

The Thermo Scientific MK.1 is a relay-based, exceptionally fast ESD and Static Latch-Up test system for the evaluation of advanced IC devices. It fully addresses today's JEDEC/ESDA standards, and can be configured to 64, 128, 192 or 256-pin test capabilities.

Thermo Scientific MK.1

ESD and Static Latch-Up Test System



Features

- Waveform network: 8-site HBM pulse source
- Human Body Model (HBM) and Machine Model (MM) testing to most prevalent industry standards
- Static Latch-Up testing per current JEDEC's EIA/JESD 78 Method
- Highly repeatable, reproducible test data
- Enhanced data set features
- High voltage power supply chassis
- Power supply sequencing
- Event trigger output
- Intuitive set-up and operation
- Direct use of existing 256-pin-style ZapMaster fixtures

Rapid, high throughput testing of complex IC devices—from design through post-production qualification

The Thermo Scientific MK.1 test system provides users with advanced capabilities to test mid-range pin count devices to today's most prevalent Human Body Model (HBM) and Machine Model (MM) ESD standards. The system's pulse delivery design ensures recently identified waveform hazards in the standards, such as the trailing pulse and the pre-discharge voltage rise are addressed.

Trailing pulses were shown to cause non-ESD related failures by exposing the DUT to an electrical overstress after the main HBM event.

Pre-discharge voltage can cause voltage-triggered protection structures to fail, as the pin under test may not be at zero volts when the HBM event occurs. A user-selectable 10K Shunt can be connected during the pulse to eliminate any voltage prior to the actual HBM event.

A combination test system, today's MK.1 also performs Static Latch-Up testing per JEDEC's EIA/JESD 78 Method.

Easy-to-Use Testing Operations

Control by Windows®-based software is both intuitive and comprehensive. Tests are set-up quickly, and user training requirements are minimal.

A powerful embedded VME controller handles an enormous amount of test program and result data, and controls the system hardware.

Consistent, Precise ESD Waveforms

By locating multiple discharge networks close to the test fixture board, unwanted stray inductance and capacitance is kept to a minimum at every pin. This ensures excellent in-test waveform quality and easily reproducible test data.

Define, Achieve and Sustain Your Test Objectives

The system's flexible modular design and options enable you to upgrade on-site when corporate or industry standards change. Options include additional pins, V/I supplies, and static latch-up.

The MK.1 design and matrix layout allows the direct use (no adapter required) of 256-pin-style ZapMaster fixtures. Optional carriers are available for centrally mounted sockets. Adapters are also available for 256-pin Verifier DUT boards.

Reach the Next Level of Success

Experience the many benefits of working with recognized experts in the field of component reliability ESD and Static Latch-Up testing.

Our goal is to support you with lifelong service—from applications support, calibration services, service contracts, and field service scheduling to full technical field support.

We can help you reach the next level of success.

Thermo Scientific MK.1

General Specifications

Tests Devices up to 256 pins	Systems available configured as 64, 128, 192, or 256 pins Additional capability, faster throughput, multi-site testing
Relay-Based Operations	Enables test speeds 5 to 10 times faster than robotic-driven testers (test speed dictated by test protocols)
Waveform Network	8-site HBM pulse source with 100pF/1500 Patented design ensures waveform compliance for technology generations to come
MK.1 Operating Software	Advanced software algorithms ensure accurate switching of HV in support of pulse source technology
High Voltage Power Supply Chassis	Modular chassis with patented HV isolation enables excellent pulse source performance
Power Supply Sequencing	Additional flexibility to meet more demanding test needs of integrated system-on-chip designs
Event Trigger Output	Manage your setup analysis with customized scope trigger capabilities
Human Body Model (HBM)	Per ESDA STM5.1, JEDEC EIA/JESD22-A114, MIL-STD 883E, and AEC Q100-002 specs, 50V to 8kV Test to multiple industry standards in one integrated system; no changing or alignment of pulse sources
Machine Model (MM)	Per ESDA STM5.2, JEDEC EIA/JESD22-A115, and AEC Q100-003, 50V to 1kV Integrated pulse sources allow fast multi-site test execution
Static Latch-Up Testing	Per JEDEC EIA/JESD 78 and AEC Q100-004 Optional static Latch-Up testing allows control of DUT pins using embedded bias supplies
One Standard V/I Supply	DUT power, curve tracing, and Latch-up stimulus with 4-wire sensing to the matrix for high accuracy. System design also provides high current capability through the V/I matrix
Multiple Self-Test Diagnostic Routines	Ensures system integrity throughout the entire relay matrix, right up to the test socket
Test Reports	Pre-stress, pre-fail (ESD) and post-fail data, as well as full curve trace and specific data point measurements Data can be exported for statistical evaluation and presentation
Individual Pin Parametrics	Allow the user to define V/I levels, compliance ranges, and curve trace parameters for each pin individually
Enhanced Data Set Features	Report all data gathered for off-line reduction and analysis
System Footprint	4 square feet. Efficient use of space with convenient user access

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