Trek Model 341B

High-Speed, High-Voltage Electrostatic Voltmeter



The Trek Model 341B is a DC-stable, precision electrostatic voltmeter for making noncontacting surface voltage measurements. The 341B employs a field-nulling technique that achieves DC stability and high accuracy even if the probe-to-surface spacing changes. This permits measurements of either stationary or moving surfaces without the need to establish fixed spacing to maintain accuracy. The instrument also utilizes a patented probe design that eliminates the need for close tolerance components which significantly improves noise and drift under conditions of high humidity and wide temperature ranges.

Key Specifications

- Measurement Range: 0 to ± 20 kV DC or peak AC
- Measurement Accuracy:
 - acy: Better than $\pm 0.1\%$ of full scale
- Speed of Response:
- Less than 200 µs for a 1 kV step

Typical Applications Include

- Charge accumultion monitoring of LCD production processes
- Monitoring surface potentials in the electrostatic painting process
- Measuring of electrostatic potentials on polymers, rubber, fabrics and paper

Features and Benefits

- 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
- Easy-to-read LED display
- Optional probes offer versatility (order separately)
- Can be operated on a bench top, or with optional hardware, in a standard 19-inch rack
- NIST-traceable Certificate of Calibration provided with each unit
- CE compliant

Available Probes

Standard Resolution PN 17157: Model 3450 Side-viewing

High Temperature (up to 100°C) PN 17284 Model 3455ET End-viewing PN 17285 Model 3453ST Side viewing

Available Configurations

Model 341B PN 341B-L, 341B Electrostatic Voltmeter (90-127 V AC) PN 341B-H, 341B Electrostatic Voltmeter (180-250 V AC)

Model 341B-1 (for use with 3460-1 Line Driver) PN 341B-1-L, 341B-1 Electrostatic Voltmeter (90 to 127 V AC) PN 341B-1-H, 341B-1 Electrostatic Voltmeter (180 to 250 V AC) PN 17181, Model 3460 Line Driver (used with 341B-1) (Model 341B-1 utilizes a separate line driver for extended probe cable lengths)



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Model 341 B Specifications

Performanc

Performance	
Measurement Range	0 to ±20 kV DC or peak AC
Measurement Accuracy	Better than ±0.1% of full scale, referred to the voltage monitor
Speed of Response (10% to 90%)	Less than 200 µs for 1 kV step. Less than 5 ms for 20 kV step change
Full Signal Bandwidth	DC to better than 25 Hz
Stability	
Drift with Time	Less than 100 ppm/hour, noncumulative
Drift with Temperature	Less than 100 ppm/°C
Voltage Monitor	
Output	A buffered output provides a low-voltage replica of the measured voltage
Ratio	1/100th of the measured voltage
Output Noise	Less than 20 mV rms*
Output Impedance	Less than 0.1 Ω
Voltage Display	
Voltage Display	4 ½ digit LED display
Range	0 to ±19.99 kV
Resolution	1 V
Zero Offset	±2 counts, referred to the voltage monitor
Sampling Rate	3 readings per second
Features	
High Voltage Ready LED	LED indicator illuminates when the Model 341B is ready to make high-voltage measurements
High Voltage ON-OFF	Two-position toggle switch that turns on and off the high-voltage power supply inside the instrument
Zero Control	A 10-turn control to null offsets or other zero errors that occur within the system

Mechanical Dimensions 230 mm H x 441 mm W x 432 mm D (9.06" H x 17.36" W x 17" D) Weight 17 kg (37 lb) Voltage Monitor BNC connector **Output Connector** Ground Receptacle Green binding post **Operating Conditions** 0°C to 40°C (32°F to 104°F) Temperature **Relative Humidity** To 90%, noncondensing Altitude To 2000 m (6561.68 ft.) Probe-to-Surface 3 mm ±1mm (recommended) Separation Electrical AC Line Cord Standard 3-prong with integral fuse holder Receptacle 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 ON/OFF Two-position rocker switch that turns ON and OFF the main power to the instrument Supplied Accessories Operator's Manual PN: 23306 Line Cord PN: N5002 (for 90 to 127 V AC) PN: Determined by the geographical destination (for 180 to 250 V AC) **Optional Accessories** Probes Please refer to Page 1 Probe Line Driver Model: 3460-1 (required when used with the 341B-1 and an extended cable length) Probe Extension PN: 17218, Model 3450EC Probe Extension Cable (from the 341B Cable to the probe) Full-Rack Mount Kit Model 603RA (19-inch) Certification TREK, INC. certifies that each Model 341B is tested and calibrated to

*Measured using the true rms feature of the Hewlett Packard Model 34401A digital multimeter Copyright © 2012 TREK, INC. All specifications are subject to change. 1234/DEC



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consensus standards.



specifications using measurement equipment traceable to the National Institute of Standards and Technology or traceable to