ELECTROSTATIC DISCHARGE SIMULATOR

Model 910

Generates ESD pulses up ±8kV for ESD susceptibility testing of electronic components and products that may be sensitive to Electrostatic Discharge.

Features:

☐ **Voltage range: ±5V – 8kV**

☐ **Plug-in R/C networks:**
   HBM (100pf/1,500Ω)
   MM (200pf/0Ω)
   Custom Networks

☐ **Manual and automatic modes**

☐ **Tests most device configurations**

☐ **Optional Charged Device Model (CDM)**

☐ **Meets MIL STD. 883E, ESDA STM 5.1 & STM 5.2**
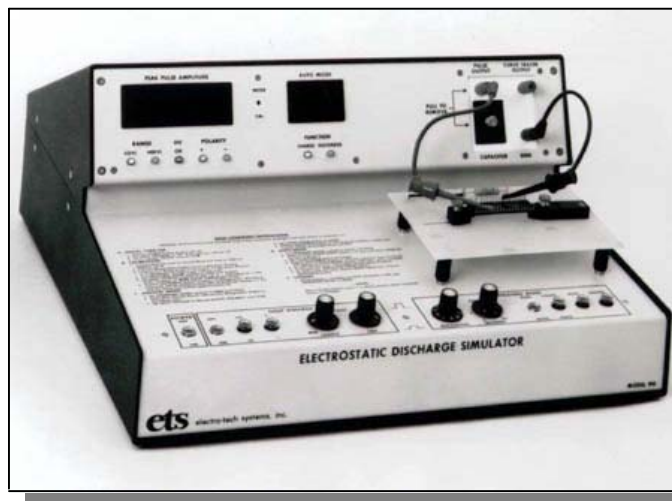
Applications:

Electrostatic discharge (ESD) has become a significant factor contributing to the disruption of electronic equipment or the premature failure of microelectronic devices in both the field and during the manufacturing process. Sensitivities below 30V are now common. Since it is not always possible to control the environment where electronic devices are used or handled, the burden of product reliability falls upon the manufacturer to design and build equipment that reduces susceptibility to ESD. The Model 910 ESD Simulator is an invaluable tool in developing components for use in today's military, industrial and consumer applications.

The ETS Model 910 is a bench top ESD Simulator designed for laboratory or low pin count production testing. It meets MIL STD 883E, Method 3015.8, ESDA STM 5.1, IEEE Std CC62.38, JESD22-A114-B plus other standards that reference Method 3015.8 for HBM testing up to 8kV. In addition, it meets the requirements of ESDA STM 5.2 for MM testing up to 2kV.

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Description:

The Model 910 Electrostatic Discharge Simulator is a completely integrated system used to determine the ESD susceptibility level of electronic devices from ±5V-8kV. The optional Charged Device Model (CDM) modification adds CDM testing capability up to 2kV. These features enable the Model 910 to meet virtually any ESD susceptibility requirement.

Typical discharge waveforms taken with a Tektronix CT-1 Current Transducer are shown below for Human Body Model (HBM) and Machine Model (MM) at 4kV and 400V respectively.
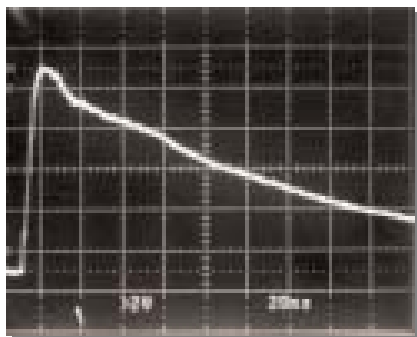
Human Body Model (HBM)
(100pf/1500Ω)

Machine Model (MM)
(200pf/0Ω)

The Model 910 features a fully adjustable dual polarity 5 - 8.25kV power supply with safety inhibit switch, 3½-digit LED voltage level meter with 0.5" (12mm) numeric readout, manual and automatic test modes plus the necessary controls to perform all test functions. In the LO Range (5 - 1999V) resolution is 1V. In the HI Range (<20 - 8000V) resolution is 10V.

In MANUAL mode, a Discharge is initiated each time the DISCHARGE button is depressed. When the AUTO mode is selected, the number of discharges (0-9, indicated by a 1-digit LED readout) and the interval (adjustable from 0.5 - 30 sec.) are controlled automatically when the DISCHARGE button is depressed. Typically, each device pin combination is tested at both polarities using 3 discharges at 1 second intervals.

