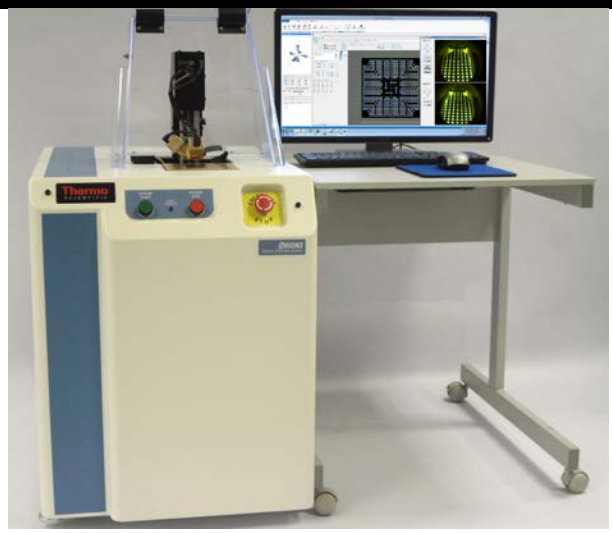
Thermo Scientific Orion3 Robotic Charged Device Model (CDM) Test System for simulating ESD threats

The Thermo Scientific Orion3 is a floor-standing, bench height robotic Charged Device Model (CDM) tester designed to meet all popular CDM test standards, allowing both Field Induced air discharge methods (FICDM) and contact (CCDM) methods like our patented CDM2 test method.

- Supports all popular test standards: JS-002, JEDEC, ESDA, AEC, and our CCDM method
- Bench height test area allows for an ergonomic work process
- High resolution dual cameras permit easy discharge pin alignment during test plan set-up
- Environmental monitor within the test area allows control of humidity levels during testing by flooding the area with user supplied dry air or nitrogen
- Event detector confirms ESD discharge and reports when a pin is not stressed
- Automatic waveform capture for calibration or device testing. Stores Ipeak and min/max values for each captured waveform
- Device under test (DUT) held in place by an internal vacuum pump; alignment assured via adjustable fixture
- Intuitive test set-up and test execution using the Thermo Scientific™ Scimitar™ software platform
- Integrated package outline editor allows creation of any device, including off grid
- Device definitions can be imported from legacy applications and in text based (x, y) formats



Substantial Dividend Returns
The Thermo Scientific Orion3 is designed to test for potentially destructive effects of ESD, enabling the identification and hardening of sensitive structures prior to full-scale production. Given the extremely high cost of IC production, as well as customer demands for precisely timed component delivery schedules, the Orion3 can save substantial costs in terms of time, material and lost opportunity (time to market).

Rapid Device Positioning
The high resolution dual cameras permit easy and rapid discharge pin alignment during the test setup routine. Both the x and y axis are displayed simultaneously. The cameras may be left on during the test to monitor the pin alignment. Vacuum hold-down enables device testing regardless of device types and sizes.

Reproduces Real-World CDM Events
The Thermo Scientific Orion3 is capable of performing FICDM (air discharge) testing to all popular industry standards. An event detector ensures each discharge occurs as expected, ensuring proper alignment and contact between the device and the system discharge pin. Events are logged and reported upon test completion, providing confirmation of pin discharge, and the indication of non-stressed pins that require retest. Testing can also be performed, using our CCDM contact test method, which both charges and discharges the device through a controlled 50 ohm environment, eliminating testing issues that can be seen when using air discharge methods.

Waveform capture / verification can be performed using a built-in waveform monitor connected to an oscilloscope. Waveforms can also be analyzed using our EvaluWave waveform verification software which provides waveform parameters and Pass/Fail information based on the appropriate test standard. EvaluWave also allows the user to perform data distributions on different parameters of the captured waveforms.

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Define, Achieve and Sustain Your Test Objectives

The Thermo Scientific Orion3 robotic CDM tester base system includes the system controller, flat panel display, and operating software. The emergency stop switch and a wrist grounding strap connector are also conveniently located on the front panel of the system. Ground planes and charge plates, associated hardware, and calibration disks specified in the test standards are optional. The test area is fully enclosed with a transparent safety cover, which allows the test area to be purged with dry nitrogen when testing in high humidity environments. A complete system, the Orion3 will retain its value particularly as device package geometries become smaller and more powerful.

Reach the Next Level of Success

Experience the many benefits of working together with recognized experts in the field of ESD & Latch-Up testing. Our goal is to support you with lifelong service -- from applications support, calibration services and preventative maintenance scheduling to full technical field support. We can help you reach that next level of success.

