body)
Minature	
17205	Trek 555P-4 (end-viewing, square body)
17184	Trek 555P-1 (side-viewing, square body).
High Temperature (up to 100°C)	
17287	Trek 6300B-7 (end-viewing, square body)
17288	Trek 6300B-8 (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.

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