

Scorpion—CDM—Contact First Technology

Scorpion

Robotic CDM Tester for Simulating ESD threats

Contact First Technology

The Scorpion Automated CDM Tester from Grund Technical Solutions introduces a new generation of CDM testers. It is designed to meet the new JS-002 standard and features Contact First pulse delivery.

This patent pending technique of Contact CDM (CCDM) meets the latest CDM standards with higher accuracy for device classification.

It is the easiest CDM tester to setup and use. The open DUT stage is larger and more flexible than older generations of CDM testers.

The single high definition camera with joy stick control makes the X-Y alignment fast and *automatic Z* measurement makes setup easy.

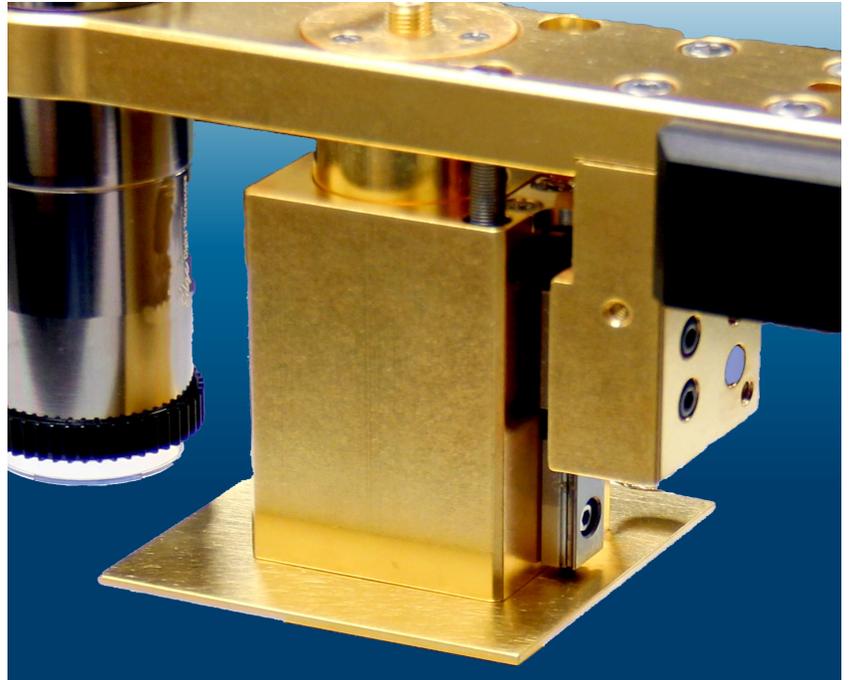
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Scorpion Contact First Advantages

- Spark occurs inside the discharge head
 - * discharge head contact pin touches the DUT pin/ball first
 - * simple sliding motion and pogo pin inside the discharge head
 - * controlled environment reduces variations in air discharges
 - * optimized shape and size of spark gap contact pin profile
 - * best pulse repeatability, fewer poor sparks and runt pulses
 - * internal pogo pin kept clean for a long life
- Small internal spark chamber
 - * uses only a small amount of N₂
 - * no danger to user, even in a small lab area
 - * chamber always ready to pulse – no purge delays
- Makes a good contact to the DUT pins/balls before the spark occurs
 - * insensitive to cleanliness and variation of the DUT pins/balls
- Uses a small, sharp contact pin for positive connections;
 - * very small ball pitch (0.1 mm)
 - * spark never jumps to the wrong pin;
- Built in cleaning station for the contact pin
 - * no user cleaning needed to remove discharge pin debris
 - * more reliable contacts
 - * no need to clean DUT contacts
- Controls CDM discharge parameters better than Orion testers
 - * repeatable *spark gap resistance and intensity*
 - * consistent gap conditions: gas composition, humidity, pressure, temperature, and gap closing speed
- Solid ground plate
 - * no holes in the ground plate for camera and/or LEDs

