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: Better than ±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 341B Specifications

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

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

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 Output Connector	BNC connector
Ground Receptacle	Green binding post

Operating Conditions

Temperature	0°C to 40°C (32°F to 104°F)
Relative Humidity	To 90%, noncondensing
Altitude	To 2000 m (6561.68 ft.)
Probe-to-Surface Separation	3 mm ±1mm (recommended)

Electrical

AC Line Cord Receptacle	Standard 3-prong with integral 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 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 (required when used with the 341B-1 and an extended cable length)	Model: 3460-1
Probe Extension Cable (from the 341B to the probe)	PN: 17218, Model 3450EC Probe Extension Cable
Full-Rack Mount Kit	Model 603RA (19-inch)

Certification

TREK, INC. certifies that each Model 341B is tested and calibrated to specifications using measurement equipment traceable to the National Institute of Standards and Technology or traceable to consensus standards.