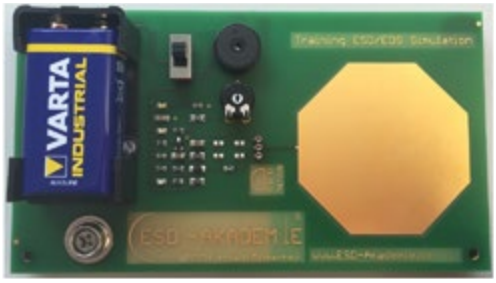
ESD-demoboard



The ESD-demoboard is a experimental set-up to show the attendees of seminars or trainings ESD close up and show the pre-existing or total damaging that a ESD-sensitive component can receive.

This leads to a lasting learning effect: Whoever is part of this experiment will always remember the dangers of ESD!

The battery powered switch of the ESD-demoboard creates an astable multivibrator, which is periodically controled via a field effect transistor (FET). The, to the FET control connection connected, contact plate can be touched by somebody with an electrostatic charge. Which will lead to impacts on the FET which can be observed- ESD becomes visible.

Normal use will mean two LEDs will be flashing and an acoustic signal will sound in the same interval. After significant ESD-strain on the FET the interval will change: Demonstating damage to the FET because of ESD.

If the FET is overly burdened by electrostatic discharges or one large discharge the switch will cease to function and only emit one continuous signal: The FET is completly destroyed.

The FET is socketed making the change of FETs easy. So that charges do not damage the demoboard it self the FET socket is decoupled by a higher resistance.

Article-No.	Description
EP1501001	ESD-demoboard
EP1501003	Replacement transistor FET, P.U. 20
EP1501002	ESD-demoboard set incl. accessories

Optional accessories

Set up and execution
Put the demoboard flat on a table and connect it via a 10 mm coiled cord to the ground. Ground whoever is conducting the experiment if possible via wrist strap to the same ground. Let them pick up a new FET and plug it in the right slot on the demoboard.

After switching the demoboard on a green LED will stay continuously lit and two others will flash on and off in a regular interval. At the same interval a acoustic signal (beeping) will be emitted. At first whoever is grounded will touch the contact plate of the demoboard with one finger.

Please note: While the touch is happening the interval of visual and acoustic signal can change a little. That is totally normal and is based on the inner capacity inside a human body disrupting the current in the demoboard.

Nothing will happen, the demoboard will work as it did before. Now somebody who is not grounded should create a charge within themselves, by walking with regular shoes over carpet etc., and touch the contact plate of the demoboard.

The electrostatic charge will discharged through the FET. Which will lead the FET to be overloaded, which in relation to the charge given through the touch will either lead to total destruction or damaging of the FET.

Damage will change the visual and acoustic signal interval, unregular, slower, faster etc.

Destruction will lead to a continuous signal, a persistent visual and acoustic signal, a screaming instead of a beeping if you will.

The contact plate can be touched multiple times, to at first damage and then further overload and consequently totally destroy the FET. To increase the learning effect even further it would be optimal to also measure the charge inside the person using a electro field meter and measuring head/ a charge plate (walking test). The FET will already be damaged by a very low charge (ESD). Multiple overloading will usally lead to total destruction (EOS).

Following rules should be obeyed if the experiment is to work perfectly:
The experiment will not work inside a norm conform ESD-protected zone (EPA), since no dangerous charges should be present or be able to be created.

While switching the FET transistors there should be no significant ESD-exposure otherwise it will be damaged even before you begin the experiment. It would be better if whoever is grounded via wrist strap is grounded to the same earth as the demoboard is.

To ensure the integrity of the demoboard you should only pick it up at the sides and always store it in the package it is delivered in.

Article-No.	Optional accessories (contained in set)
EP0105001	Wrist strap, DK10 mm
EP0103011	Coiled cord DK10-DK10, Length 2m
EP0101001	Grounding module 3 x 10 mm DK, 3 x 1 MΩ
EP0103006	Grounding cable DK10-DK10, Kabel 1,50 m
EP0103006	Replacement transistor FET, P.U. 20
	Workstation mat DIN A4 with 4 connections