

An ITW Company
Technology Group

Ionization Products

General Electronics, Medical Device,
Semiconductor Test & Assembly

worldwide leaders in **static control**



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Power Cords

Many of the products require a “power cord ordered separately”. These power cords are either directly plugged into the ionizer or plugged into the transformer powering the ionizer. The four (4) standard power cords that Simco-Ion offers are shown in the table, below.

Ordering Information

25-20660	US Plug Power Cord, 8.2 ft (2.5m)
25-20710	UK Plug Power Cord, 8.2 ft (2.5m)
25-20735	German Schuko Plug Power Cord, 8.2 ft (2.5m)
25-20750	China Plug Power Cord, 8.2 ft (2.5m)

The Simco-Ion division of Illinois Tool Works (“ITW”) is the world’s leading provider of electrostatic control and process environment monitoring solutions. The division includes the Technology Group, based in Alameda, California; the Industrial Group, based in Hatfield, Pennsylvania; Simco-Ion Netherlands, based in Lochem, Netherlands; Simco-Ion Japan, based in Kobe, Japan; and ITW Simco-Ion (Shenzhen), based in Shenzhen, China. The Technology Group is focused on the development and sale of ionization and monitoring equipment to the general electronics, semiconductor, medical/ life sciences, hard disk drive and display industries.

The Technology Group was formed in 2010, when ITW acquired Ion Systems, Inc., and merged it with its existing Simco Electronics business unit. Simco Electronics traces its roots to 1936, when it was founded to provide industrial ionization. The Electronics unit was created in 1996, and soon grew to become a leading supplier of ionization to the general electronics market. Ion Systems was founded in 1978, and quickly became the leader in ionization for the semiconductor and hard disk drive industries. Novx Corporation, a leading supplier of electrostatics monitoring equipment, was acquired in 2006, providing additional capabilities. Today, the Technology Group offers a broad line of AC-, DC- and high frequency ionizers, monitoring and control systems and electrostatics consulting to solve customers’ requirements for electrostatics control.

The Simco-Ion Technology Group has been ISO-9001 certified since 1997. It is also certified to the ANSI/ESD S20.20 Facility Certification for ESD, and has been since 2004, when that standard went into effect.

Celebrating its 100-year anniversary in 2012, ITW (NYSE: ITW) is a Fortune 200 global diversified industrial manufacturer of value-added consumables and specialty equipment with related service businesses. The company focuses on profitable growth and strong returns across worldwide platforms and businesses. These businesses serve local customers and markets around the globe, with a significant presence in developed as well as emerging markets. ITW’s revenues totaled \$17.9 billion in 2012, with more than half of these revenues generated outside of the United States.

www.simco-ion.com/TechnologyProducts.aspx



Scan QR code to go to Simco-Ion.com technology products.
For additional product information, scan the QR codes located on each product page in this catalog.



Applications

Ionization is typically used to provide two functions in the manufacture and assembly of products. The more obvious use is to keep the local environment electrically neutral, substantially reducing or eliminating the possibility of electrostatic discharge or “ESD” events. Many electronic products can be damaged by ESD, causing either immediate, catastrophic failure or latent failure over time. The second use of ionization is to improve the cleanliness of the manufacturing environment. By neutralizing surfaces in the area, dust and particles are not attracted to product surfaces, keeping them cleaner. This improves manufacturing yield and the quality of the product.

General Electronics

- Among the many applications for ionization in general electronics are:
- Manufacture and repair of electronic products, including cell phones, computers, tablets, communications equipment and consumer electronics
 - Assembling PCBs, including inserting chips and components, solder reflow, test and board handling
 - Inspection stations
 - Cleaning surfaces prior to applying coatings, paints and finishes

Medical Device and Pharmaceutical

- Uses include:
- Manufacturing, inspection and packaging of stents, catheters, pacemakers, artificial joints,
 - Handling powders during pharmaceutical manufacturing
 - Handling glass vials, glass plates and plastic containers in diagnostic equipment

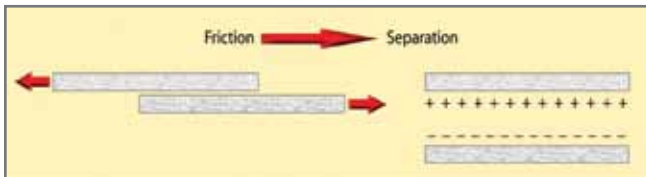
Semiconductor Test & Assembly

Semi back-end test and assembly use ionization extensively to protect chips during manufacture and test. Almost every assembly and test process subjects devices to the possibility of damage due to ESD. Consequently, most back-end and process tools incorporate ionization at multiple points, including incoming load, process and outgoing unload.

Static Basics

How is static electricity generated?

Charge generation will occur when two different materials come in contact with each other and then separate ("contact and separation"). As shown below, after the separation has occurred, one side has charged positively and the other side has charged negatively. Conductive materials can be grounded to remove the charge; however, insulators (plastics, glass, ceramics, etc.) need ionized air on their surface to remove the positive and negative charges.



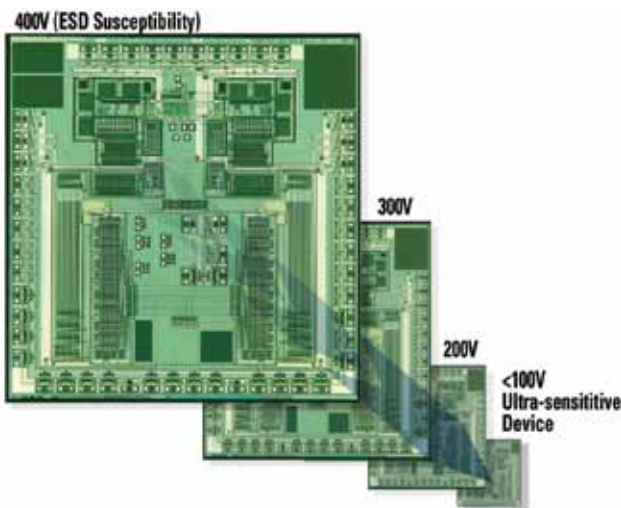
Why is static a problem?

In the semiconductor, electronics manufacturing and medical device industries, damage and yield losses attributed to the effects of static charges are well documented along with the determination of many of the specific causes. Particle contamination is a major issue as charged materials attract more particles to their surfaces than their non-charged counterparts. Electrostatic Attraction (ESA). Direct electrical damage caused by Electrostatic Discharge (ESD) devices can occur with a variety of ESD failure modes. In addition, ESD events produce Electromagnetic Interference (EMI) that can cause equipment malfunctions, lockups and direct damage to product via radiated and conducted forms.

Ultra-sensitive Devices

Ultra ESD sensitive (ESDS) devices (especially those sensitive below 100V) are appearing in the semiconductor, electronics manufacturing and medical device industries at a rapid pace.

