

The Thermo Scientific MZ-30 ESD Simulator is a reliable and easy to use test system for performing both air and contact mode testing to electronic products.

Thermo Scientific MZ-30 ESD Simulator



By simply replacing the CR unit (discharge resistance/charge capacitor) and the discharge tips, the MZ-30 is also easily adapted for compliance to the ISO 10605 standard, which specifies test methods for electrical disturbances from ESD with relation to automotive electronics.

Maximum Test Voltage of +/- 30kV

The test voltage levels of the MZ-30 are more than sufficient for compliance to required IEC standard level 4 (15 kV) levels. Essentially a design tool, it allows you to identify the conditions where your product begins to degrade or malfunction (limit value), prior to production, and thus is also ideal for testing to category- or company-driven quality standards.

New Panel Design for Ease of Operation

The operation panel has keys and a rotary knob, which allow you to directly set test levels specified by the IEC standard. These controls facilitate adjustment for standard-compliance tests and other various settings.

Easy-To-Replace Energy Storage Capacitor and Discharge Resistor

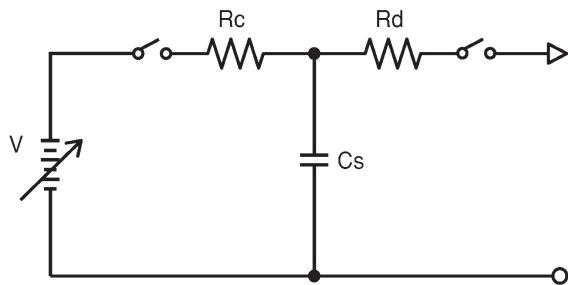
In addition to the standard 150 pF capacitor unit and 330Ω discharge resistor, a variety of optional components are available including a 330 pF capacitor unit and 2kΩ discharge resistor.

Faithful Reproduction of IEC61000-4-2-Specified Waveforms

The MZ-30 also supports the seven discharge current waveforms prescribed for the waveform calibration method laid down in a target compliant with IEC61000-4-2 Editions 1. In addition, it was designed to suppress waveform ringing to improve waveform quality.

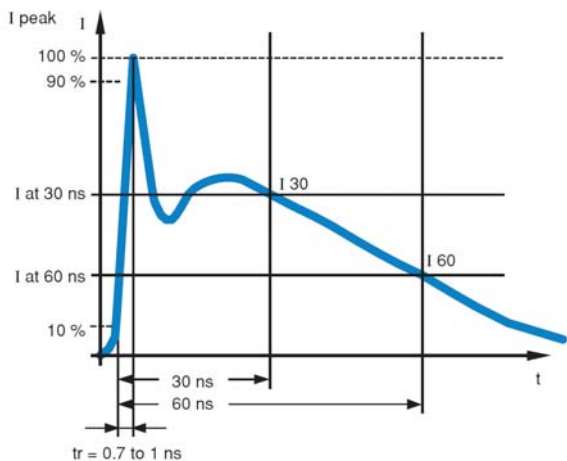
MZ-30 ESD Simulator Output Waveforms: IEC61000-4-2-Specified Waveforms and Test Levels

Simplified diagram of the ESD generator



Cs: Energy-storage capacitor
 Rd: Discharge resistor
 V: Output voltage
 Rc: Charging resistor

Typical waveform of the output current of the ESD generator



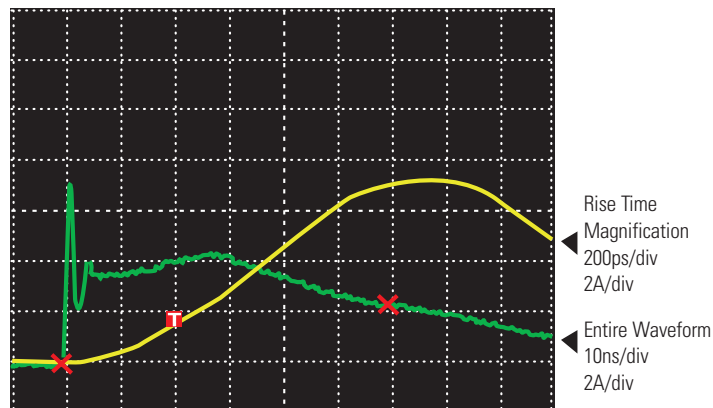
Waveform Parameters

Level	Indicated voltage	First peak current of discharge +/- 10%	Rise time t_r with discharge switch	Current (+/-30%) at 30 ns	Current (+/-30%) at 60 ns
1	2kV	7.5A	0.7 to 1ns	4A	2A
2	4kV	15A	0.7 to 1ns	8A	4A
3	6kV	22.5A	0.7 to 1ns	12A	6A
4	8kV	30A	0.7 to 1ns	16A	8A

