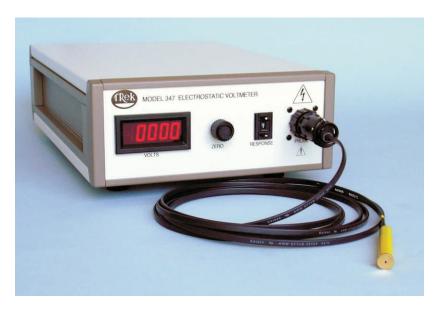


Model 347

DC-Stable Electrostatic Voltmeter



The Trek Model 347 is a precision electrostatic voltmeter for making noncontacting surface voltage measurements in the range of $0 \text{ to } \pm 3 \text{ kV DC}$ or peak AC.

Industrial applications include surface voltage measurements of photoconductors or dielectric surfaces, charge monitoring in semiconductor production, and measuring electrostatic potentials on film, polymers, and paper.

The Model 347 employs a field-nulling technique for noncontacting voltage measurement that achieves DC stability and high accuracy even if the probe-to-surface spacing changes. This permits the measuring of either stationary or moving surfaces without the need to establish fixed spacing to maintain accuracy.

The Model 347 patented probe design, when compared to other probe designs, significantly improves noise and drift performance in the presence of contaminating particulates or under conditions of high humidity and wide temperature ranges.

The Digital Enable feature provides a connection for a remote device to turn on and off the internal high-voltage power supply. This makes the Model 347 suited for automated or computer-controlled systems.

A precision voltage 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.

The Model 347 can be operated on a bench top or, with optional hardware, in a standard 19-inch rack.

- Measurement
 Range 0 to ±3 kV
 DC or Peak AC
- Accuracy Better
 Than 0.05% of Full
 Scale
- Speed of Response Less Than 3 ms for a 1 kV Step
- Superb Noise and Drift Performance
- Variety of Probes available for different installation requirements
- Precision Voltage Monitor Output
- Digital Enable allows an external device to turn on and off the internal power supply
- Easy-to-Read LED Display
- **.** (∈ Compliant



Model 347 Specifications

All specifications are with a 6000B-8 probe at a probe-to-surface separation of 2 mm.

Performance

Measurement Range

0 to ± 3 kV DC or peak AC.

Measurement Accuracy

Voltage Monitor

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

Voltage Display

Better than $\pm 0.1\%$ of full scale, referred to the voltage monitor.

Speed of Response (10% to 90%)

Less than 3 ms for a 1 kV step.

Stability

Drift with Time

Less than 100 ppm/hour, noncumulative.

Drift with Temperature

Less than 100 ppm/°C.

General

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 (specify when ordering).

Operating Conditions

Temperature

0 °C to 40 °C.

Relative Humidity

To 90%, noncondensing.

Probe-to-Surface Separation

 $2 \text{ mm} \pm 1 \text{ mm}$ (recommended).

Features

Zero Control

A multiturn control to produce zero volts output when the probe is coupled to a known zero volt surface.

Response Control

A ten-position, push-button switch that adjusts the gain of the 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.

Voltage Monitor Output

A buffered output providing a low-voltage replica of the measured voltage.

Scale Factor

1/100th of the measured voltage. (Other scale factors available.)

Output Noise

Less than 2 mV rms (measured with the true rms feature of the Hewlett Packard Model 34401A digital multimeter).

Output Impedance

Less than 0.1Ω .

Voltage Display

3³/₄ digit LED display.

Resolution

1 V

Zero Offset

 ± 1 count.

Sampling Rate

Danie Ma

2.5 readings per second.

Features (cont.)

Digital Enable

An open collector, TTL compatible input to turn on and off the internal highvoltage power supply. A TTL high (or open) will turn off the high voltage. A TTL low will turn on the high voltage.

Mechanical

Dimensions

108 mm H x 223 mm W x 357 mm D (4.25" H x 8.75" W x 14" D).

Weight

3 kg (6.6 lb).

Voltage Monitor Output Connector

BNC connector.

Digital Enable Connector

BNC connector.

Ground Receptacle

Banana jack.

AC Line Cord Receptacle

Standard three-prong line cord receptacle with an integral power switch and fuse holder.

Certification

TREK, INC. certifies that each Model 347 is tested and calibrated to specifications using measurement equipment traceable to the National Institute of Standards and Technology or traceable to consensus standards.

Copyright © 2011 TREK, INC. 1122/DEC

All specifications are subject to change.

Part No.

Model 347 Ordering Information

	11	100el 34/			PI-ODI
<u>Item</u>			Part No.	<u>Item</u>	

<u>rtcm</u>	I alt Mo.
±3 kV Electrostatic Voltmeter (90 to 127 V AC) ±3 kV Electrostatic Voltmeter (180 to 250 V AC)	

Accessories

<u>Item</u>	Part No.
Supplied	
Operator's Manual	23106
Line Cord (90 to 127 V AC)	N5002
Optional	
Full-Rack Mounting Kit (holds one unit)	603RA
Full-Rack Mounting Kit (holds two units)	
½ Rack Mounting Kit	604RA

	
Standard Resolution	
End-viewing, round body	6000B-7C
Side-viewing, round body	6000B-8
End-viewing, square body	6000B-15C
Side-viewing, square body	6000B-16
High Resolution	

End-viewing, round body	6000B-5C
Side-viewing, round body	6000B-6
End-viewing, square body	
Side-viewing, square body	

Miniature

End-viewing, square body	555P-4
Side-viewing, square body	555P-1

High Temperature (up to 100 °C)

End-vio	ewing, so	quare body	 6300-7
Side-vi	ewing, s	quare body	 6300-8



