

Trek Model 158A

Charged Plate Monitor



The Trek Model 158A Charged Plate Monitor is the premier instrument to evaluate the performance of air ionization systems. It features a user-friendly large 7-inch screen that is active through either touch-screen control or corresponding function keys. The compact design supports superior data collection and data storage capability. The data is displayed in color and may be stored internally or can be easily transferred to a USB flash drive or other USB device.

An ion collecting plate assembly is required (6-inch plate shown).

Key Specifications

- Monitored Voltage Range: 0 to ± 1100 V DC or peak AC
- Bandwidth (-3 dB): DC to 80 Hz
- Decay Mode Thresholds: Programmable from 1 to ± 1000 V in 1 V increments

Typical Applications Include

- Performance evaluation of air ionization systems
- ESD Test Equipment
- ESD Audit Equipment
- Material Dissipation Testing
- Site Specific Contacting Voltage Measurement
- Static Charge Monitoring
- Voltage measurement of floor materials and footwear in combination with a person (ANSI ESD STM97.2 and IEC 61340-4-5)

Features and Benefits

- Touch screen or function key control
- Long battery life
- User-friendly compact design with superior data collection and storage capability
- Unique color graphics chart display
- PC memory card port for ample data storage and easy data transfer
- Programmable start and stop voltage for (+) and (-) decay time ionizer tests
- 0.1 V plate voltage resolution
- Compliance to IEC 61340-5-1 and ANSI/ESD STM3.1
- NIST-traceable Certificate of Calibration provided with each unit

The Model 158A may be ordered as a kit which includes all items listed below.

- Model 158A Charged Plate Monitor
- 150 mm x 150 mm (6" x 6") Ion Collecting Plate
- 25 mm x 25 mm (1" x 1") Ion Collecting Plate
- Walking Test Adapter Assembly
- AC Adapter, 24v / 1.7a / 2.1mm Plug
- USB Type A Male To USB Type B Male Cable 6ft
- Power Cord For AC Adaptor
- Custom Patch Cord, ST-BAN-PL9',ST-BAN-PL
- Ion Collecting Plate Handle
- Mini-Tripod For Ion Collecting Plates
- Model 158A Custom Carry Case



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Model 158A Specifications

Performance

Monitored Voltage Range	0 to ± 1100 V DC or peak AC
Bandwidth (-3 dB)	DC to 80 Hz
Zero Stability (referred to plate voltage)	
<i>Drift with Time (no incident ion flow)</i>	Less than 6 V/minute
<i>Drift with Temperature</i>	Less than 10 mV/ $^{\circ}$ C, noncumulative
Decay Mode Thresholds	
<i>Start Voltage</i>	Programmable from 1 to ± 1000 V in 1 V increments
<i>Start Accuracy</i>	Within ± 1 V of programmed start voltage
<i>Stop Voltage</i>	Programmable from 0 to ± 999 V in 1 V increments
<i>Stop Accuracy</i>	Within ± 1 V of programmed start voltage or ± 0.2 V if set less than or equal to 90 V
<i>Decay Timer Resolution</i>	0.1 sec, from 0.1 sec to 999.9 sec, resolution 0.1 sec

Voltage Monitor Output

Voltage Monitor Output	A BNC proving and low voltage replica of the plate voltage
<i>Scale Factor</i>	1/200th of the plate voltage
<i>DC Accuracy</i>	Better than 0.1% of full scale
<i>DC Offset</i>	Less than ± 10 mV
<i>Output Noise</i>	Less than 10 mV rms*
<i>Output Impedance</i>	Less than 0.1 Ω

Features

LCD Color Display (with contrast adjustment). Navigate via touch-screen or function keys	7-inch LCD touch-screen displays graphical readouts, numeric data, informational data, programming parameters and retrieved data
<i>Analysis Resolution</i>	14 bits
Mode Select/Programming	Allows multiple operational and programming options. Can be preset to perform a number of automated tests and is available to store or retrieve previously defined test parameters. Test locations and results can be saved and retrieved for future reference.
Ion Collecting Plate (standard option)	Meets ANSI/ESD-STM3.1 requirements
Power ON-OFF	A momentary push-button
Float Mode, (+) Decay Mode, or (-) Decay Mode	Performs float voltage and decay time EOS/ESD measurements utilizing parameters, guidelines, and standards set by the EOS/ESD Association

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

Features (cont.)

<i>For (+) Decay and (-) Decay Modes</i>	The ion collecting plate is charged to a voltage level above the programmed (+) or (-) start voltage value. The plate is allowed to decay toward zero due to the ion impingement on the plate. The time required for the plate to decay from the programmed start voltage to the programmed stop voltage is displayed on the timer.
<i>For Float Mode</i>	The charged plate monitor is reset to 0 V ± 0.5 V. The plate is allowed to "float" to a voltage level dictated by ion impingement on the plate.
USB Flash Drive USB Host	USB host port allows information to be saved, retrieved and exchanged.

Electrical

Power Requirements	Internal NiMH battery or External 24V DC, 1.75 A, 2.1mm jack charger / eliminator
Battery Operating Time	Greater than six hours of continuous operation

Mechanical

Dimensions	53 mm H x 226 mm W x 187 mm D (2.1" H x 8.9" W x 7.4" D)
Weight	2.2 kg (4.9 lb)
Voltage Monitor Connector	BNC connector (3 meter length maximum)
Ground Receptacle	Binding ground post
Cable from Instrument to Floating Plate	Coaxial type; diameter is 4.95 mm (0.195"); length is 3 meters (10 ft)

Operating Conditions

Temperature	5 $^{\circ}$ C to 35 $^{\circ}$ C (41 $^{\circ}$ F to 95 $^{\circ}$ F)
Relative Humidity	To 80%, non-condensing

Supplied Accessories

Operator's Manual	PN: 24021
AC Adapter (100 to 265 V AC)	PN: F5058R

Ion Collecting Plates (order separately*)

150 mm x 150 mm (6" x 6") plate	PN: 17397
25 mm x 25 mm (1" x 1") plate	PN: 17375

*Both plates are included in Model 158A Kit.

Optional Accessories

Plate Tripod	PN: 1K065 or Mini Tripod PN: DK323
Walking Test Adapter	PN: 1K062

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