Model 158

Charged-PlateMonitor

- *User-Friendly Compact Design with Superior Data Collection and Data Storage Capability*
- *Unique Color Graphics Chart Display*
- *PC Memory Card Port for Ample Data Storage and Easy Data Transfer*
- *Programmable Balance, (+) and (-) Discharge ionizer tests*
- *0.1 V Plate Voltage Resolution*

Dependable and Portable Ionization Monitoring

The Trek Model 158 Charged-Plate Monitor is the premier instrument to evaluate the performance of air ionization systems.

Unique among charged-plate monitors, the Model 158 features a color graphics display to permit viewing of discharge waveforms and offset voltage in the time domain, and the ability to store test data and waveforms for hundreds of ionizer tests.

The Model 158 is compact, portable, and stores test results internally, permitting the operator to move freely about the facility to evaluate ionizers, unencumbered by a heavy instrument, laptop computer, and collateral materials to record test results.

The Model 158 can be line or battery operated. The unit ships with two battery packs. The battery pack is easily removed and replaced with a fresh pack to permit operation on the factory floor for extended periods of time.

Test data is stored on a removable PCMCIA flash memory card. The card containing test results is easily removed from cleanroom facilities to office areas where the test results can be downloaded, evaluated, and transferred to reports.

For those demanding very strict ion balance, the Model 158 resolves 0.1 V plate voltage.

The Model 158 uses an innovative voltage-follower technique to provide accuracy, stability, and bandwidth that is unavailable from charged-plate monitors which employ fieldmeter-based measurement methods.

Trek's voltage-follower technique provides virtually immeasurable loading affect of the ion collecting plate, while allowing the plate to be charged and monitored through the same, small diameter cable. The size and shape of the ion collecting plate and the plate's capacitance to ground may be optionally tailored to a particular application.

CONTROL WITHOUT COMPROMISE

Model 158 Charged-Plate Monitor 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)
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.
Decay Timer Resolution
0.1 seconds,
from 0.1 to 999.9 seconds.

Ion Collecting Plate Self-Discharge Rate
Less than 12 V/minute.

Features

LCD Display (with contrast adjustment)
3.5 inch x 4.75 inch
(89 mm x 121 mm) displays graphical readouts, numeric data, informational data, programming parameters, and retrieved data.
Sampling Rate
400 k/s.
Analysis Resolution
12 bits.

Printer Attachment (Optional)
A small printer attachment for the 158 unit can be used to print test data directly from the Model 158.

Features (cont.)

Float Mode, (+) Decay Mode, or (-) Decay Mode
Performs offset and discharge EOS/ESD measurements utilizing parameters, guidelines, and standards set by the EOS/ESD Association.

For (+) Decay and (-) Decay Modes
The charged-plate is initially charged to a voltage level just above the programmed (+) or (-) start voltage value and the decay timer is set to zero. Upon test initiation, the plate is allowed to decay toward zero due to the ion impingement on the plate. The time to reach the programmed stop voltage value is displayed on the timer.

For Float Mode
The charged-plate is initially reset to zero. Upon test initiation, the plate is allowed to "float" to a voltage level dictated by ion impingement on the plate.

Mode Select/Programing
Allows multiple operational and programming options. The Model 158 can be preset to perform a number of automated tests and is able 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)
Dimensions
15 cm x 15 cm square, (6″x 6″ square).
Capacitance
20 pF ±2 pF.
(Other capacitance options available.)

PC Memory Card Port
Computer card port allows information to be saved, retrieved, and exchanged on SRAM or Flash ATA card media.

Features (cont.)

Voltage Monitor Output
A BNC providing a low voltage replica of the plate voltage.
Scale
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 (measured using the true rms feature of the Hewlett Packard Model 34401A digital multimeter).
Output Impedance
Less than 0.1 Ω.

General

Operating Conditions
Temperature
5 °C to 35 °C.
Relative Humidity
To 80%, noncondensing.

Instrument Dimensions
57 mm H x 171 mm W x 222 mm D
(2.25″ H x 6.75″ W x 8.5″ D).

Instrument Weight
1.3 kg (2.5 lb).

Voltage Monitor Connector
BNC coaxial connector.

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), nominal.

Model 158 Ordering Information

Item	Part No.
Charged-Plate Monitor	Model 158

Ion Collecting Plates

Standard Plates (ordered separately)
150 mm x150 mm (6″ x 6″) plate. . . Model 156AP-C150x150-R3M
25 mm x 25 mm (1″ x 1″) plate . . . . . Model 156P-C25x25-S3M

Special Plates (ordered separately) Custom plate sizes are available.

Item	Part No
Operator's Manual	23294
Banana to Banana Stackable Cord (9 ft.)	N9044
Battery Pack	158-2
AC Adapter (100 to 240 V AC)/Battery Charger (Shoulder Strap provided)	158-6

Optional Accessories

Ion Collecting Plate Tripod	DK142

TREK, INC. 11601 Maple Ridge Road • Medina, NY 14103 • 800-FOR TREK
585-798-3140 • 585-798-3106 (fax) • www.trekinc.com • sales@trekinc.com

ISO 9001:2000
FM 56910