Scorpion Charged Device Model

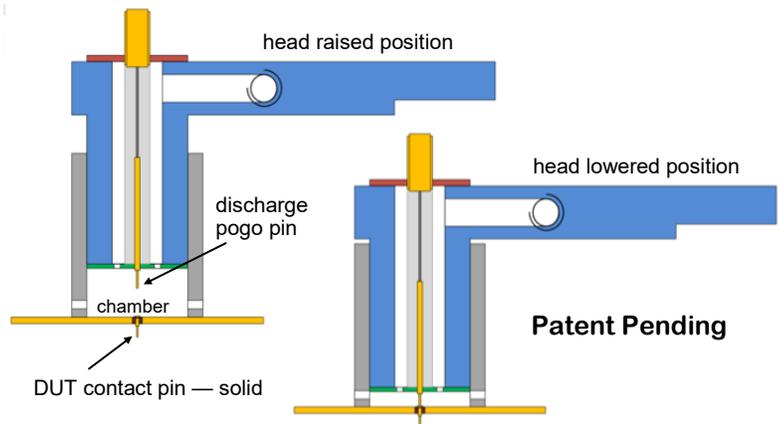
TECHNICAL DETAILS

Scorpion Contact First CDM

CDM testers discharge spark quality usually drops significantly with testing below 250 V. The industry trend toward lower ESD voltages allows IC protection structures to use less silicon area and to meet higher operating frequencies. However, the latest factory ESD protected areas now control threats to these lower CDM voltages.

The Contact First Scorpion CDM sliding discharge head design from GTS provides the technology needed for quality low voltage testing.

Discharge head raised and lowered



Contact First Features and Benefits

Easy device alignment

Single down-looking color HD camera with crosshairs for simultaneous X and Y alignment

No confusing two camera angled views or separate X and Y alignment

Joystick pin/ball/pad for fast point-and-click

After 1st point only position "touch-up" needed

Automatic Z measurement

Z plane correction for tilt compensation

D position corrections for stretch and rotation

Display of device simulation and actual camera views for easy position verification

Accurate motions and DUT contacting

3 μ m accuracy in X, Y and Z

Optical scale motion feedback on all movements

Rugged mechanics

Simple step motor drives

Ground leadscrew/recirculating ball drives

Contacts DUT before stress zap

BGA ball pitch down to 100 μ m

No sparking to wrong ball

Controlled environment spark chamber

Consistent spark

Low flow, localized N₂

Relative humidity <20%

N₂ box not needed

No waiting for low humidity to be reached

Easy device loading/unloading

Large package capable

X-Y motion system 6" x 6"

Z motion 3" vertical travel above DUT

Large charge plate 5" x 5"

Small package capable

Small contact pin

High accuracy placement

L bracket supplied for easy, repeat alignment

Adjustable for different packages

Non-standard packages

Multiple regions with different pitch, offset, orientations

Scorpion Features

Maestro software

All-in-one PC with Windows® 10 and Maestro Software

Fully automatic, fast operation

Same user interface as other GTS PurePulse systems

Graphical package design tools for easy entry of package and pin/ball locations

Enter pin patterns or Import pin/ball locations via Excel® files, csv, or text lists

Enter, edit, reuse dimensions

Easy set up

Scorpion data capture and review

Oscilloscope interface for pulse waveform measurements

Every pulse is recorded in Maestro's database for easy recall

Post-stressing analysis software

Provides a PASS/FAIL report

Simple connection to company network(s) for data sharing

Export in XML or Excel® files with or without waveform graphs

Support

Software Upgrades with Warranty and Service Contracts

Scorpion Specifications

Large Test area: 5 in. x 5 in. (12.7 cm x 12.7 cm)

Motion system: X,Y axis - min. step size .001" with .00025" accuracy (x,y axis - min. step size 25.4 μ m with 6 μ m accuracy)
Z axis - vertical travel to 1.5" with .00025" accuracy (z axis - vertical travel to 38.1mm with 6 μ m accuracy)

Test voltage range: ± 25 V to ± 2000 V in 1V steps

Humidity range: 10-80%, non-condensing

Dimensions: 23"W x 26"D x 48"H (59cm x 66cm x 122cm)

Weight: 300 lbs. (112kg)

Power: 120-240 VAC 10A 50/60 Hz

Vacuum: Internal pump

Dry nitrogen: 0.05 scfm at 60 psi max

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