Test Levels

Level	Contact discharge test	Air discharge test
1	2kV	2kV
2	4kV	4kV
3	6kV	8kV
4	8kV	15kV
X	Special	Special

Output Current Waveform - MZ-30 (Level 1)



Specifications

Item	Specification
Discharge method	Contact discharge and Air discharge
Set voltage	0.50kV to 30kV
Polarity	Positive and Negative
Energy storage capacitor	150 pF +/- 10% (replaceable)
Discharge resistor	330Ω +/- 10% (replaceable)
Charge resistor	50MΩ
Discharge interval	0.05 / 0.1s to 99.9s
Number of discharges	1 to 999 / Continuous
Trigger	Main panel trigger and Discharge gun trigger
Discharge current waveform	Compliant with the IEC61000-4-2 standard
Interface	RS-232C (Option)
Power supply	100V to 240V AC (50Hz to 60Hz)

Standard Accessories

Product name	Model name	Quantity
CR Unit (150pF/330Ω) for EN/IEC61000-4-2	CR21	1
Air discharge tip for EN/IEC61000-4-2	AT21	1
Contact discharge tip for EN/IEC61000-4-2	CT21	1
Operation manual		1

Optional Components

Optional parts for ISO 10605 standard test

These are option parts for the ISO 10605 standard test. CR unit and discharge tip are available.

Product name	Model name
CR Unit (330pF/330Ω) for ISO 10605	CR22
CR Unit (150pF/330Ω) for ISO 10605	CR23
Air discharge tip for ISO 10605	AT22
Contact discharge tip for ISO 10605	CT22



C Unit Discharge Resistor*

IEC61000-4-2 specifies the combination of the energy storage capacitor and the discharge resistor. Different combinations of the C unit and the discharge resistor can simulate various conditions.

* Some versions of the energy storage capacitor and the discharge resistor may shorten the life of the discharge-generating high-voltage switch in the discharge gun.

C Unit

This unit is inserted into a discharge gun. It consists only of an energy storing capacitor. A separately sold discharge resistor must be connected to it during use.

Capacity	Model name
150pF	EC21
100pF	EC22
200pF	EC23
250pF	EC24
300pF	EC25
330pF	EC26
400pF	EC27
500pF	EC28

Discharge Resistor

Equipped inside the option C unit to limit discharge current.

Resistance value	Model name
330Ω	DR21
100Ω	DR22
150Ω	DR23
200Ω	DR24
300Ω	DR25
400Ω	DR26
500Ω	DR27
1kΩ	DR28
1.5kΩ	DR29
2kΩ	DR30
5kΩ	DR31
10kΩ	DR32
10Ω	DR33

Discharge Gun Stand

This is the stand used to fix the discharge gun. it is convenient to discharge electricity at the same point; the vertical joint plate in particular.

Product name	Model name
Discharge gun stand	GS21

Testing Environment Fixtures

IEC61000-4-2 specifies the testing environment based on equipment type. The following equipment is required to conduct an ESD immunity test meeting the EUT requirements.

Accessories

Product name	
CTC-3	Coaxial current monitor target per IEC61000-4-2
HCP-1	Horizontal Coupling Plane (HCP)
TP-3	Full 1.5m x 1.5m IEC1000-4-2 Target Plane

Single Source, Total EMC Test Solutions

The MZ-30 is but one tool in a complete line of Thermo Scientific EMC test systems.

Experience the many benefits of working with recognized experts in the field of EMC (Electromagnetic Compatibility) testing. Our commitment to the discipline is wide ranging; we actively participate on global standards committees, and have helped define test methodologies to achieve regulatory standards, such as CE Mark requirements, as well as company and market-driven product quality objectives.

Our goal is to support you with lifelong service – from applications support, calibration services, and preventative maintenance scheduling to full tactical support.

We can help you reach the next level of success.

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