The discharge circuit consists of a mercury high voltage relay for bounce-free operation, plug-in R/C networks and a switched output for connecting the Device Under Test (DUT) pin to a curve tracer or similar instrument.

For testing below 1000V an additional mercury wetted relay is incorporated into the LO Range to maintain waveform compliance at very low voltage levels. (Optional with the Basic System.)

The Charged Device Model (CDM) option applies the charging voltage momentarily to the desired pin and when the DISCHARGE button is depressed, the selected DUT pin is connected to ground via a HV relay.

The Remote Discharge option should be specified for controlling the Charge/Discharge function remotely or via a computer using 5V logic

The Simulator interfaces with the Device Under Test (DUT) via a universal holding fixture and a pair of minigrabber leads that enables connection to virtually any device that has accessible contacts. The optional test socket modules with programming pins up to 40-pin DIP and 16 and 28-pin SOIC packages, shown below, are available for programming input/output, power and ground pins per specification. Custom DUT boards up to 84 pins can be fabricated on special order.
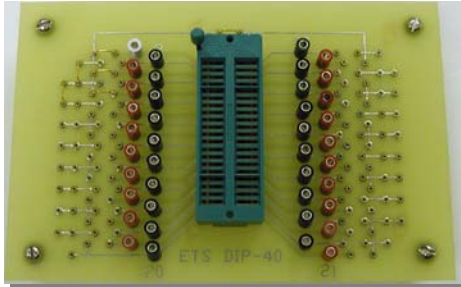
DIP: .3" to .6" (7.6-15.2mm)
40 pins max
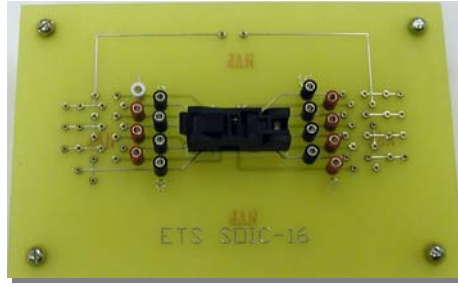
SOIC: 16 pin
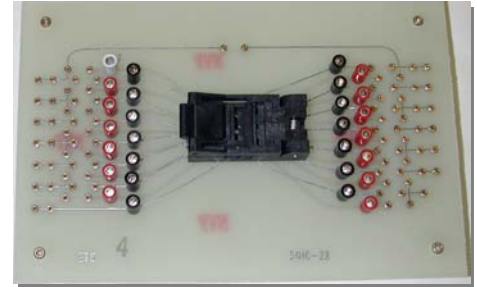
SOIC: 28 pin

Specifications:

Control Section:

Range:
LO: ±5 -1999V
HI: ±20 - 8250V
HV Adjust: Coarse & Fine potentiometers
Resolution:
LO: ±1V, HI: ±10V
Displays:
Voltage Level: 3½"-digit LED, 0.5" (12mm) numeric
AUTO mode: 1-digit LED, 0.5 (12mm) numeric
Accuracy: Better than 5%
AUTO Mode:
Discharges: 0-9
Interval: 0.3-30 sec
Power:
Voltage: 100, 110, 220, 240VAC, 50/60Hz
Input: IEC Socket with 8' (2.4m) cable, NA plug
Mechanical:
Dimensions (Case): 16"Wx18"Dx7"H (41x46x16cm)
Weight: 20 lbs (9.1kg)

Discharge Section:

HV Switch: Mercury displacement, SPST Relay
R/C Networks, ±10%:
HBM: 100pf Cap Module & 1500Ω Resistor Module
MM: 200pf Cap Module & 0Ω Resistor Module
Custom R/C Networks:
Capacitor: 100 - 500pf
Resistor: 100 - 5000Ω
Output/Gnd.: Standard .161" (4mm) Banana jack
Cables: 6" (152mm)
HBM, MM (Universal): Banana-Minigrabber
HBM, MM (DUT Socket Mod.): Bannana-.080 Pin (2mm)
Options:
CDM Module: Plug-in with Std banana jack output
                        Separate switched ground banana jack
LO Range: Waveform compliance below 1000V
                        Mercury wetted discharge relay
Remote discharge control: 5V logic
DUT Programmable Socket Modules:
DIP: 2 to 40 pin
SOIC: 16 pin
SOIC: 28 pin
Custom up to 84 pin PLCC/CLCC

Warranty: One (1) Year

Specifications subject to change without notice.

12/07