

# Static Charge Control

FOR GENERAL ELECTRONICS

Ionization Solutions

WWW.SIMCO-ION.COM



PCB ASSEMBLY,  
PRODUCT  
INSPECTION  
& TEST

**SIMCO ION**™

An ITW Company

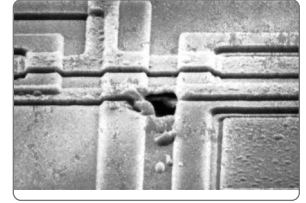


# Printed Circuit Board Assembly, Product Inspection & Test

Electronics product manufacturing faces yield loss and quality problems due to static charge. Static charge is caused primarily by the contact and separation of dissimilar materials. The electrostatic discharge (ESD) of voltages cause instant or latent defects on the components when they are mounted on the printed circuit board.

Often an assumption is made that the most common failure mode is a result of Human Body Model (HBM). However, it is found that ESD damage is most frequently caused by Charged Device Model (CDM) mechanisms.

The ESD sensitive device somehow becomes charged, either by friction or by field induction and then is subsequently discharged by a conductor (people, machines, etc.). It is important to keep static generating materials far away from them. If they must be located near static generating materials, ionizers are crucial to remove the hazards from the resulting field induction possibilities.



ESD damage

| ESDS Component Sensitivity Classification        |                |          |                 |  |                 |          |                 |
|--|----------------|----------|-----------------|--|-----------------|----------|-----------------|
| Human Body Model per ANSI/ESDA/JEDEC JS-001-2017 |                |          |                 | Charged Device Model per ESD STMS.3.1-2009 |                 |          |                 |
| 0Z   | <50V           | Class 1C | 1000V to <2000V | Class C1                                   | <125V           | Class C6 | 1500V to <2000V |
| 0A   | 50V to <125V   | Class 2  | 2000V to <4000V | Class C2                                   | 125V to <250V   | Class C7 | ≥2000V          |
| 0B   | 125V to <250V  | Class 3A | 4000V to <8000V | Class C3                                   | 250V to <500V   |          |                 |
| Class 1A   | 250V to <500V  | Class 3B | ≥8000V          | Class C4                                   | 500V to <1000V  |          |                 |
| Class 1B   | 500V to <1000V |          |                 | Class C5                                   | 1000V to <1500V |          |                 |

Source: www.esda.org

## Ionizers for General Electronics Manufacturing

Air ionization maintains the integrity of components, subassemblies and finished products by neutralizing static charge generated during the manufacturing process or during transport to final test and rework. Our line of ionizers are special-suited for manufacturing applications, from point of use ionizing air nozzles/guns to benchtop and overhead ionizing blowers, and point of use ionizers that fit inside crowded tools. Simco-Ion has been the recognized leader in general electronic static charge elimination for over thirty years.

### Ionization for Every Process

#### Inside Tools

Inside tools for processes such as printed-circuited board transfer, soldering, inspection, and testers, small ionizers must be able to integrate seamlessly.

- The Point-of-Use Ionizing Blower Model 6422e-AC with automatic emitter point cleaner easily mounts in confined spaces and has a very small footprint. Facility Monitoring System (FMS) notification connection makes the blower part of the overall system.



Model 6422e-AC (left) blower is ideal for in-tool confined spaces. Model 6432e (right) blower may be used inside tools or at a workstation.

The slightly larger Model 6432e has a tool mounting bracket or benchtop stand.

- The Model 6110/6110A Air Cartridge features a compact, rugged ionizer that can be used either for in-line ionization or as an ionizing blow-off gun. Used for in-line applications, the cartridge is connected via compressed air source. Model 6110A version features an internal airflow sensor for use as an airgun (with connection to a kit).
- The Model 5822i Critical Environment Blower offers ±5V balance performance for assembling and handling static-sensitive devices or where static charge must be tightly controlled.



