

## TREK P0865

High-speed, high voltage electrostatic voltmeter for non-contacting surface voltage measurements in the range of 0 to  $\pm 10$  kVDC or peak AC.



The Trek® P0865 is a DC stable, precision electrostatic voltmeter for non-contacting surface voltage measurements in the range of 0 to  $\pm 10$  kVDC or peak AC. The Trek P0865 employs a field-nulling technique for non-contacting voltage measurement 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.

### PRODUCT HIGHLIGHTS

- Zero control for offset nulling
- Easy-to-read LED display
- Precision voltage monitor monitor provides a low-voltage replica of the measured electrostatic voltage for external monitoring purposes, or for use as a feedback signal in a closed-loop system
- Trek 3450 probe assembly includes a sensitive electrode and preamplifier, which is driven to the same potential as the measured value to eliminate arcing there between. A three meter cable permits remote probe positioning.
- Operated on a bench top, or with optional hardware, in a standard 19-inch rack
- NIST-traceable Certificate of Calibration provided with each unit

### APPLICATIONS

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

### AT A GLANCE

#### Measurement Range

0 to  $\pm 10$  kVDC or peak AC

#### Measurement Accuracy

Better than  $\pm 0.1\%$  of full scale

#### Speed of Response

Less than 200  $\mu$ s for a 1 kV step change. Less than 5 ms for a 20 kV step change

#### Full Signal Bandwidth

DC to better than 50 Hz

## TREK ELECTROSTATIC VOLTMETER P0865

### TECHNICAL DATA

#### Performance Specifications<sup>1</sup>

Measurement Range	0 to ±10 kVDC or peak AC	
Accuracy	Better than ±0.1% of full scale (as referred to the voltage monitor).	
Speed of Response	Less than 200 µs for a 1 kV step change. Less than 5 ms for a 20 kV step change. (10 to 90%)	
Full Signal Bandwidth	DC to better than 50 Hz.	
Stability	Drift with Time: Less than 100 ppm/hour, noncumulative.	Drift with Temperature: Less than 200 ppm/°C.

#### Voltage Monitor Output<sup>1</sup>

A BNC output provides a low-voltage replica of the measured voltage.		
Scale Factor	1/1000th of the measured voltage	
Output Noise	Less than 20 mV rms <sup>2</sup>	
Output Impedance	Less than 0.1 Ω.	

#### Voltage Display<sup>1</sup>

4½ digit LED display.		
Range	0 to ±10,000 V	
Resolution	1 V	
Zero Offset	Less than ±2 counts, referred to the voltage monitor.	
Sampling Rate	3 readings per second	

#### Mechanical Specifications<sup>1</sup>

Dimensions (H x W x D)	134 x 432 x 432 mm (5.25 x 17 x 17 in)	
Weight	15 kg (33 lb)	
Voltage Monitor Connector	BNC connector	
Ground Receptacle	Green binding post	

#### Operating Conditions<sup>1</sup>

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

#### Electrical Specifications<sup>1</sup>

Line Supply	Factory set for one of three nominal AC line voltages: 100 V, 115 V, or 230 VAC [CE compliant], at 48 to 63 Hz (specify when ordering).	
AC Line Cord Receptacle	Standard three-prong line cord receptacle with an integral fuse holder	

#### Features<sup>1</sup>

High Voltage Ready LED	An LED indicator illuminates when the Trek P0865 is ready to make high voltage measurements.	
High Voltage On/Off	A two-position toggle switch that turns on and off the high voltage power supply inside the instrument.	
Zero Adjust	A 10-turn control to null offsets or other zero errors which occur within the system	
Power On/Off	A two-position rocker switch that turns on and off the main power.	

<sup>1</sup> All specifications are with a Trek 450 probe at a probe-to-surface separation of 3 mm, ±1 mm

<sup>2</sup> Measured using the true rms feature of the Hewlett Packard Model 34401A digital multimeter

## REFERENCE NUMBERS

Trek P0865	
13424F	Trek P0865 Electrostatic Voltmeter (100 VAC)
13424G	Trek P0865 Electrostatic Voltmeter (115 VAC)
13424K	Trek P0865 Electrostatic Voltmeter (230 VAC)

Optional Accessories	
17218	Trek 3450EC Probe Extension Cable (from unit to probe)
17181	Trek 3460-1 Line Driver
C4062	607RA Full Rack Mount Kit (19 in)

Probes	
Standard Resolution	
17157	Trek3450 (side-viewing)
High Temperature Probes (up to 100°C)	
17284	Trek 3455ET (end-viewing)
17285	Trek 3453ST (side-viewing)



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## 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

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