

ESD simulator 16,5 kV

SESD 216



- ◆ Battery or mains operation
- ◆ 16,5 kV AIR / 10 kV CON discharge
- ◆ IEC 61000-4-2 (150 pF / 330 Ohm)
- ◆ Predefined tests – Standard and others

Introduction

The test generator SESD 216 simulates electrostatic discharge as defined in the standard IEC / EN 61000-4-2. Depend on the Equipment Under Test (EUT) and the test set-up for laboratory tests the IEC standard shows two test methods:

1. Air discharge

At this method the test generator SESD 216 must be moved to the EUT. The discharge of the high voltage is in the air. The test voltage can be varied from 200V to 16.5000V. The very short rise time of each single pulse generates a wide RF spectrum and interference.

2. Contact discharge

The discharge electrode with a sharp point is connected to the EUT. The discharge switch is a vacuum relay. This test method reduces the interference of parameters like approach speed, amplitude, humidity and temperature.

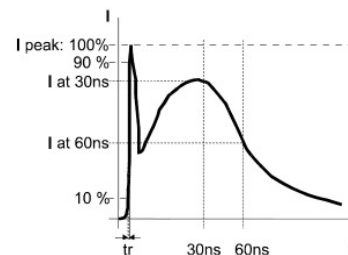
Important: If the test tip is not contacted (e.g. varnished or oxidised surfaces) there will be no triggering of impulses. The display shows "NO CONTACT". So we secure a safe discharge at the contact discharge mode.

The contact discharge is the favourite test method since it is most reproducible. Air discharges are used when contact discharges are not possible - e.g. at plastic housings. The test voltages for each test method are shown in the table below.

Test level

| Level | Voltage air discharge | Voltage contact discharge |
|-------|--------------------------|------------------------------|
| 1 | 2 kV | 2 kV |
| 2 | 4 kV | 4 kV |
| 3 | 8 kV | 6 kV |
| 4 | 15 kV | 8 kV |
| | SESD 216 | SESD 216 |
| x | max. 16,5 kV | max. 10 kV |

Typ. shape of the discharge current



SESD 216 carrying case includes (3,2 kg):

- ◆ ESD simulator
- ◆ Battery charger unit incl. cable
- ◆ Test tip air discharge and test tip contact discharge
- ◆ Ground cable
- ◆ Manual



Technical data

Generator:

| | |
|---|--|
| Output voltage, free adjustment via digital potentiometer | |
| Test mode air discharge | 0,2 kV to 16,5 kV |
| Test mode contact discharge | 0,2 kV to 10,0 kV |
| Polarity of the output voltage | positive and negative |
| Test modes | air- and contact discharge |
| Repetition frequency of the discharge pulses | |
| Air discharge | single pulse or repeated * |
| | <small>*(frequency depends on the distance between the discharge electrodes and the examinant)</small> |
| Contact discharge | single pulse, 1 Hz, 2 Hz, 5 Hz, 10 Hz, 20 Hz |
| Permanent operation | possible at air- and contact discharge |
| Holding time | ≥ 5 sec |
| Pre selectable counter | 1 - 9999 |
| Discharge electrodes | in conformity to IEC / EN 61000-4-2 |
| Energy storage capacity | 150 pF ± 10% (customer specific on demand) |
| Discharge resistor | 330 Ohm ± 5% (customer specific on demand) |
| Operation temperature range | 0 - 40° Celsius |
| Relative humidity | 0 - 60% |
| Weight | app. 1250 g |

Power supply:

| | |
|----------------|---|
| Supply voltage | IN: 100-240 VAC / 50-60 Hz; OUT: 9 VAC / 3A |
| Weight | app. 200 g |

Options:

| | |
|-------------|---|
| SESD 3026 | Test tip, length 50 mm with spring pin, for contact discharge |
| SESD 271 | VCP – vertical coupling plate, include SESD 272 |
| SESD 272 | Earth cable include 2 x 470 kohm resistor, 2m long |
| SESD 8800-4 | ESD verification set 2 Ohm (4 GHz) to verify the ESD pulse |

Standard definition acc. IEC / EN 61000-4-2

| Test-Level | Test voltage contact disch. | Rise time (contact dis.) | 1. Peak current (± 10 %) | Current after 30 ns (± 30 %) | Current after 60 ns (± 30 %) |
|------------|-----------------------------|--------------------------|--------------------------|------------------------------|------------------------------|
| 1 | 2 kV | 0,7 - 1,0 ns | 7,5 A | 4 A | 2 A |
| 2 | 4 kV | 0,7 - 1,0 ns | 15,0 A | 8 A | 4 A |
| 3 | 6 kV | 0,7 - 1,0 ns | 22,5 A | 12 A | 6 A |
| 4 | 8 kV | 0,7 - 1,0 ns | 30,0 A | 16 A | 8 A |