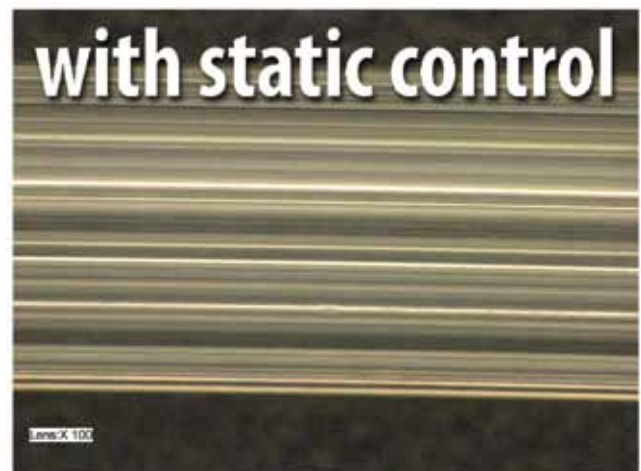
In the last few years, many facilities have struggled with ESD damage directly resulting from limitations of the manufacturing industries' standard ESD controls that have been used so effectively in the past. Ionization and continuous monitoring with the latest technology, is crucial in combating the effects of static on these ultra-sensitive devices.



Electrostatic Attraction

Materials typically used in the manufacturing cleanroom—plastic, quartz, ceramics, glass and silicon—are good insulators and become charged easily. Because the air entering the cleanroom is stripped of its normal ion content as it moves through the air filtration system, it loses its static-dissipative qualities. Thus, modern cleanrooms foster higher levels of static charge that remain on objects for long periods of time. The very nature of the cleanroom makes it difficult to apply antistatic measures because most surface treatments and many static-dissipative materials are not cleanroom compatible.

If a critical product surface becomes charged, as it often does during the production process, and if the charge isn't removed, the surface attracts airborne particulates in the cleanroom. Regardless of the filtration system, personnel, machinery and processes can introduce particulates into the air. The electrostatic attraction affecting these particles is surprisingly strong. Once bonded to a charged surface, it is very difficult to remove the contamination. Contamination of this nature is a major contributor to product degradation and device failure.



Catheter manufacturing after thirty (30) minutes of exposure.

Distinctive Ionizer Features

Automatic Emitter Cleaning

To minimize the contamination and time involved with manually cleaning the emitter, Simco-Ion developed an automatic emitter cleaning system. The automatic point cleaning system is set to clean the ionization emitter upon start-up.

Since it works automatically each time the blower is turned on, it reduces maintenance time and ionizer down time.

Products that include the automatic emitter cleaning system are:

- Point-of-Use Blower Model 6422e-AC

Integrated Comfort Heater

Several products contain an integrated heater. While the heater is not intended to provide a significant source of room heat, it does provide user comfort and added productivity.

Products that include an integrated heater are:

- Aerostat PC Benchtop Blower
- Aerostat XC Extended Coverage Blower
- VSE-3000 Extended Coverage Blower
- Aerostat Guardian Overhead Blower

Cleanroom-rated Ionizers

The widespread use of ionizers in rooms, laminar flow hoods and point-of-use applications has greatly improved the control of static charge in cleanroom environments.

Products designed to meet ISO 14644-1 Class 4 (Fed. Std. 209E Class 10) cleanliness standards where electrostatic discharge is a concern are:

- AirForce Blow-off Gun Model 6115
- Guardian CR2000 Cleanroom-rated Overhead Blower

Products designed to meet ISO 14644-1 Class 5 (Fed. Std. 209E Class 100) cleanliness standards where electrostatic discharge is a concern are:

- Point-of-Use Blower Model 6422e & Model 6422e-AC
- Point-of-Use Blower Model 6432e
- Aerostat Guardian Overhead Ionizing Blower
- AeroBar Ionizer Model 6685

Ionizer Status Output Connection

Many of the process and manufacturing facilities where ionizers are used contain a remote system that monitors equipment status. Facility Monitoring System (FMS) capability offers an ionizer status connection from the ionizer to either the process monitoring or facility monitoring system.

Products that offer this FMS feature area:

- Point-of-Use Blower Model 6422e & Model 6422e-AC
- Point-of-Use Blower Model 6432e
- Aerostat XC2 Extended Coverage Blower
- minION2 Compact Blower

Manual Emitter Cleaner

All ionization devices require periodic maintenance. Normally, maintenance consists of a simple emitter point cleaning procedure performed every three to twelve months. For those ionizers that do not have an automatic emitter cleaning device, the next best option is to have a manual emitter cleaning device as a standard feature.

Products that include a manual emitter cleaning feature are:

- Aerostat PC Benchtop Blower
- Aerostat XC Extended Coverage Blower
- Aerostat XC2 Extended Coverage Blower
- Endstat 2020 Benchtop Blower
- Aerostat Guardian Overhead Blower
- Guardian CR2000 Cleanroom-rated Overhead Blower
- Aerostat FPD Overhead Blower

Compact Ionizers

In-tool static control typically offers constraints as to the size and type of ionizer that can be used. Simco-Ion offers many different products that have been specifically designed to fit inside of process tools.

Products that are compact in size are:

- Point-of-Use Blowers Model 6422e & Model 6422e-AC
- Point-of-Use Blower Model 6432e
- minION2 Compact Ionizing Blower

Optional Features

Many of the Simco-Ion ionization products include orderable options that are designed for specific applications.

- Articulated Arm for targeted ionization with the minION2 Compact Blower and the Point of Use Blower Model 6422e/6422e-AC
- Blow-off Airgun/Hose Kit for Model 6110(A) Air Cartridge
- Optical Sensor automatically ionizes when target is in range for both the Top Gun Air Blow-off Gun and the orION Air Nozzle
- Sidekick (hands free operation) for both the Top Gun Air Blow-off Gun and the orION Air Nozzle
- Gooseneck mounting stand and foot switch for the Model 6115 AirForce Blow-off Gun

Top Gun™3 Ionizing Air Blow-off Gun with Optional Sidekick Hands-free Stand

Top Gun3 is a high-reliability ionizing airgun for electronics manufacturing applications. Balanced to ±15V, the Top Gun features a high blow-off force that provides efficient cleaning and rapid static discharge. All control functions are built into the gun for easy operator use: airflow control, ion balance adjustment and a two-level LED to indicate both power on and ionization. For automated assembly, all versions of the Top Gun 3 are available with an optional Optical Sensor, which automatically activates the gun when the target is in range from 1-30 inches (25-760 mm).

The Sidekick flexible neck frees the operator's hands during assembly and manufacturing processes. A foot pedal controls both ionization and airflow, and the flexible gun mount allows the operator to focus the ionization airflow to the target area.