## General Purpose

- The Top Gun™ Ionizing Air Gun is a high performance ionizing air gun designed for electronics applications. Balanced to  $0 \pm 15V$ , the Top Gun features high blow-off force to provide efficient cleaning and rapid static charge decay. A filter at the exit of the gun ensures that the air is clean.
- The AirForce™ Blow-Off Gun Model 6115 supplies point of use ionization. Lightweight and ergonomic, the gun hose moves with the operator and doesn't take up valuable workspace. Strong blow-off power effectively removes particle contamination while being rated for use in ISO Cleanliness Class 4 environments.
- The orlON™ Ionizing Air Nozzle been designed for use in fixed applications on manufacturing lines, equipment, and tool applications in the telecommunications, consumer electronics, semiconductor and medical device manufacturing industries.
- The minION™2 Ionizing Blower has been designed to control electrostatic charges in sensitive electronics assembly and automated tool applications requiring stable operation with fast discharge time performance.
- The Aerostat® PC Ionizing Air Blower provides localized coverage with superior charge decay efficiency. The Aerostat® PC is designed to provide ionization to a benchtop work area.

Typical general electronics applications where ionization solutions improve productivity:

- Test Fixtures/Sockets/EPROM
- Burning Sockets/Burn-in Boards
- Conveyor Transportation
- Bare PCB
- PCB Auto Equipment
- IC Handlers
- PCB on Platforms
- SD Hand Coverings
- Air Blow-off Operations
- Plastic Carts
- Incoming Inspection
- Gel Packs
- Microscope Stages
- Conformal Coating
- Epoxy Coating
- Machine Panels & Windows
- Dry Boxes
- Plastic Covers Over Test Sockets
- Tape & Reel Construction Operations
- Molding/Encapsulation

## Mini-environments & Workbenches

- The Ionizing AeroBar™ Model 5685 features a unique aerodynamic design that ionizes a local area without disrupting laminar flow. Ideal in 12-24" distance applications with laminar air flow.
- The Aerostat® Guardian Overhead Ionizer provides fast static discharge over an entire work surface. It has adjustable air volume from 150-300 CFM. Equipped with task lighting, an ionization indicator light, and an integrated heater, the Guardian offers user friendly operation while effectively protecting even the most sensitive components from ESD damage using AC technology.
- The Aerostat® XC2 provides extended coverage for a large surface area with industry-leading performance and advanced features.



Model 5685 Ionizing AeroBar



Aerostat Guardian Overhead Ionizer



Top Gun Ionizing Air Gun



Model 6115 AirForce Blow-Off Gun



orlON Ionizing Air Nozzle



minION Ionizing Blower



Aerostat PC Ionizing Air Blower



Aerostat XC2 Ionizing Air Blower

## Innovation and Expertise

Innovative technology, a large patent portfolio, and significant contributions to setting industry-standard guidelines has made Simco-Ion the leader in static control. Our experienced application engineers can assess problem areas in your facility and recommend solutions that fit your application. Contact us for a static audit.

## Further Information

Education about the effects of static charge has always been a key component of our business. Visit our web site at [www.simco-ion.com](http://www.simco-ion.com) to download general technical notes, technical articles and papers on ionization, and data sheets for all the products mentioned in this brochure.



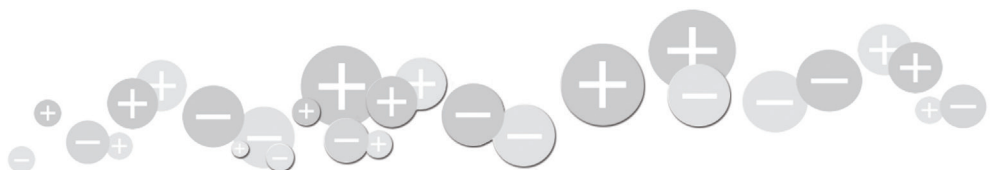
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**Simco-Ion**  
*Technology Group*

1141 Harbor Bay Parkway, Ste 201  
Alameda, CA 94502

Tel: +1 (800) 367-2452 (in USA)  
[ioninfo@simco-ion.com](mailto:ioninfo@simco-ion.com)  
[www.simco-ion.com](http://www.simco-ion.com)

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