ANDY HISH ASSOCIATES

model ESD-255 ELECTROSTATIC DISCHARGE GENERATOR

GENERAL

Electrostatic Discharge from personnel can cause malfunctioning of improperly designed or installed electronic equipment utilizing solid state digital logic circuitry such as:

COMPUTER EQUIPMENT
POINT OF SALE TERMINALS
DIGITAL LOGIC EQUIPMENT
MEDICAL INSTRUMENTATION
ELECTRONIC DATA PROCESSING FACILITIES

Dependent on the relative humidity, grounding conditions, and other peripheral factors, the static potential charge between personnel and adjacent surfaces may achieve a level of 25,000 volts, although the nominal range typically falls approximately between 2,000 to 12,000 volts.

Generally, a static discharge test resembles a radiated one-shot transient occurence with the major exception that the potential can be conducted directly into the equipment structure (panels, cases, etc.). Depending on the specific equipment design, susceptibility response may exist as a direct potential "split" of the signal grounding system; or coupling to the circuits as a result of radiation from the case structure propagation or mechanism.

MODEL ESD-255
ELECTRONIC DISCHARGE GENERATOR
AND
P 255-1 PROBE

The basic system consists of a 25 KVDC charging source and disconnectable probes.

The static discharge generator is provided with a control to vary the potential build up continuously from 0 to 25,000 volts. A meter accurately indicates the voltage applied to the output network.

A front panel control selects the inhibit rate of the probes providing one discharge in two seconds, one discharge per second and two discharges per second.

The output of the static discharge generator is connected to the probes. The output pulse wave shape closely agrees with the pulse wave shape of that originating from personnel discharges through a metal intervening object. Varying the output potential of the static discharge generator will enable the operator to determine relative threshold levels of equipment response.

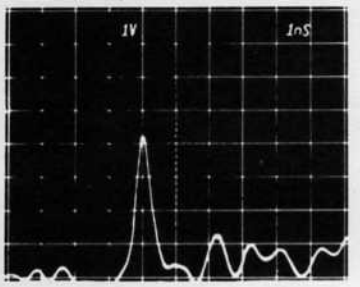
FEATURES: Power supply metering provides indication of high voltage. Low cost, reliable. Small size, one piece bench unit. Simplified controls. Fully adjustable output. Three conductor cord, grounded.

SPECIFICATIONS

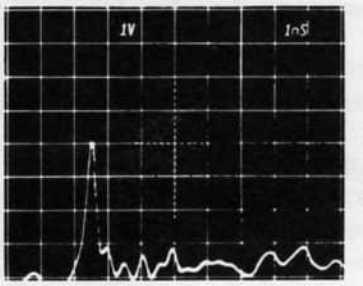
INPUT	115 volt AC, 50 to 60 Hz single phase, three conductor grounding line cord.
OUTPUT	Continuously adjustable from zero to 25 KV DC.
VOLTMETER	Wide View, 3½", 90 degree extended range. Two ranges: 0 - 5,000; 0 - 25,000 volts.
PROBES:	Two probes are available using distributed line techniques to replicate the wave forms of static discharge from personnel with a metal intervening object such as a key, ring (Probe P255-1) deck chairs or push cart (Probe 255-2). It should be noted that the ESD circuit is significantly more complex than previously believed. The networks of these probes replicate these complex networks.
SIZE	8½" Deep X 16½" Wide X 11" High.
WEIGHT	15 lbs.

ACTUAL ESD EVENTS

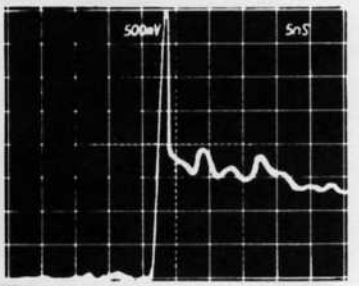
HUMAN (COIN) 2 KILOVOLTS



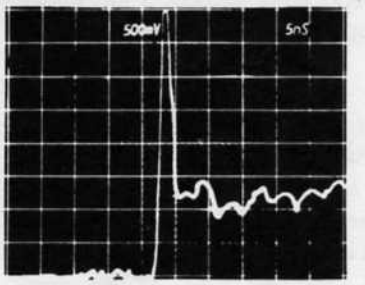
HISH P255-1 PROBE 2 KILOVOLTS



HUMAN (COIN) 8 KILOVOLTS



HISH P255-1 PROBE 8 KILOVOLTS



Printed in the U.S.A.

