

# SESD 230

## ESD-Simulator 30 kV

### IEC / EN 61000-4-2

- 30 kV Air- and Contact discharge
- Discharge impedance 150 pF / 330 Ohm
- Contact control for contact discharge
- Counter mode with and without automatic polarity change

### With self-test of the simulator

Saving of cost-intensive and time-consuming intermediate calibrations. Indispensable for automatic test procedures.



### Overview

The ESD Simulator SESD 216 is suitable for performing EMC tests on systems in accordance with the standard IEC / EN 61000-4-2 (ESD test). Higher test levels can be set far beyond the standard limits. Depending on the test object and test setup, two test methods are to be used: **Air discharge and Contact discharge**. In air discharge the pulse is triggered by approaching the SESD 216 towards the DUT. With the method of contact discharge the testtip of the generator is placed directly on the test object.

**Important:** In the case of non-contacting (e.g. painted or oxidized surface), the impulses are not triggered. The display shows "No contact". This ensures that when triggering a discharge actually takes place. 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.

### Key Facts

- 2 test methods are to be used: **Air discharge and Contact discharge**
- Predefined standard test levels: Higher test levels can be set far beyond the standard limits
- Displaying of the real discharge voltage at air mode
- Programmable automatic test runs
- Large display with easy to read digits
- Battery and mains operation



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### Technical data I

#### SESD Simulator 230

|                                |                                                                                                                        |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Output - voltage               | adjustment via digital potentiometer                                                                                   |
| Test modes                     | air- and contact discharge                                                                                             |
| Air discharge                  | 0,5 kV to 30 kV,<br>100 V steps                                                                                        |
| Contact discharge              | 0,5 kV to 30 kV,<br>100 V steps                                                                                        |
| Polarity of the output voltage | positive and negative<br>Special function: in "counter mode" optional polarity changeover after half of the set pulses |

#### Repetition frequency

|                      |                                                                                                              |
|----------------------|--------------------------------------------------------------------------------------------------------------|
| Air discharge        | single pulse or repeated<br>(frequency depends on the distance between the discharge electrodes and the EUT) |
| Contact discharge    | single pulse, 0,1 Hz,<br>0,2 Hz, 1 Hz, 2 Hz, 5 Hz,<br>10 Hz, 20 Hz                                           |
| Continuous operation | possible at air- and contact discharge                                                                       |

#### SESD Simulator 230

|                             |                                     |
|-----------------------------|-------------------------------------|
| 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%                        |
| Discharge resistor          | 330 Ohm ± 5%                        |
| Operation temperature range | 0 - 40° Celsius                     |
| Relative humidity           | 0 - 60%                             |
| Weight                      | app. 1470 g                         |

### Technical data II

#### SESD Simulator 230 Power Supply

|              |                                               |
|--------------|-----------------------------------------------|
| Power Supply | IN: 100-240 VAC/47-63 Hz;<br>OUT: 9 VDC / 3 A |
|--------------|-----------------------------------------------|

|        |            |
|--------|------------|
| Weight | app. 200 g |
|--------|------------|

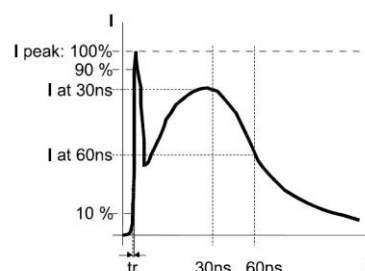
### Technical data III

#### Voltage values for test methods

#### 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                       |
| x     | max. 30 kV            | max. 30 kV                 |

#### Typ. shape of the discharge current



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

| Test-Level | Test voltage<br>contact discharge | Rise time<br>( $\pm 25\%$ ) | 1. Peak current<br>( $\pm 15\%$ ) | Current after<br>30 ns ( $\pm 30\%$ ) | Current after<br>60 ns ( $\pm 30\%$ ) |
|------------|-----------------------------------|-----------------------------|-----------------------------------|---------------------------------------|---------------------------------------|
| 1          | 2 kV                              | 0,8 ns                      | 7,5 A                             | 4 A                                   | 2 A                                   |
| 2          | 4 kV                              | 0,8 ns                      | 15,0 A                            | 8 A                                   | 4 A                                   |
| 3          | 6 kV                              | 0,8 ns                      | 22,5 A                            | 12 A                                  | 6 A                                   |
| 4          | 8 kV                              | 0,8 ns                      | 30,0 A                            | 16 A                                  | 8 A                                   |
| X          | 30 kV                             | 0,8 ns                      | 112,5 A                           | 60 A                                  | 30 A                                  |

## Scope of supply of SESD 230

- ESD simulator SESD 230
- Battery charger incl. cable
- Standard discharge electrodes for air discharge (SESD 3020)
- Standard discharge electrodes for contact discharge (SESD 3021)
- Weight (with content): approx. 3,4 kg
- Ground cable (SESD 231)
- Manual



## Options

|              |                                                               |
|--------------|---------------------------------------------------------------|
| SESD 3025    | Test tip, 30 mm diameter, for air discharge > 15 kV           |
| SESD 3026    | Test tip, length 50 mm with spring pin, for contact discharge |
| SESD 3027    | Test tip, length 70 mm with spring pin, for contact discharge |
| SESD 271     | VCP – vertical coupling plate, include earth cable SESD 272   |
| SESD 272     | Earth cable include 2 x 470 kOhm resistor, 2 m long           |
| SESD 8800-4  | ESD verification set 2 Ohm (4 GHz) to verify the ESD pulse    |
| SESD 30 S120 | Remote control software and optical fiber set                 |

All informations regarding appearance and technical data correspond to the current state of development at the time of release of this data sheet. We reserve the right to make technical changes. 232006

