

# Trek Model 511

## Hand-Held Electrostatic Field Meter



The Model 511 is a high-quality, portable, chopper-stabilized, non-contacting electrostatic field meter designed for testing and auditing electrostatic fields in ESD sensitive areas so that operators can find them before they become a problem. Features of the Model 511 such as its LED indicator with a switch selectable measurement range of either  $\pm 2$  kV or  $\pm 20$  kV, add to instrument flexibility and benefit the operator through its ease of use. Operators also benefit from the ability to obtain or audit reliable and accurate ESD measurements in either ionized or non-ionized environments.

The Model 511 can also be used for balancing and testing ionization blowers and devices when the optional Ionizer Test Kit (which includes the Model 511, the Model 511-CP Charge Plate and the Model 511-CH Charger) is ordered. See page 2 for ordering information.

### Key Specifications

- Measurement Range: Low range: 0 to  $\pm 2$  kV / inch  
High range: 0 to  $\pm 20$  kV / inch
- Measurement Accuracy: Voltage monitor output: Better than  $\pm 5\%$  of reading,  $\pm 10$  mV  
Voltage display: Better than  $\pm 5\%$  of reading,  $\pm 2$  counts

### Typical Applications Include

- Audit/monitor electrostatic discharge
- Measure surface voltage (photo-conductors, dielectric surfaces)
- Monitor ESD in semiconductor production
- Measure electrostatic potentials on film, polymers, and paper
- Assess voltage generation of materials, equipment and personnel
- Balance/test ionization blowers and devices



Model 511 Ionizer Kit

### Features and Benefits

- Available for use as a Field Meter and for balancing and testing ionization equipment (with the addition of the Ionizer Test Kit)
- Push-button "auto-zero" feature removes any offset voltage
- Compact, pocket size
- Easy-to-read LED display
- Distance ranging system utilizes LEDs to indicate a 1-inch spacing between the instrument and the test target
- Hold function allows the user to hold a display when a measurement is being taken in a location where ready the display is difficult
- Chopper-stabilized probe technology
- NIST-traceable Certificate of Calibration provided with each unit
- CE compliant



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## Model 511 Specifications

### Performance

Measurement Range  
(switch selectable)

*Low Range* 0 to  $\pm 2$  kV / inch

*High Range* 0 to  $\pm 20$  kV / inch

Measurement Accuracy As tested in TREK Test and Calibration  
Fixture # PE15024

*Voltage Monitor Output* Better than  $\pm 5\%$  of reading,  $\pm 10$  mV

*Voltage Display* Better than  $\pm 5\%$  of reading,  $\pm 2$  counts

Measurement Stability  $\pm 10$  counts

### Voltage Monitor

Output 2 volts output at full scale

Ratio

*Low Range* 1/1000 of the measured electrostatic field

*High Range* 1/10000 of the measured electrostatic field

### Front Panel Meter

Voltage Display 3  $\frac{1}{2}$  digit LED display

*Range*

Low 0 to  $\pm 1.999$  kV / inch

High 0 to  $\pm 19.99$  kV / inch

*Display Resolution*

Low Range 1 V / inch

High Range 10 V / inch

*Sampling Rate* 3 readings per second

### Features

Ground Snap Connector Provides connection for a grounding wire

Automatic Shutoff Unit will shut off after 20 minutes from last activity

Ranging System LED distance indicator; aligned targets indicate one (1) inch

Range/Zero Switch LED distance indicator. Resets the instrument to zero and selects the measurement range

Low Battery Indicator An LCD display message indicates when the battery is low

### Features (cont.)

Hold Switch Retains the LCD display reading when depressed

### General

Dimensions 23.9 mm H x 69.9 mm W x 125.5 mm L  
(0.94" H x 2.75" W x 4.94" L)

Weight 140 g (4.9 oz.) with battery

Voltage Monitor Connection 2.5 mm jack (3/32") monophone

*Tip* Signal

*Sleeve* Ground

Operating Conditions

*Temperature* 10°C to 30°C (50°F to 86°F)

*Relative Humidity* To 80%, non-condensing

*Altitude* To 2000 m (6561.68 ft.)

### Power Requirements

Power One (1) 9-volt alkaline battery (not supplied)

Operating Time Greater than 50 hours, with a new battery at 21° C continuous

Power Switch A membrane switch that is designed to prevent accidental turn on. Powers the instrument on and off

### Included Accessories

Operator's Manual PN: 23480

### Optional Accessories

Ionizer Test Kit Model: 511 Ionizer Test Kit  
(comes complete with the Model 511 Field Meter, the Model 511-CP Charge Plate and the Model 511-CH Charger)

### Certifications

Calibration

TREK, INC. certifies that each Model 511 is tested and calibrated to specifications using measurement equipment traceable to the National Institute of Standards and Technology. A Certificate of Calibration accompanies each instrument when it is shipped from the factory

CE Compliance

IEC 61010-1 Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General Requirements

IEC61326-1 Electrical equipment for measurement, control and laboratory use - Part 1: General Requirements

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