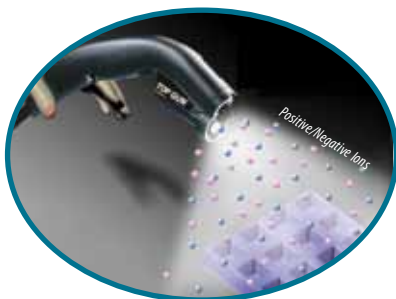
- Fast static discharge ±1000V to ±100V, .5 sec @ 2" (50 mm)
- Operates on air input of 5-100 psi
- Static dissipative plastic airgun body features a light touch trigger
- Filter at gun outlet insures air is clean

Measurements

	Width	Height	Depth	Weight
Airgun Body				6.5 oz (185g)
Airgun Hose				1.25 oz/ft (115 g/m)
Power Unit	5.20" (132 mm)	6.45" (164 mm)	3.35" (85 mm)	6 lb (2.7 kg)

Ordering Information

4005105	Top Gun, 120V, 7' cable, NA
4005106	Top Gun, 230V, 7' cable, EU
4009894	Top Gun, 230V, 7' cable, UK
4006599	Top Gun, 120V, 14' cable, NA
4006600	Top Gun, 230V, 14' cable, EU
4009895	Top Gun, 230V, 14' cable, UK
4012199	Top Gun, 120V, 5' cable, sensor, NA
4012200	Top Gun, 230V, 5' cable, sensor, EU
4012201	Top Gun, 230V, 5' cable, sensor, UK
4012202	Top Gun, 120V, 14' cable, sensor, NA
4012203	Top Gun, 230V, 14' cable, sensor, EU
4012204	Top Gun, 230V, 14' cable, sensor, UK
4006992	Top Gun, 120V, Sidekick (hands free stand), NA
4007005	Top Gun, 230V, Sidekick (hands free stand), EU
4012205	Top Gun, 120V, Sidekick (hands free stand), sensor, NA
4012206	Top Gun, 230V, Sidekick (hands free stand), sensor, EU



Model 6115 AirForce Blow-off Gun

- Designed for use in production, packaging, laboratories and other clean environments, the Model 6115 Airforce Blow-off gun uses Simco-Ion Isostat technology which means static charge is controlled with constant balanced ionization and no calibration required. Strong blow-off power makes the AirForce gun effective in removing particle contamination and is ideal for use in clean process applications.
- Fast static discharge ±1000V to ±100V, 1 sec @ 6" (152 mm)
 - Operates on air input of 20-65 psi
 - Airgun body/console is made from lightweight static dissipative plastic; ergonomic designed gun reduces wrist fatigue
 - Cleanroom ISO Class 4 rated for cleanroom applications
 - Quick eject filter insures air is clean
 - User replaceable emitter point cartridge for easy maintenance



Measurements

	Width	Height	Depth	Weight
Airgun Body incl 7' (2.1m) Hose	3" (76 mm)	8" (203 mm)	1" (25 mm)	12 oz (341g)
Console	3" (76 mm)	8.5" (216 mm)	1.6" (41 mm)	11.5" (326g)

Ordering Information

92-6115-US	Model 6115, 8' hose, 120V wall transformer, US plug
91-6115-NXFMR	Model 6115, 8' hose (transformer ordered separately)
14-1306	Transformer, 100 VAC (power cord ordered separately)
14-1310	Wall transformer with US plug, 120 VAC
14-21570	Transformer, 230 VAC (power cord ordered separately)
33-6115	Gooseneck mounting stand
91-6115SWT	Foot switch with 8' cable



Model 6110/6110A Air Ionizing Cartridge with Optional Air Gun & Hose Kit

Model 6110 & Model 6110A are self-contained, compressed air ionizing cartridges that control static charge in production, packaging, laboratory and other environments where static build-up can cause contamination, ESD, material handling problems or microprocessor lock-up. Model 6110/6110A can be used either for in-line ionization or as an ionization blow-off airgun. Designed using IsoStat® technology, the Air Ionizing Cartridge is Intrinsically balanced so no calibration is needed to maintain maximum performance.

- Fast static discharge $\pm 1000V$ to $\pm 100V$, 3 sec @ 6" (152 mm)
- Tungsten alloy emitter point shielded for shock protection
- Internal air flow sensor (Model 6110A) for on demand ionization
- Optional blow-off airgun kit

Measurements

Width	Depth	Weight
3.1" (79 mm)	2.2" (56 mm)	6 oz (170 g)

Ordering Information

92-6110-US	Model 6110, 120 VAC wall transformer, US plug
91-6110	Model 6110 (transformer ordered separately)
92-6110A-US	Model 6110 with air flow sensor, 120 VAC wall transformer, US plug
91-6110A	Model 6110 with air flow sensor (transformer ordered separately)
14-1306	Transformer, 100 VAC (power cord ordered separately)
14-1310	Wall Transformer with US plug, 120 VAC
14-21570	Transformer, 230 VAC (power cord ordered separately)
91-6150	Airgun/Hose Kit, includes 12' coiled air hose



orlON™ Ionizing Air Nozzle & Controller with Optional Sidekick Hands-free Stand

orlON Ionizing Air Nozzle provides high performance and reliable static control in a compact, compressed air nozzle. The orlON is designed for use in fixed electronic manufacturing applications, semiconductor and medical device industries. Reliable balance stability is maintained at better than $\pm 15V$.

The orlON offers the Sidekick flexible neck stand and foot switch that frees the operator's hands during the manufacturing and assembly process.

- Fast static discharge $\pm 1000V$ to $\pm 100V$, 2 sec @ 6" (152 mm)
- Operates on air input of 5-100 psi
- Air Nozzle is lightweight static dissipative plastic
- Filter at nozzle outlet insures air is clean

Measurements

	Width	Height	Depth	Weight
Airgun Body				6.5 oz (185g)
Airgun Hose				1.25 oz/ft (115 g/m)
Power Unit	5.2" (132 mm)	6.45" (164 mm)	3.35" (85 mm)	6 lb (2.7 kg)

Ordering Information

4009045	orlON Air Nozzle, 120V, 7' cable, NA
4009046	orlON Air Nozzle, 230V, 7' cable, EU
4009220	orlON Air Nozzle, 230V, 7' cable, UK
4012209	orlON Air Nozzle, 120V, 5' cable, sensor, NA
4012210	orlON Air Nozzle, 230V, 5' cable, sensor, EU
4012211	orlON Air Nozzle, 230V, 5' cable, sensor, UK
4009245	orlON Air Nozzle, 120V, Sidekick (hands free stand), NA
4009246	orlON Air Nozzle, 230V, Sidekick (hands free stand), EU
4009449	orlON Air Nozzle, 230V, Sidekick (hands free stand), UK
4012212	orlON Air Nozzle, 120V, Sidekick (hands free stand), sensor, NA
4012213	orlON Air Nozzle, 230V, Sidekick (hands free stand), sensor, EU
4012214	orlON Air Nozzle, 230V, Sidekick (hands free stand), sensor, UK
4107399	orlON foot activation switch



Model 6422e

Point-of-Use Ionizing Blower

Point-of-Use Ionizing Blower Model 6422e will integrate easily inside tools for processes such as wafer mount, die attachment, wire bond and test & finishing. Model 6422e has a small footprint which is optimal for static discharge in hard to reach areas. Model 6422e uses Simco-Ion's Isostat technology which means static charge is controlled with constant balanced ionization and no calibration required.

