

Application Note: 30kV ESD Gun PESD 3010 with integrated Self-Test-Function

Saving complex and cost-intensive verifications

This new function allows the use of a built-in self-test routine, within an individually defined period and without dismantling the test setup. By activating a push-button, the results will be displayed within approximately 30 seconds. A positive test result indicates that the ESD tests can be continued.

User requirements

An ESD Generator has to meet defined specifications. During the use, performance of the ESD Generator can change in a way that it could deviate from the allowed tolerances. In order to guarantee constant functioning of the ESD Generator within the specifications, it should be verified periodically.

If the user unexpectedly realizes that the ESD Generator does not work correctly anymore, some delicate questions arise: When did the ESD Generator actually stop functioning properly? How many EUTs failed the correct test procedure? This can result in very costly reworking measures.

Therefore, the new PESD 3010 with integrated self-test routine allows the user to check the ESD Generator very shortly and easily, for example daily or weekly.

Description of Self-Test Function

The test tip of the ESD simulator needs to be grounded during the self-test. In case of the ESD gun is mounted on a robotics, this grounding can be done fully automatic. In total, 14 different test steps are implemented into the PESD 3010. The activation is made by a push-button of the service menu. The individual test steps can be pursued on the display of the base unit. After the self-test, the status of each individual step will be displayed giving the information "ok" or "error". The test can also be activated by computer control. The test result can be read and the relevant decision can be taken.

Test steps

The self-test will be performed with both polarities. The following functions and components will be tested:

+12V Power Supply

- ✓ Verification of the internal +12V power supply

Regulated High Voltage Supply

- ✓ Verification of the internal HV supply at minimum voltage
- ✓ Verification of the internal HV supply at maximum voltage

Impulse Capacitor

- ✓ Verification of the HV impulse capacitor

HV discharge Relays

- ✓ Verification of the HV discharge relays at maximum voltage
- ✓ Verification of the HV discharge relays at minimum voltage

High Voltage circuit insulation

- ✓ Verification of insulation of entire HV circuit

Conclusion

Except for the serial resistor, all functions and components of the HV circuit are verified. With all the years of know-how with ESD Generators, we have never experienced a case with serious changes of the serial resistor.

It is obvious that the above-mentioned self-test does not replace a complete calibration according to the relevant standard. For complete calibration, the Haefely ESD VERIFICATION SET (2 Ohm Target, 20dB Attenuator, 6dB Attenuator, Cable and detailed Application Note, article number 249994) is available. Please contact us for more detailed information if required.

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