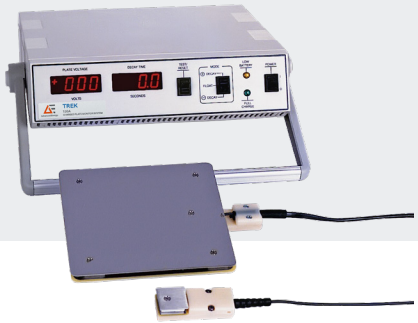
TREK 156A

Charged plate monitor for evaluating the performance of air ionizers used to neutralize static charges.



The Trek® 156A tests the efficiency of an ionizer's ion production by timing how long it takes air ions produced to discharge a floating plate that has been pre-charged to either a positive or negative value. The Trek 156A also tests the balance between positive and negative air ions by measuring the offset voltage generated on a floating plate due to an imbalance of positive and negative air ions impinging on the plate from the ionizer.

PRODUCT HIGHLIGHTS

- Customizable measurement capacitance provides assurance that ESD process needs are met in manufacturing and that there is compliance to ANSI/ESD-STM3.1 and IEC 61340-5-1.
- Extremely low offset and drift ensures high accuracy, making it ideal for applications requiring critical ion balance such as GMR and TMR manufacturing areas
- Compact and lightweight, for easy portability within a facility
- NIST-traceable Certificate of Calibration provided with each unit

APPLICATIONS

- ESD monitoring of sensitive manufacturing processes such as semiconductor, disk drive and LCD
- Testing of all types of ionizers, including room ionization systems, AC and DC blowers, nuclear ionizers, gun type ionizers, and pulsed DC ionizers
- High temperature applications
- ESD measurement of de-ionized water
- Dissipative testing applications

AT A GLANCE

Large Signal Bandwidth

DC to 10 Hz

Decay Mode Thresholds

Start/Stop Voltages
Programmable from 1 to ±1000 V in 1 V increments

Start/Stop Accuracy
Within ±1 V of programmed voltage

TECHNICAL DATA

Performance Specifications		
Monitored Voltage Range	0 to ±1100 VDC or peak AC	
Large Signal Bandwidth	DC to 10 Hz (measured at 2000 V p-p)	
Small Signal Bandwidth	DC to 1 kHz (measured at 20 V p-p) (-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
	Stop Voltage	Programmable from 0 to ±999 V in 1 V increments
	Start/Stop Accuracy	Within ±1 V of programmed voltage
	Discharge Time Resolution	0.1 seconds, from 0.1 to 999.9 seconds; 1 second, from 1000 to 9999 seconds. (The display will indicate "- - - -" when the decay time exceeds 9999 seconds.)
Plate Self-Discharge Rate	Less than 12 V/minute	

Voltage Monitor	
Output	BNC provides low voltage replica of plate
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[1]
Output Impedance	Less than 0.1Ω

Mechanical Specifications		
Dimensions (H x W x D)	83 x 318 x 280 mm (3.25 x 12.5 x 11 in)	
Weight	2 kg (4.4 lb)	
Connections	Voltage Monitor	BNC Connector
	Ground Receptacle	Banana Jack
	Cable 156A to Plate	Coaxial (3 m length, 4.95 mm diameter)

Electrical Specifications		
Battery Eliminator	Output Connector	2.1 mm DC power plug
	Output Current	1.2 A
Battery Operation	Rechargeable battery, supplied	
	Recharge Time	2.1 mm DC power plug
	Recharge Indicator	LCD screen battery status indicator
	Operating Time	8 hours from a full charge

Environmental Specifications	
Temperature	5 to 35°C (41 to 95°F)
Relative Humidity	To 80% RH, noncondensing
Altitude	To 2000 m (6561.68 ft.)

[1] Measured using the true rms feature of the HP Model 34401A digital multimeter

TECHNICAL DATA (CONTINUED)

Features		
Mode Select	A three-position toggle switch selects the +Decay, -Decay, or Float mode of operation. This switch is also used in combination with the Test/Reset Control switch to program the START and STOP voltages.	
Test/Reset Control	A momentary toggle switch used in conjunction with the Mode Select switch to program the START and STOP voltages	
+Decay and -Decay Modes	Sets the plate voltage to a value greater than the programmed start voltage and resets the decay timer to zero	
Float Mode	Sets the plate voltage to 0 V ±2 V	
Plate Voltage Digital Panel Meter	3.5 digit red LED display	
	Range	0 to ±1100 V
	Resolution	1 V
	Accuracy	Better than 0.1% of full scale ±1 count
Decay Time Digital Panel Meter	4-digit red LED display	
	Range	0 to 9999 seconds

REFERENCE NUMBERS

Included Accessories	
23103	Operator's Manual
N9044	Ground Cord
F5054R	Universal AC Adapter

Optional Accessories	
43433	Carrying Case
1K062	Walking Test Adapter
1K065	Ion Collecting Plate Tripod Kit

Ion Collecting Plates	
Capacitance: 20 pF ±2 pF	
17397	150 x 150 mm (6 x 6 in sq)
17375	25 x 25 mm (1 x 1 in sq)

ABOUT ADVANCED ENERGY

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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.

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