The 6422e family includes Model 6422e-AC which adds our Auto-Clean feature that cleans the emitter points each time the unit powers down. Automated cleaning reduces maintenance time, extends emitter point life and helps to insure balanced performance.

- Directed static discharge $\pm 1000V$ to $\pm 100V$, <4 sec @ 1' (305 mm)
- Operational failure alarm on blower and also to remote location via Facility Monitoring System capability
- $\pm 20V$ balance @ 1'
- Includes mounting bracket for flush or angled mounting
- Tool power or power with wall transformer to operate blower

Measurements

	Width	Height	Depth	Weight
Blower w/o Bracket	3.26" (83 mm)	4.36" (111 mm)	2.48" (63 mm)	11.2 oz (314g)

Ordering Information

92-6422e-AC-US	Model 6422e with auto-clean, bracket included, 120 VAC wall transformer, US plug
91-6422e	Model 6422e, bracket included (transformer ordered separately)
91-6422e-AC-01	Model 6422e with auto-clean, Bracket included (transformer ordered separately)
14-1320	120 VAC wall transformer, US plug
14-1330	230 VAC wall transformer, Euro plug
14-1322	Universal transformer, 90-120 VAC (must order 1 of the following connectors)
18-20285	US/Japan wall connector
18-20286	UK wall connector
18-20287	Europe wall connector
18-20288	Australia/China wall connector
5051141	Articulating Arm



Model 6432e

Point-of-Use Ionizing Blower

Point-of-Use Ionizing Blower Model 6432e controls static discharge in assembly, inspection, packaging areas and in-tool wherever static build-up can cause contamination, ESD, material handling problem or microprocessor lock-up. The 6432e size is small enough to handle in-tool ionization needs while large enough to ionize benchtop assembly areas. Model 6432e uses Simco-Ion's Isostat technology which means static charge is controlled with constant balanced ionization and no calibration required.

- Directed static discharge $\pm 1000V$ to $\pm 100V$, <4 sec @ 1' (305 mm)
- Operational failure alarm on blower and also to remote location via Facility Monitoring System capability
- $\pm 20V$ balance @ 1'
- In-tool Mounting Bracket and Benchtop Mounting Stand available
- Tool power or power with wall transformer to operate blower

Measurements

Width	Height	Depth	Weight w/Stand
5.0" (127 mm)	5.3" (133 mm)	2.5" (63 mm)	21 oz (595g)

Ordering Information

92-6432e-US	Model 6432e with stand, 120 VAC wall transformer, US plug
91-6432e	Model 6432e, (transformer and stand ordered separately)
14-1320	120 VAC wall transformer, US plug
14-1330	230 VAC wall transformer, Euro plug
14-1322	Universal transformer, 90-120 VAC (must order 1 of the following connectors)
18-20285	US/Japan wall connector
18-20286	UK wall connector
18-20287	Europe wall connector
18-20288	Australia/China wall connector
32-6433	Benchtop stand
32-6434	In-tool stand



minION™2 Compact Ionizing Blower

minION2's combination of unique, patented features makes it possible to deliver superior performance in a small package size. Simco-Ion's Steady State DC corona technology, using patented balance control to $\pm 10V$ delivers a user friendly operation. Performance is enhanced by the patented radial emitter design in the minION2.

The minION2 provides user adjustable variable speed fan control, modular wiring daisy-chain capability and fault condition signal. An optional articulating arm allows you to focus ionization on the targeted area as well as provide more benchtop usable space.

- Fast static discharge $\pm 1000V$ to $\pm 100V$, 2 sec @ 1 ft (305 mm)
- "Daisy-chain" capability up to 3 units with 1 power supply
- Tool power or wall transformer to operate blower

Measurements

Width	Height	Depth	Weight
3.9" (98 mm)	5.4" (136 mm)	2.4" (60 mm)	1.1 lb (.52 kg)

Ordering Information

4011424	minION2, no power supply
4011425	minION2, 100/120V, Japan/NA
4011426	minION2, 230V, EU
4011427	minION2, 230V, UK
5051141	minION2 articulating arm



ionONE Micro S/Micro SA Spot Ionizers

The ionONE Micro S ("spot") and Micro SA ("spot air assist") are Simco-Ion's new line of ultra-small ionizers. Both the Micro S and Micro SA utilize piezoelectric technology to give these ionizers their self-balancing property. The major advantage the Micro S and Micro SA offers to customers is their small size. Typical applications include inside production tools, inspection stations, and conveyor lines when the product to be protected is 3-12" (7-30 cm) distant. The Model Micro S Spot Ionizer is suited for applications where airflow from HEPA filters or fans is present, or when the area to be protected is in close proximity. The Model Micro SA Spot Ionizer uses compressed dry air (CDA) to provide the airflow necessary to ionize a nearby confined area when there is no existing airflow..

- Compact design fits into the tight confines of any process tool or application
- Self-balancing technology so no adjustments needed to maintain the required balance
- Easy maintenance with only occasional cleaning of the emitter points required
- Air assist version for precise delivery of ionized air to the target area
- Output connection for indicating alarm status to your process equipment's facility monitoring system (FMS)

Measurements

Width	Height	Depth	Weight
1.6" (40 mm)	.7" (17 mm)	2.5 (64 mm)	.6 oz (16g) Micro S .7 oz (19g) Micro SA

Ordering Information

92-Micro S-02	Model Micro S Spot Ionizer, includes 12 VDC adapter
92-Micro SA-02	Model Micro SA Spot Ionizer with Air Assist, includes 12 VDC adapter
91-Micro S-02	Model Micro S Spot Ionizer
91-Micro SA-02	Model Micro SA Spot Ionizer with Air Assist



Aerostat® PC Benchtop Ionizing Blower

Aerostat PC Single-fan Benchtop Ionizing Blower is small, quiet, lightweight, and yet uncompromising in performance, Simco-Ion's Aerostat PC provides superior static discharge over a targeted work surface area.

It provides protection from the destructive effects of ESD using AC technology. No calibration is necessary; its inherent balance circuitry maintains a balance to $\pm 10V$. A variable speed fan produces an air volume of from 35-70 CFM. The Aerostat PC covers a 1 x 4 ft (305 x 1220 mm) area.

- Fast static discharge $\pm 1000V$ to $\pm 100V$, 1.5 sec @ 1 ft (305 mm)
- Built-in emitter point cleaner for simplified maintenance
- Integrated heater for warm air flow
- Emitter Points never need replacement

Measurements

Width	Height	Depth	Weight
5.5" (140 mm)	8.6" (220 mm)	3.25" (85 mm)	5.7 lb (2.6 kg)

Ordering Information

4003367	AeroStat PC, 120V, 60 Hz
4003368	AeroStat PC, 230V, 50 Hz, EU
4008087	AeroStat PC, 230V, 50 Hz, UK



Endstat 2020 Benchtop Ionizing Blower

Endstat 2020 Single-fan Benchtop Ionizing Blower produces consistent ionized airflow over a targeted work surface area. With a two-speed fan that produces an air volume of 50-100 CFM and covers an area of 1 x 4 ft (305 x 1220 mm), the Endstat 2020 AC ionization technology provides for economical and reliable static control. Maintaining a balance of $\pm 15V$, the Endstat 2020 is designed for use in both electronics and manufacturing environments.

