

STATIC DECAY METER

Model 406D

Measures the electrostatic dissipation performance of materials.



Model 406D

Features

- ❑ Tests material per FTM Std. 101C, Method 4046
- ❑ Meets static decay requirements of MIL-PRF-81705D, EIA-541 & NFPA 99
- ❑ Automatic and manual test modes
- ❑ Selectable cutoff levels of 50%, 10% & 1%
- ❑ .01 second decay time resolution
- ❑ Test Module for verifying system operation
- ❑ Custom electrodes for specialized testing

Applications

Materials used in static sensitive applications such as electronic component handling and packaging, clean rooms, hospitals and hazardous locations must dissipate static charges in a rapid and safe manner.

The Model 406D Static Decay Meter meets the test requirements for static charge dissipation testing as required by the applicable DOD, NFPA and EIA test specifications.

A wide variety of electrode configurations enables the static dissipative characteristics of IC carriers, tote boxes, garments, table top and flooring material, storage systems, etc. to be evaluated.

The system may be used in both development and quality control applications to test any material where static electricity can effect production, handling, performance or appearance.



Description

The Model 406D Static Decay Meter is a completely self-contained system for measuring the static decay characteristics of materials. The instrument consists of two components: the Control Unit and the Faraday Test Cage. This configuration enables the test cage to be placed within a humidity control chamber such as the ETS Model 506A for testing material under controlled environmental conditions.

The Control Unit contains a stable, fully adjustable 0 to ± 5 kV high voltage power supply, a precision electrostatic voltmeter and a 0-99.99 second digital decay time readout. Cutoff levels of 50%, 10% (NFPA 99) and 1% (MIL-PRF-81705D), selected by push button switches, determine the cutoff point to which the decay time is measured. The system can also be configured for testing in accordance with CECC 00015 requirements.

The system can be operated in either a manual mode with all functions controlled by the operator or in an automatic mode where multiple testing of the same sample is accomplished in a repeatable and consistent manner. In the automatic mode, the number of tests (1 - 9) to be run and the time (.5 - 30 seconds) the sample remains grounded between tests is selected. When the automatic mode is used and the test sequence is initiated, the electrostatic voltmeter is automatically zeroed and the test sequence number is counted and displayed on an LED readout.

The Faraday Test Cage, which shields the test sample from extraneous electrostatic fields, contains the sample holder electrodes and the electrostatic sensor. A safety interlock switch is incorporated that automatically opens the charge relay and grounds the test sample when the cage cover is opened.

The Model STM-1 System Test Module is provided to verify system operation.

Several types of sample holder electrodes are available for the Model 406D which enable the user to test any reasonable size or shape material. Magnetic Electrodes are used for film and fabric samples, Clamp Electrodes for sheet, foam and samples up to one inch thick, IC Tube Electrodes for nondestructive testing of IC shipping tubes, Loose Fill Electrodes for loose fill chips and Ring Electrodes for nondestructive testing of bottles, cups and canisters.

Custom electrodes, test cages and test adapters can be designed in accordance with customer requirements.

The optional Model 806A Nondestructive Static Decay Probe measures the static dissipation characteristics of finished products such as tote boxes, storage cabinets, work surfaces and garments.

Specifications

Electrostatic Voltmeter:

Output Voltage Drift: 1% per minute (max)
Step Response: 1 millisecond (max) from 10% to 90%
Sensitivity: 5kV (nominal) for full scale at sensor head to test sample spacing of 1.5"

High Voltage Power Supply:

Voltage Range: 0 to ± 5.5 kV continuously adjustable
Polarity: + and - push button selectable
Current: 50 micro-amps (max)
Safety Interlock: Activated when cage cover is open

Voltage Indicators (Charging Voltage & Sample Charge):

Type: Analog, moving coil
Scale: -5kV - 0 - +5kV
Accuracy: $\pm 2\%$ of full scale

Decay Time Readout:

Type: 4-digit, 0.5" LED
Resolution: 0.01 seconds
Maximum Readout: 99.99 seconds

System Timebase:

Type: Solid state
Frequency: 100 Hz
Accuracy: ± 0.1 Hz (max)

Cutoff Levels (Push Button Selectable):

50%: Half charge point
10%: NFPA 99
1%: MIL-PRF-81705D, EIA-541

Operating Modes:

Manual: Operator controls all test steps
Automatic: Automatic zero
1 to 9 test cycles
.5 to 30 second delay between tests

Sample Electrodes:

Magnetic: For thin, flexible sheet materials
Clamp: For thick, non-flexible sheet materials
Loose Fill: For loose type packaging materials
IC Tube: For IC shipping tubes
Model 806A: For nondestructive testing of planar surfaces

Self - Test:

Model STM-1 System Test Module supplied

Power Requirement:

Voltage: 100, 110, 220, 240 VAC (switch selectable)
Frequency: 50/60 Hz
Power: 50 watts (max)

Dimensions:

Control Unit: 16"W x 8"H x 18"D
Weight: 19 lbs.
Faraday Cage: 11"L x 9"W x 11"D
Weight: 15 lbs.

Warranty: One (1) year

In accordance with ETS policy to improve our product line, the specifications cited above are subject to change without notice.



electro-tech systems, inc.

3101 Mt. Carmel Avenue, Glenside, PA 19038 • Tel: (215) 887-2196 • Fax: (215) 887-0131