

## Modular ESD-Tester M-CDM3

For the Charged Device Model CDM

*High-precision modular Charged Device Model tester M-CDM3.  
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### Applications

Upcoming trends to be considered for Charged Device Model (CDM) testing are:

- Measurement of discharge currents
- Extremely small size pads and balls even for 3D-stacked circuits
- Increasing GHz-frequencies prohibiting larger protection
- Increasing package sizes with impedance controlled interconnects
- Complex pin layouts and test plans
- Fully automated handling and assembly systems

These trends require precise CDM test systems

providing maximum testing flexibility. Building on 25 years of experience at the Fraunhofer EMFT with the development of CDM testers and analytical CDM tests, the M-CDM3 is designed to flexibly meet the requirements and complexity of current and future CDM tests.

### Advantages

Modular system setup

- All key components such as the positioning stage, single-shot GHz-oscilloscope and high voltage source are robust off-the-shelf components controlled by a software that is customized to the needs of the test lab.

### High positioning accuracy

- The positioning stage, which is driven by linear motors, provides a high positioning accuracy required for small size pads and balls

### Individual adaption to customer needs

- The program interfaces to descriptions of device layouts and test plans in a Microsoft Excel® spread sheet. The program interface can be adapted to individual needs

### Large field charge plate

- Allows testing of larger devices (also Charged Board Model)

### Arbitrary charging and discharging sequences (timing, sequence)

- Allows testing of complex pin layouts and test plans

### User specific, automated data acquisition and evaluation of stress parameters

- All discharge currents are automatically measured and stored. The relevant stress parameters are summarized in a suitable output file

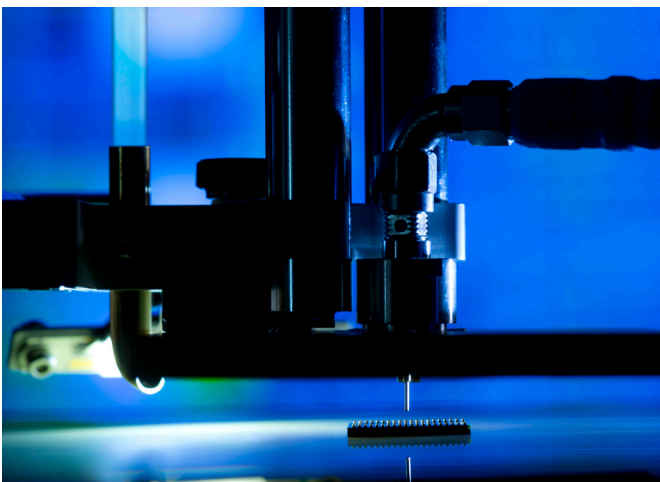
### Fraunhofer EMFT lab serves as a backup for tests during maintenance

- Since Fraunhofer EMFT provides also CDM testing services for its customers, a continuous test flow even during the maintenance of your M-CDM3 system is ensured

### Fixed ground plane

- During a CDM test only the DUT is moved by the positioning stage. The ground plane remains in a fixed position. This ensures that the measurement cable, which is used for capturing the stress pulses, does not degrade with time.

The adaption and integration into a CE-compliant test system will be done within an individual R&D project by Fraunhofer EMFT.



M-CDM3 ground plane above a device under test.  
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## System Description

- M-CDM3 control unit, which contains a commercial high voltage (HV) source FUG HCP 14-3500, a HV switch, which enables and disables the HV during operation, and relay switch matrix for controlling an optional, electrically switchable attenuator
- Positioning unit based on a high precision x/y/z stage including the field charge plate which connects to the high voltage output of the control unit
- Ground plane (GP), which is compliant with the standard ANSI/ESDA/JEDEC JS-002-2024
- Two USB microscopes for convenient device outline definition and monitoring of the discharge pin during the test
- System controller PC with the M-CDM3 controller SW

## Technical Data

Max. CDM Voltage	3.0 kV
Supported Standard	ANSI/ESDA/JEDEC JS-002-2024
Size of the Field Charge Plate	213 mm x 223 mm
Precision of Positioning	+/- 1 µm

## Service

Support can be tailored to your requirements. From on-demand maintenance to an “all inclusive” package with preventive maintenance including CDM testing services during the maintenance of the tester.

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