General Specifications

Charged Device Model Testing	Can be equipped to meet all the dominant industry Field Induced CDM (FICDM) test methods, JS-002, JEDEC, ESDA and AEC. In addition, can also be equipped with our CCDM Contact Method
Dual high resolution color cameras	Rapid, accurate device positioning; enables monitoring of pin alignment during test while vacuum holds device positioned during testing
Test Densities to less than 0.4mm pitch	Allows testing of today's and tomorrow's complex, high density parts
Test Devices of Any Size or Configuration	Test instrument retains value as device package geometries become smaller and more complex
Scimitar Based Software	User-friendly interface for device / test setups and test execution
Event Detection Circuit	Confirms discharge event ensuring all pins of the DUT are stressed
Enclosed Interlocked Test Chamber	Allows for inert dry gas connection while also providing a safe test area
Environmental Control	Allows control of the test head area, monitoring and controlling nitrogen flow, reporting humidity and temperature levels
Automated Waveform Capture	Allows capture of all waveforms using a user supplied oscilloscope. Stored waveforms can be reviewed or analyzed using EvaluWave software
System Emergency Stop Switch	Ensures operator safety

Specifications

Test Area	10.16 cm x 10.16 cm (4 in x 4 in)
Bench height, test area	71.12 cm (28")
Motion System	x, y axis: minimum step size 0.001 in with 0.00025-in accuracy (minimum step size 25.4 µm with 6-µm accuracy) z axis: vertical travel to 1.5 in with 0.00025-in accuracy (vertical travel to 38.1 mm with 6-µm accuracy)
Test Voltage Range	±25 V to ±2000 V (±1V steps)
DUT Chuck Vacuum (internal)	11.8" Hg
Temperature Range	Operating Temperature: +15°C to +30°C (+59°F to +86°F) Non-operating temperature: +4°C to +60°C (+40°F to +140°F)
Humidity Range	30-60% non-condensing (recommended test chamber range is less than 20%)
Dimensions	56 cm (22 in) W x 89 cm (35 in) D x 104 cm (41 in) H
Weight	113 kg (250 lb)
Power Requirement	
System	110-240 VAC, 15A, 50/60 Hz
Computer and Monitor	110-240 VAC, 6.5A, 50/60 Hz
Customer Supplied	Dry air / nitrogen: 0.25 scfm @ 60 psi max

Scimitar Software Features

Scimitar makes test programming easy

- Enables the user to program test voltages, polarity, charge times and delay times between pulses
- Subtests can be created within a testplan for individual groups, which can include different test parameters
- Includes tree-like logical view of tests and testplans, making it easier to understand the test flow
- Device file contains pin type and pin grouping information, making it easier to perform testing on particular pin groups

Integrated package outline editor allows creation of any package (including off grid)

- Allows import of text based (txt, csv, xml) package definitions including the x, y coordinate information
- Allows import of existing device outlines from Legacy Orion (.dev), Orion2 (.ndv), RCDM (.out)
- Allows import of existing device files from Legacy ZapMaster (.dev), Paragon (.dvc) and MK2 (.zdd)
- Allows import of device information from other Scimitar applications, such as MK1, MK2 and MK4 (device.xml)

Device file pin coordinates are referenced to the system x, y mechanism coordinates, making it easier for subsequent device alignment

2 teach points for package pin alignment, position of all other pins automatically calculated

3D representation of motion control makes it easier to align the device

High Resolution cameras with zoom capabilities, makes it easier to align even the smallest pin pitch packages

Comprehensive results viewer that provides:

- ESD data viewing capabilities
- Captured Waveforms – as waveforms are stored within the results file
- Sorting in ascending or descending order by various columns within the results

Flexible data storage that provides the ability for the end-user to query the data

Pause/Resume test capabilities which allows a device to be realigned or allows review of the captured waveforms

Control of external oscilloscopes through the use of Scimitar's user programmable Plug-in capabilities

Automated waveform capture capabilities

- Each waveform is stored and it's Ipeak value is used to create a histogram of all Ipeak values captured during a test
- Allows analysis of the captured waveforms using the embedded EvaluWave software feature
- EvaluWave also allows the user to perform data distributions on different elements of the captured waveforms, i.e. Ip, Tr, FWHH

Cross tester platform architecture – Scimitar's design allows the software to be used across a number of Thermo Scientifics' tester platforms, which means testplans can be used on multiple systems, no need to recreate tests! Regardless of which tester platform a testplan was executed on, results can be viewed on any system or even off-line for data manipulation

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