- Fast static discharge $\pm 1000V$ to $\pm 100V$, 2.5 sec @ 1 ft (305 mm)
- Built-in emitter point cleaner for simplified maintenance

Measurements

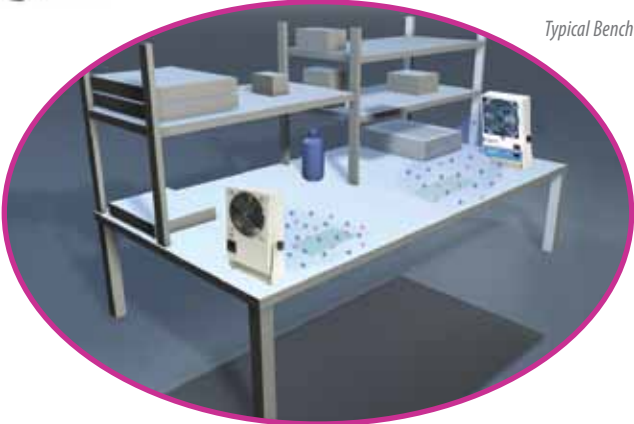
Width	Height	Depth	Weight
5.7" (145 mm)	8.2" (210 mm)	3.7" (95 mm)	7 lb (3.2 kg)

Ordering Information

4012304	Endstat 2020, 120V, 60 Hz
4012305	Endstat 2020, 230V, 50 Hz, EU
4012306	Endstat 2020, 230V, 50 Hz, UK



Typical Benchtop Application



Aerostat XC™ Extended Coverage Ionizing Blower with Heater

Aerostat XC Extended Coverage Benchtop Ionizing Blower provides excellent coverage, stability of balance and rapid static discharge. Utilizing AC technology. The Aerostat XC neutralizes static across a broad 3 x 6 ft (915 x 1830 mm) benchtop area. No calibration is necessary; its inherent balance circuitry maintains a balance of $\pm 5V$. A 3-speed fan delivers a controlled air volume of 70, 90 or 120 CFM.

- Fast static discharge $\pm 1000V$ to $\pm 100V$, 1.5 sec @ 1 ft (305 mm)
- Built-in emitter point cleaner for simplified maintenance
- Integrated heater for warm air flow
- Emitter Points never need replacement

Measurements

Width	Height	Depth	Weight
15.4 in (390 mm)	4.5 in (115 mm)	8.1 in (205 mm)	17.5 lb (7.9 kg)

Ordering Information

4002612	Aerostat XC, 120V, 60 Hz
4002667	Aerostat XC, 230V, 50 Hz, EU
4009044	Aerostat XC, 230V, 50 Hz, UK
5050282	Optional pedestal mount stand for AeroStat XC



Aerostat XC2 Extended Coverage Ionizing Blower

The new Aerostat XC2 provides complete wide area ionization protection. The Aerostat XC2 is designed and built for reliable, long-term static control for a variety of electronic, semiconductor, flat-panel display and medical assembly applications. The weight-saving design allows the Aerostat XC2 to be mounted above the work surface, which is especially effective for flat-panel display module assembly. The XC2 is loaded with usability features including a built-in emitter point cleaner, adjustable locking stand, fan speed control and separate balance and fan stall alarm LEDs.

- Designed for extremely fast static charge neutralization over a long and wide work surface
- High precision $\pm 10V$ self-balance never needs calibrating
- Weight-saving design is light enough to be easily mounted on or above the work surface
- Ionization status can easily be monitored locally with the alarm LEDs and at a remote location with the Facility Monitoring System (FMS) connection
- Easy to use, built-in emitter cleaner insures consistent, balanced performance over an extended period of time

Measurements

Width	Height	Depth	Weight
14.1 in (358 mm)	7.2 in (183 mm)	6.6 in (168 mm)	6.8 lbs (3.1 kg) with stand

Ordering Information

91-XC2-US-02	Aerostat XC2, 120V, 60 Hz with NA power cord
91-XC2-EU-02	Aerostat XC2, 230V, 50 Hz with CE power cord
91-XC2-UK-02	Aerostat XC2, 230V, 50 Hz with UK power cord
91-XC2-JP-02	Aerostat XC2, 100V, 60 Hz with Japan power cord
91-XC2-CN-02	Aerostat XC2, 230V, 50 Hz with China power cord
33-6002-01	Aerostat XC2 Replacement Emitter Cartridge
33-6003-01	Aerostat XC2 Air Filter Kit
33-6004-01	Aerostat XC2 Air Filter Replacement (6 pack)



VSE-3000 Extended Coverage Ionizing Blower with Heater

VSE-3000 (Volume Static Eliminator) 3000 Extended Coverage Benchtop Ionizing Blower is an efficient workstation ionizer that neutralizes electrostatic charge quickly and reliably. The VSE-3000 produces airflow of 80-160 CFM, flooding the work area with bipolar ions to neutralize electrostatic charge. No calibration is necessary – its inherent balance control maintains a balance of $\pm 5V$. An integrated heater provides operator comfort. The VSE-3000 typically covers a 2 x 4 ft (610 x 1220 mm) area.

- Fast static discharge $\pm 1000V$ to $\pm 100V$, 1 sec @ 1 ft (305 mm)
- Integrated heater for warm air flow
- Long-life emitter points

Measurements

Width	Height	Depth	Weight
12 in 305 mm	6.25 in 160 mm	10 in 255 mm	8 lb 3.6 kg

Ordering Information

10735-001	VSE 3000, 120V, 60 Hz
10735-014	VSE 3000, 230V, 50 Hz, EU
10735-015	VSE 3000, 230V, 50 Hz, UK



Aerostat® Guardian Overhead Ionizing Blower

Installed above the work area, the Aerostat Guardian 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, Guardian offers user friendly operation while effectively protecting even the most sensitive components from ESD damage using AC technology. No calibration is needed to maintain a $\pm 5V$ balance over an extended period of use.

