

## TREK 158A

Charged plate monitor for evaluating the performance of air ionization systems with a compact design for superior data collection and storage capability.



The Trek® 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 touchscreen control or corresponding function keys. 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.

### PRODUCT HIGHLIGHTS

- 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

### APPLICATIONS

- 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)

### AT A GLANCE

#### Monitored Voltage Range

0 to  $\pm 1100$  VDC or peak AC

#### Bandwidth (-3 dB)

DC to 80 Hz

#### Decay Mode Thresholds

Programmable from 1 to  $\pm 1000$  V  
in 1 V increments

## TREK CHARGED PLATE MONITOR 158A

### TECHNICAL DATA

Performance Specifications		
Monitored Voltage Range	0 to ±1100 VDC or peak AC	
Bandwidth	DC to 80 Hz (-3dB)	
Zero Stability (referred to plate voltage)	Drift with Time (no incident ion flow)	Less than 6 V/minute
	Drift with Temperature	Less than 10 mV/°C, noncumulative
Decay Mode Thresholds	Start Voltage	Programmable from 1 to ±1000 V in 1 V increments
	Start Accuracy	Within ±1 V of programmed start voltage
	Stop Voltage	Programmable from 0 to ±999 V in 1 V increments
	Stop Accuracy	Within ±1 V of programmed stop voltage or ±0.2 V if set less than or equal to 90 V
	Discharge Time Resolution	0.1 sec, from 0.1 sec to 999.9 sec, resolution 0.1 sec
Voltage Monitor		
Output	A BNC proving and low voltage replica of the plate voltage	
Scale Factor	1/200th of the plate voltage	
DC Accuracy	Better than 0.1% of full scale	
Offset Voltage	Less than ±10 mV	
Output Noise	Less than 10 mV rms <sup>1</sup>	
Output Impedance	Less than 0.1Ω	
Mechanical Specifications		
Dimensions (H x W x D)	53 x 226 x 187 mm (2.1 x 8.9 x 7.4 in)	
Weight	2.2 kg (4.9 lb)	
Voltage Monitor	BNC Connector (3 m length maximum)	
Ground Receptacle	Binding ground post	
Cable from Instrument to Floating Plate	Coaxial type; diameter is 4.95 mm (0.195 in); length is 3 m (10 ft)	
Electrical Specifications		
Power Requirements	Internal NiMH battery or External 24VDC, 1.75 A, 2.1mm jack charger / eliminator	
Battery Operating Time	Greater than six hours of continuous operation	
Environmental Specifications		
Temperature	5 to 35°C (41 to 95°F)	
Relative Humidity	To 80% RH, noncondensing	
Features		
LCD Color Display (with contrast adjustment)	7-inch LCD touch-screen (with function keys) displays graphical readouts, numeric data, informational data, programming parameters and retrieved data	
	Analysis Resolution	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	

<sup>1</sup> Measured using the true rms feature of the HP Model 34401A digital multimeter

TECHNICAL DATA (CONTINUED)

Features (Continued)	
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
	For (+) Decay and (-) Decay Modes 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.
	For Float Mode 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.

REFERENCE NUMBERS

Trek 158A Kit	
The Trek158A may be ordered as a kit which includes all items listed below:	
■ Trek 158A Charged Plate Monitor	■ Power Cord For AC Adaptor
■ 150 x 150 mm (6 x 6 in) Ion Collecting Plate	■ Custom Patch Cord, ST-BAN-PL9,ST-BAN-PL
■ 25 x 25 mm (1 x 1 in) Ion Collecting Plate	■ Ion Collecting Plate Handle
■ Walking Test Adapter Assembly	■ Trek 158A Custom Carry Case
■ AC Adapter, 24v / 1.7a / 2.1 mm Plug	
■ USB Type A Male To USB Type B Male Cable 6ft	

Included Accessories	
24021	Operator’s Manual
F5058R	AC Adapter (100 to 265 VAC)

Optional Accessories	
1K065	Plate Tripod
1K062	Walking Test Adapter

Ion Collecting Plates <sup>1</sup>	
17397	150 x 150 mm (6 x 6 in) plate
17375	25 x 25 mm (1 x 1 in) plate

<sup>1</sup> Both plates are included in Trek 158A Kit.



For international contact information,  
visit [advancedenergy.com](http://advancedenergy.com).

[sales.support@aei.com](mailto:sales.support@aei.com)  
+1.970.221.0108

## 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

---

Specifications are subject to change without notice. Not responsible for errors or omissions. ©2021 Advanced Energy Industries, Inc. All rights reserved. Advanced Energy®, Trek®, and AE® are U.S. trademarks of Advanced Energy Industries, Inc.