Initialization Level: 2000 Volts

P255-1 Probe

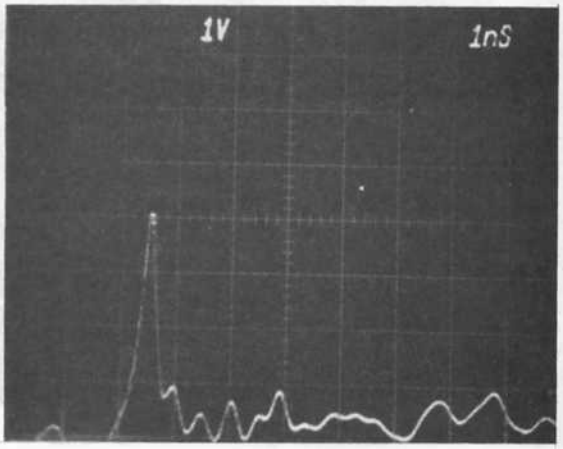


Figure 2 A

Vert: 10 Amps/Div
Time: 1 nSec/Div
Displayed:
Ip: 41 Amps
Tr: 500 pSec
Width: 50%-50%
450 pSec

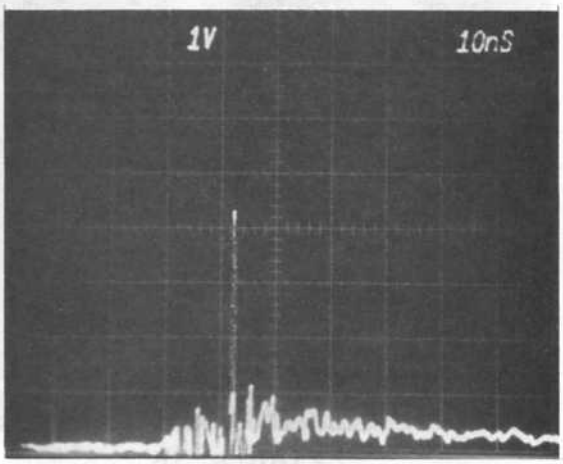


Figure 2 B

Vert: 10 amps/Div
Time: 10ns/Div
Displayed:
Ip: 42 Amps

Figure 2A and 2B

Initialization Level: 10 KV

P255-1 Probe

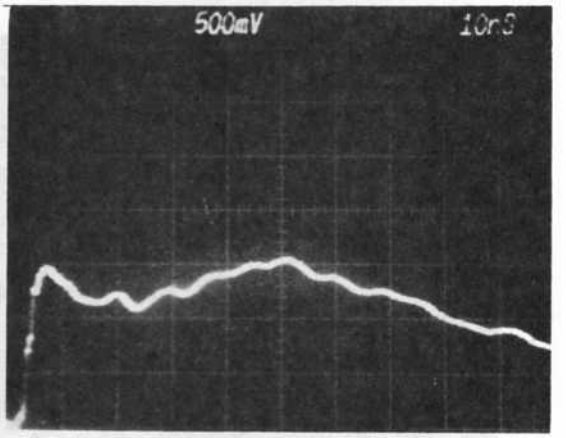


Figure 3A

Vert: 5 Amps/Div
Time: 10 nSec/Div
Displayed:
Ip: 17 Amps
Tr: 4 nSec
Width: 50%-50%
70 nSec

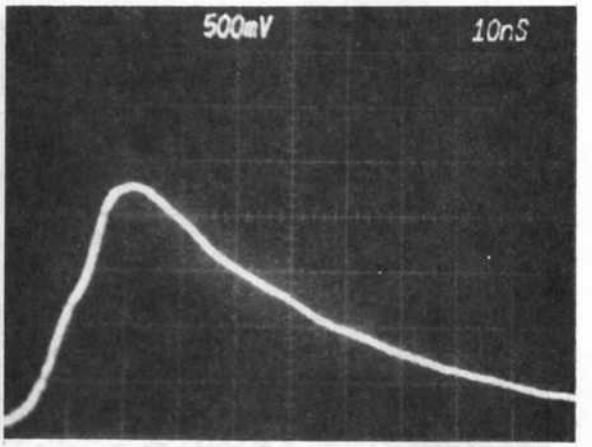


Figure 3B

Vert: 5 Amps/Div
Time: 10nSec/Div
Displayed:
Tr: 20nSec
Ip: 25 Amps

Figure 3A and 3B

Initialization Level 10KV

P255-2

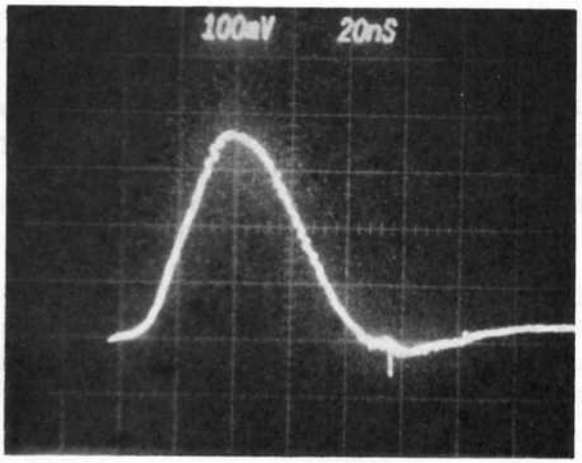


Figure 4

Vert: 10 amps/Div
Time: 20nSec/Div
Displayed:
Ip: 36 Amps
Tr: 10nSec

Figure 4