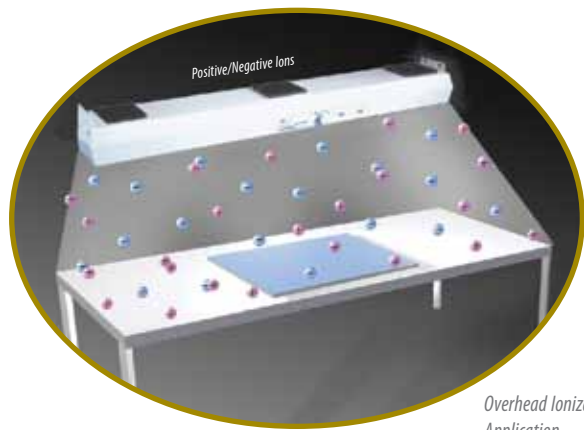
- Fast static discharge $\pm 1000V$ to $\pm 100V$, 3 sec @ 1.5 ft (458 mm)
- Built-in emitter point cleaner for simplified maintenance
- Integrated heater and task lighting for enhanced operator comfort
- Airflow diffusers optimize ionization to target area
- Emitter Points never need replacement

Measurements

Width	Height	Depth	Weight
42.75" (1090 mm)	4" (100 mm)	6.75" (170 mm)	16 lb (7.3 kg)

Ordering Information

4004063	Aerostat Guardian, 120V, 60 Hz
4004261	Aerostat Guardian, 230V, 50 Hz, EU
4009890	Aerostat Guardian, 230V, 50 Hz, UK



Overhead Ionization Application



Guardian™ CR2000 Cleanroom-rated Ionizing Blower

Guardian CR2000 is designed for use within critical cleanroom applications where electrostatic discharge is a concern. The Guardian CR2000 meets ISO 14644-1 Class 4 (Fed. Std. 209E Class 10) cleanliness standards. The Guardian CR2000 contains a balancing circuit that maintains an inherent balance to $\pm 5V$. Both the 2-fan model (90-180 CFM) and the 3-fan model (135-270 CFM) have variable adjustable air flow for optimal static control.

- Fast static discharge $\pm 1000V$ to $\pm 100V$, 3 sec @ 1.5 ft (458 mm)
- Built-in emitter point cleaner for simplified maintenance
- Ion balance and ion output LED provide real-time ionization status
- Lockout key prevents tampering
- Emitter Points never need replacement

Measurements

	Width	Height	Depth	Weight
2-fan	31.75" (810 mm)	4" (100 mm)	6.75" (170 mm)	12 lb (5.5 kg)
3-fan	42.75" (1090 mm)	4" (100 mm)	6.75" (170 mm)	15 lb (6.8 kg)

Ordering Information

4008729	Guardian CR2000 2-fan, 120V, 60 Hz
4008730	Guardian CR2000 2-fan, 230V, 50 Hz, EU
4008804	Guardian CR2000 2-fan, 230V, 50 Hz, UK
4008630	Guardian CR2000 3-fan, 120V, 60 Hz
4008705	Guardian CR2000 3-fan, 230V, 50 Hz, EU
4008805	Guardian CR2000 3-fan, 230V, 50 Hz, UK



Aerostat FPD Wide Coverage Ionizing Blower

Aerostat FPD is designed to control electrostatic charges in assembly and electronics manufacturing. The Aerostat FPD Ionizing Air Blower provides superior fast neutralization over an extended surface area. Available in two-, three- and four-fan models, this high velocity overhead blower provides superior coverage up to 5 feet. The Aerostat FPD utilizes AC ionization technology for balance control to $\pm 10V$.

- Extremely fast static discharge $\pm 1000V$ to $\pm 100V$, 1 sec @ 1 ft (305 mm)
- Built-in emitter point cleaner for simplified maintenance
- Ion balance and ion output LED provide real-time ionization status
- Emitter Points never need replacement

Measurements

	Width	Height	Depth	Weight
2-fan	23.25" (590 mm)	4" (100 mm)	6.25" (160 mm)	10 lb (4.5 kg)
3-fan	35.5" (900 mm)	4" (100 mm)	6.25" (160 mm)	13 lb (5.9 kg)
4-fan	47.75" (1215 mm)	4" (100 mm)	6.25" (160 mm)	16 lb (7.3 kg)

Ordering Information

4011005	Aerostat FPD 2-fan, 120V, 60 Hz
4011279	Aerostat FPD 2-fan, 230V, 50 Hz, EU
4011280	Aerostat FPD 2-fan, 230V, 50 Hz, UK
4011007	Aerostat FPD 3-fan, 120V, 60 Hz
4011281	Aerostat FPD 3-fan, 230V, 50 Hz, EU
4011282	Aerostat FPD 3-fan, 230V, 50 Hz, UK
4011009	Aerostat FPD 4-fan, 120V, 60 Hz
4011283	Aerostat FPD 4-fan, 230V, 50 Hz, EU
4011284	Aerostat FPD 4-fan, 230V, 50 Hz, UK



AeroBar® Ionizer Model 6685

AeroBar Ionizer Model 6685 features a unique aerodynamic design that ionizes a local area without disrupting laminar flow. Ideal in 12-24 inch distance applications with laminar air flow, the Model 6685 utilizes steady-state DC ion emission and Simco-Ion IsoStat® Technology. With plug and play capability, the Model 6685 provides balanced ionization upon power up and is ideal for laminar flow hoods in general electronics and medical device assembly applications. The AeroBar may also be installed over work tables in cleanroom areas where HEPA filters are present.

- IsoStat® Technology offers intrinsically balanced ionization; no calibration required
- Steady state DC ion emission for fast discharge with typical laminar air flow
- Tungsten emitter points meet ISO 14644-1 Class 5 (Fed. Std. 209e Class 100) cleanliness standards
- Multiple lengths, including 11 inch, for installation into various hood and mini-environment applications

Measurements

Width	Height	Length	Weight
2.1" (53 mm)	1.13" (29 mm)	11, 22, 44, 64" (28, 56, 112, 163 mm)	9 oz/ft of bar length (255g/0.3m)

Ordering Information

91-6685T-11-01	Model 6685, 11" length, 2 tungsten wire emitter points
91-6685T-22-01	Model 6685, 22" length, 4 tungsten wire emitter points
91-6685T-44-01	Model 6685, 44" length, 8 tungsten wire emitter points
91-6685T-64-01	Model 6685, 64" length, 12 tungsten wire emitter points
14-1306	Transformer, 100 VAC (power cord ordered separately)
14-1310	Wall transformer with US plug, 120 VAC
14-21570	Transformer, 230 VAC (power cord ordered separately)



Charged Plate Monitor Model 280A

Model 280A incorporates enhanced circuitry that enables it to more accurately measure the performance of high frequency AC ionizers, as well as pulsed DC ionizers and steady-state DC ionizers. The Model 280A can be used as a portable CPM and is capable for of up to 6 hours of operation on the internal battery before recharge. It has enough memory for storage of over 1000 tests and more than 100 individual test locations.

- AC line input or battery operation for portability in a variety of applications
- CPM comes with 6" detachable plate which is ideal for inside process tools
- Built-in temperature and humidity sensors accurately documents environmental test conditions
- Digital LCD display is easy to read and to interpret data

Measurements

Width	Height	Length	Weight
11" (280 mm)	5" (127 mm)	9" (230 mm)	12.5 lb (5.7 kg)

Ordering Information

91-0280A-C	Model 280A, software and carrying case included, calibration certificate sold separately at time of purchase
19-0280A-CR	Calibration certificate at time of purchase
25-0550	Signal extension cord (5')
25-0555	Ground extension cord (10')
29-0280	Replacement battery
32-0290	Detachable plate (1" x 1")
32-0296	Detachable plate (6" x 6")
91-0260	Carrying case
91-0181	Heavy duty tripod for cleanroom use



Electrostatic Fieldmeter Model 775 & Model 775PVS

The pocket-sized Simco-Ion Model 775 Fieldmeter is designed to locate and measure static charge potentials on product, people, equipment and packaging. Powered by a 9V battery, the 775 features a conductive, impact-resistant case and a convenient snap-on ground lead to facilitate grounding and increase accuracy.

