Advanced Energy

TREK 157

Charged plate monitor that offers better accuracy, stability, and bandwidth than conventional designs.

The Trek® 157 combines patented precision charge measurement capability with features that drive down ionizer maintenance and performance testing costs. Enhanced features, such as those that enable the operator to store and retrieve data as data points or graphs and record operator comments for reference, make the Trek 157 ideal for use in dissipative testing of materials and monitoring of static charge.

PRODUCT HIGHLIGHTS

- Customizable measurement capacitance provides assurance that ESD process needs are met in manufacturing and that there is conformance to ANSI/ESD-STM3.1 and IEC61340-5-1 standard test methods
- Greater bandwidth enables "true" responses to be observed by avoiding the masking of results which can occur with other vendors' systems
- 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

Bandwidth (-3 dB)

DC to 80 Hz

Decay Mode Thresholds

Start and stop voltages are programmable from 1 to ±1000V in 1 V increments

Data Retrieval/Analysis

Data can be exported from the Trek 157 into a PC through a USB port for subsequent analysis or record keeping

Data Acquisition Speed

When connected to a computer in Fast Mode, data can be collected at a rate of 1 ms/data point

TECHNICAL DATA

Performance Specifications		
Monitored Voltage Range	0 to ±1020 V DC 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
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
Output Impedance	Less than 0.1Ω

Mechanical Specifications		
Dimensions (H x W x D)	102 x 254 x 241 mm (4 x 10 x 9.5 in)	
Weight	2 kg (4.4 lb)	
Connections	Voltage Monitor	BNC Connector
	PC for Data Transfer	USB
	Ground Receptacle	Banana Jack
	Cable 156A to Plate	Coaxial (3 m length, 4.95 mm diameter)

Electrical Specifications		
Battery Eliminator 1K010 (for all line voltages)	Output Connector	2.1 mm DC power plug
	Output Current	2 A
Battery Operation	Rechargeable battery, supplied	
	Recharge Time	Less than 3 hours to full charge
	Recharge Indicator	LCD screen battery status indicator

Environmental Specifications	
Temperature	5 to 35°C (41 to 95°F)
Relative Humidity	To 80% RH, noncondensing

TECHNICAL DATA (CONTINUED)

Features		
Menu Selection and Display	Six soft-keys and display prompts enable the user to navigate through system operations. Automated or manual tests can be performed, programmed or retrieved. Among the functions are:	
	+DISCHARGE, - DISCHARGE Tests	Sets the plate voltage to a value just above the programmed start voltage and resets the discharge timer to zero
	BALANCE Test	Sets the plate voltage to 0 V, ±0.5 V
Memory	Store or retrieve up to 1500 manual tests or up to 1000 automated test sequences	
TEMP/RH Meter Connector	Receives input from optional thermohygrometer to enable display of environmental data on LCD screen and to save or retrieve information on test results	
Bar Code Input Connector	Receives input from optional code reader to enable display of bar code ID and to save/retrieve information on test results	
Data Retrieval and Analysis	Export data to a PC through a USB port for subsequent analysis or record keeping	
Fast Mode (Data Acquisition)	When connected to a PC, collect data at 1 ms/data point (normal is 10 ms/data point); useful in evaluating resistive or dissipative properties of materials	
LCD Display Screen with LED back light	4-digit red LED display	
	127 mm x 38 mm (5" x 1.5") screen displays all data and program options; Resolution is 240 x 64 pixels.	

REFERENCE NUMBERS

Included Accessories	
24007	Operator's Manual with Software
1K073	Universal AC Adapter
N9044	Banana Jack
BA103	USB Cable
43863	Carrying Case

Optional Accessories	
1K065	Ion Collecting Plate Tripod Kit
17397	Ion Collecting Plate (Capacitance: 20 pF ±2 pF), 150 x 150 mm (6 in^2)
17375	Ion Collecting Plate (Capacitance: 20 pF ±2 pF), 25 x 25 mm (1 in^2)

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

Advanced Energy

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