The Model 775 Electrostatic Fieldmeter can be upgraded to a Periodic Verification System (775PVS). A hand-held alternative to a charged plate monitor, the Model 775PVS includes a detachable isolated plate and a charger in addition to the fieldmeter. Together, the three components can be used to verify ionizer operation and check ion balance and discharge times.

- Easy to read digital display
- Distance ranging lights ensures accurate distancing and measurements
- Analog output to a chart recorder for hard copy documentation of charge levels
- Plate Assembly and Charger in the Model 775PVS is designed to match the small size fieldmeter.

Measurements

Width	Height	Length	Weight
2.4" (61 mm)	4.2" (107 mm)	.9" (23 mm)	.31 lb (0.14 kg)

Ordering Information

91-0775	Model 775 Static Charge Detector
91-0775PVS	Model 775PVS Static Charge Detector with Periodic Verification System
19-0775-CR	Model 775 calibration certificate
19-0775PVS-CR	Model 775PVS calibration certificate



Electrostatic Fieldmeter

Model FMX-003™

Fieldmeter Model FMX-003 is a compact electrostatic fieldmeter used for locating and measuring static charges. It's pocket size makes it handy to use and three-button operation makes it easy to operate. The FMX-003 measures static voltages within $\pm 20\text{kV}$ (20,000V) at a distance of 1". Results are simultaneously displayed numerically and in bar graph format.

- Easy to read digital and bar graph display
- Distance ranging lights ensures accurate distancing and measurements
- Automatic power off after five minutes

Measurements

Width	Height	Length	Weight
2.9" (72 mm)	4.9" (123 mm)	1" (25 mm)	.38 lb (.17 kg)

Ordering Information

4010723	Model FMX-003 Handheld Fieldmeter with charge plate
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Workstation Monitoring Kit

Model 6M220

The Novx Operator and Ground Workstation Monitor 6M220 provides real-time detection and alarm. This digital, small-footprint monitor features dual-channel/dual-wire body voltage (wrist-strap or garment) plus multichannel ground (GND) monitoring with proprietary detection and alarm. The 6M220 Workstation Monitor has dual operator monitoring capability standard or "splitter" configuration which comes with two separate wrist-strap boxes which have a single jack in each box for monitoring an operator and a guest.

- Red/green LED per channel with audible alarm tone per channel
- Kit includes wrist-strap boxes, harness cable and monitor power supply

Measurements

Width	Height	Length	Weight
2.8" (71 mm)	1.3" (33 mm)	3.0" (76 mm)	.31 lb (.14 kg)

Ordering Information

92-6M220	M220 Operator and GND Workstation Monitor kit includes remote boxes and power supply (wrist-straps and cables ordered separately)
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Accessories

28-5015	6 ft dual wrist-strap coil cord (4 mm, stereo)
28-5018	12 ft dual wrist-strap coil cord (4 mm, stereo)
28-5005	Metal wrist-strap band, adjustable (4 mm with snap)
28-5006	Fabric wrist-strap band, adjustable (4 mm with snap)



Metal Wrist-strap Band



Dual Wrist-strap Coil Cord



Metal Wrist-strap Band



Technology Ionization and Process Monitoring Products

Ionizing Bars

Ionizing bars are designed to control static charge in mini-environments, laminar flow hoods and workstations.

Ionization bars feature unique aerodynamic design that ionizes a local area without disrupting laminar flow. As with ceiling emitters, output and balance can be adjusted at each ionizing bar. Ionization bars come in a variety of lengths and installation is fast.

AeroBar® Ionizer Model 5285 utilizes a pulsed DC ion emission and features a unique aerodynamic design that ionizes a local area without disrupting laminar flow.

AeroBar® Ionizer Model 5685 is Ideal in 12-24 inch distance applications with laminar air flow and utilizes steady-state DC ion emission. Available with single crystal silicon emitter points, the Model 5685 exceeds requirements for operation in ISO Class 2 environments.

IONforce and IONforce with Air Assist Low Profile Ionizing Air Bars require minimal maintenance and is suitable for clean environments within industry standard ISO Class 4 or higher.

AeroBar® Ionizer Model 5225 with its digital technology, software control and silicon emitter points is specifically designed to handle the demanding requirements of in-tool ionization.

AeroBar® Ionizer Model 5585 incorporating digital technology and FMS monitoring capabilities is designed to control static charge in process tools, mini-environments, laminar flow-hoods, low ceiling rooms and workstations. The Model 5585 AeroBar can be intermixed with the Model 5515 ceiling emitter for a full factory ionization solution.

µWire AeroBar® Model 5710 is a cost-effective, high-performance ionizer specifically designed to eliminate static charge on sensitive flat panels where fast discharge times and low swing voltages are desired. The µWire Bar utilizes MicroPulse technology applied to a corona wire system for optimal performance.

scorplON3 is a high performance ion bar designed to meet the stringent requirement of semiconductor, medical device and other critical environments requiring static and contamination control.

Extended ISO Class 1 **Ultra-clean Model 5635 AeroBar® MP** and **Ultra-clean Model 5635M AeroBar® MP** ionizing bars are high-performance ionizers specifically designed to eliminate static charge on sensitive products where fast discharge times, low swing voltages and precision balance are desired. The Model 5635M AeroBar MP has the added benefit of being "metal-free" which is a significant advantage when being used in wet semiconductor environments.



Ionizing Ceiling Emitters & Room Systems

Ionization ceiling emitters and cleanroom ionization systems are designed to eliminate any static charge buildup on the surfaces within a facility by flooding the air with both positive and negative ions. Charged surfaces attract ions of the opposite polarity and are rapidly neutralized.

Ceiling Emitter Ionizer Model 5509 utilizes pulsed DC technology and provides uniform ionization throughout the open areas of a cleanroom.

Digital Ceiling Emitter Ionization Room System Model 5511 provides uniform ionization throughout the open areas of a cleanroom. Along with a **Controller Model 5520 or 5580** and **Handheld Remote Model 5570**, the Model 5511 creates a complete communication room ionization system.

Digital Ionization Room System Model 5515 Ceiling Emitter with either the **Model 5582 Controller** or the **Model 5522 Controller** is designed to integrate with IonManager software. This digital room ionization system allows the flexibility to remotely and individually control and address system operational settings.

Critical Environment Ionizing Blowers

This family of ionizing blowers is designed to meet the needs of high technology manufacturing processes that require ionizer balance to be below $\pm 5V$ and to meet ISO Class 4 cleanliness. These requirements are commonly encountered in the hard disk drive industry, as well as semiconductor and FPD industries. Simco-Ion offers 1-, 2- and 3-fan blowers to meet in-tool, benchtop and overhead blower applications.

Critical Environment Benchtop Ionizing Blower Model 5802i with Sensor Input provides reliable, fast static charge control for bench top work areas and small spaces, allowing optimal electrostatics management that minimizes cost and maximizes protection for ESD-sensitive areas (better than $\pm 1V$ balance with external sensor).

Critical Environment Overhead Ionizer Model 5810i with Sensor Input was designed and tested to meet Class 10 cleanroom requirements and the tightest balance specifications (better than $\pm 1V$ with external sensor).

Critical Environment In-tool Ionizer Model 5822i with Sensor Input is designed to meet small-footprint ionizer requirements in automated process tools, offering exceptional performance in hard disk drive manufacturing and backend semiconductor environments.



Special Application Compact Ionizers

These products are designed to provide ionization in specialized applications, environments or processes.



QuadBar™ Ionizer Model 4630 provides safe, effective static charge control in the ambient air inside the tight confines of a process chamber. Its unique quadrupole configuration ensures effective ionization as close as 3 inches (7.6 cm) from the product.

QuadBar™ Ionizer with Air Assist Model 4635 offers a choice of standard or jet cartridge and a rotatable gas inlet design which optimizes installation in tight confined areas.

High Temperature Ionization System Model 4610 consists of the High Temperature Ionizer Model 4610TF and the High Temperature Controller Model 4052e. The system neutralizes static charge in environments up to 150°C.

Ultra-clean Nitrogen Gas In-line Ionizer Model 4214 is specifically designed to ionize a nitrogen gas flow in ultra clean semiconductor or other high purity processes.

In-line Ionizer Model 4210 pipes compressed ionized CDA or Nitrogen gas for balanced charge neutralization in the heart of process equipment, where limited space or proximity to sensitive products makes ionizing bars impractical.

fusION Compact In-line Ionizer with Auto Balance enables stunning performance in long-length delivery lines by overcoming traditional ion recombination limitations.

fusION Air Assist In-line Ionizer with Auto Balance delivers powerful electrostatic charge control independent of ambient airflow.

fusION Compact Auto Balance Ionizer with fan attachment is a bi-polar air ionizer capable of controlling electrostatic charge in the local area.

Voltage Detection & Process Monitoring

Novx brand products are used to provide real-time monitoring and control of advanced process environments in the semiconductor, hard disk drive, flat-panel display, aerospace and medical device industries.



Novx Series 7000 is a microprocessor-based instrument for constant dedicated monitoring of ESD events, EMI, field voltage or ionizers with alert notifications, data processing and reporting capability.

Novx Multichannel Systems Model 3350/3360 provides the capability to simultaneously detect, measure, record and monitor electrostatic field voltages in multiple locations with various antenna options.

Novx MiniPulse ESD Event Monitor is designed for tool and process monitoring. This affordable, small footprint embeddable monitor has been developed to detect ESD events in critical processes, enabling tool shutdown when desired. The optional Novx Charge Device Model Event Simulator (CDMES) was designed to allow ESD detectors to be calibrated inside the tools and processes where CDM events occur.

Novx Series 3150 is an affordable field charge sensor and controller that provides the flexibility to either precisely control a critical environment ionizer to $\pm 1V$ or to be used alone for real-time field voltage monitoring with alarm.

Body Voltage & Ground Resistance Workstation Monitoring

Body Voltage/Current and Ground Resistance Workstation Monitor

Novx Series 400 is a microprocessor controlled instrument that provides both operator wrist-strap and particle counter interface for full workstation monitoring.

Novx Operator and Ground Monitors M220 and M224 provide both real-time wrist-strap and ground monitoring with an alarm.






Warranty & Service

Simco-Ion provides a limited warranty. New products manufactured or sold by Simco-Ion are guaranteed to be free from defects in material or workmanship for a period of two (2) years* from date of initial shipment. Simco-Ion liability under its new product warranty is limited to servicing (evaluating, repairing or replacing) any unit returned to Simco-Ion that has not been subjected to misuse, neglect, lack of routine maintenance, repair, alteration or accident. In no event is Simco-Ion be liable for collateral or consequential damages. Consumable items such as, but not exclusive to, emitter points, emitter wires, batteries, filters, fuses or light bulbs are only covered under this warranty if found defective as received with the new product.

To obtain service under this warranty, please contact Simco-Ion Technical Support at techsupport@simco-ion.com or (510) 217-0470.

* Exception is the ionONE brand of product (Models Micro S/SA) which are warrantied for one (1) year.

Certification Definitions

-  Registered trademarks of Underwriters Laboratories, Inc.
- 
-  Registered trademark of Nemko, a Nationally Registered Testing Lab (NRTL).
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-  Products are determined compliant with applicable directives for Europe, through self-declaration or third-party examination.
- RoHS 2 Compliant with European Union Restriction of Hazardous Substances directive 2002/95/EC regarding “the restriction of the use of certain hazardous substances in electrical and electronic equipment”.

Simco-Ion "A Global Presence"

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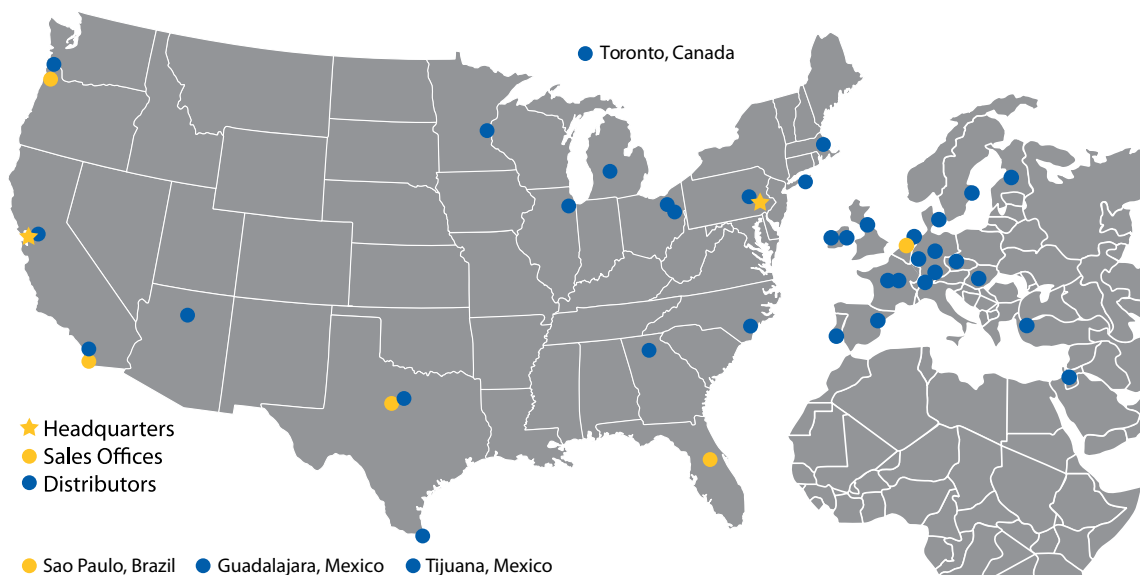
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