Ionization Solutions

DOU YEE ENTERPRISES

SIMCO ION™
An ITW Company
Technology Group

Ionization Products

General Electronics, Medical Device,
Semiconductor Test & Assembly
Data Storage

worldwide leaders in **static control**



Table of Contents

Simco-Ion Corporate Background 1

Ionization Solutions 1

General Electronics, Medical Device and Pharmaceutical, Semiconductor Test & Assembly 1

Static Basics 2

How is static electricity generated? 2

Why is static a problem? 2

Ultra-sensitive Devices 2

Electrostatic Attraction 2

Distinctive Ionizer Features 3

Automatic Emitter Cleaning 3

Integrated Comfort Heater 3

Cleanroom-rated Ionizers 3

Ionizer Status Output Connection 3

Manual Emitter Cleaner 3

Compact Ionizers 3

Optional Features 3

Airguns, Nozzles & Cartridges 4

Top Gun™3 Ionizing Air Blow-Off 4

Model 6115 AirForce Blow-off Gun 4

Model 6110/6110A Air Ionizing Cartridge 5

orION™ Ionizing Air Nozzle & Controller 5

Point-of-Use Ionizers 6

Model 6422e Point-of-Use Ionizing Blower 6

Model 6432e Point-of-Use Ionizing Blower 6

minION™2 Compact Ionizing Blower 7

ionONE Micro S/Micro SA Spot Ionizers 7

Benchtop Ionizers 8

Aerostat® PC Benchtop Ionizing Blower 8

Endstat 2020 Benchtop Ionizing Blower 8

Aerostat XC™ Extended Coverage Ionizing Blower with Heater 9

Aerostat XC2™ Extended Coverage Ionizing Blower 9

VSE-3000 Extended Coverage Ionizing Blower with Heater 10

Overhead Ionizers 11

Aerostat® Guardian Overhead Ionizing Blower 11

Guardian™ CR2000 Cleanroom-rated Ionizing Blower 11

Aerostat FPD Wide Coverage Ionizing Blower 12

AeroBar® Ionizer Model 6685 12

Instrumentation and Monitoring 13

Charged Plate Monitor Model 280A 13

Electrostatic Fieldmeter Model 775 & Model 775PVS 13

Electrostatic Fieldmeter Model FMX-003™ 14

Workstation Monitoring Kit Model 6M220 14

Technology Ionization and Process Monitoring Products 15

Critical Environment Bench-top Blower- Model 5802i 15

Critical Environment Overhead Ionizer- Model 5810i 15

Critical Environment In-tool Ionizer- Model 5822i 16

Digital AeroBar® with Software Control- Model 5225 16

Standalone Digital AeroBar®- Model 5225S 17

AeroBar® Ionizer- Model 5285E 17

Modulated Pulse AeroBar® for Extended-ISO Class 1, Model 5635 18

AeroBar® Ionizer- Model 5685 18

µWire AeroBar®- Model 5710 19

Ceiling Emitter- Model 5509E 19

Digital Room Ionization System- Model 5515/5522/5582 20

Clean Ionizing Bar- scorpION3™ 20

Low Profile Ionizing Bar-IONforce with PFC or visION Controllers 21

In-line Gas Ionizer- Model 4210 21

In-line Ultra-clean Nitrogen Ionizer- Model 4214 22

High Temperature Ionization System-Ionizer / Controller 22

QuadBar™ Ionizer- Model 4630 23

QuadBar™ with Air Assist- Model 4635 23

Localized In-Line Ionizer- IN-LINE fusION™ / fusION™ 24

Localized Ionizer with Air Assist- fusION AA 24

Electrostatic Sensing & Process Monitoring Products 25

Critical Process Electrostatic Monitoring- Novx Series 7000 25

Multi-channel Field Voltage Detection- Novx 3350/3360/3370/3390 25

Ionizer Balance Monitoring & Feedback Control- Novx 3150/3151 26

Body Voltage & Ground Monitoring- Novx Workstation Monitor 400 26

Workstation Monitoring- Novx Operator/ground Monitor M220/224 27

Embeddable ESD Monitoring- Novx Minipulse ESD Event Monitor 27

Real-time Monitoring & Proactive Control- Novx (PEMS) Software 28

Warranty & Service / Certification Definitions 29

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 Nederlands, 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.

Applications

Ionization is typically used to provide two functions in the manufacture and assembly of products. The more obvious use it 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

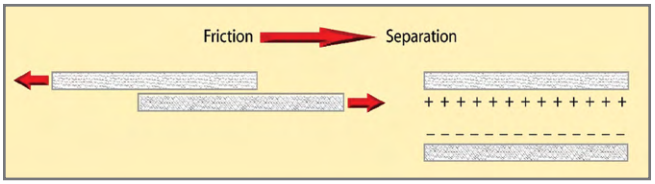
Semiconductor Test & Assembly

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.



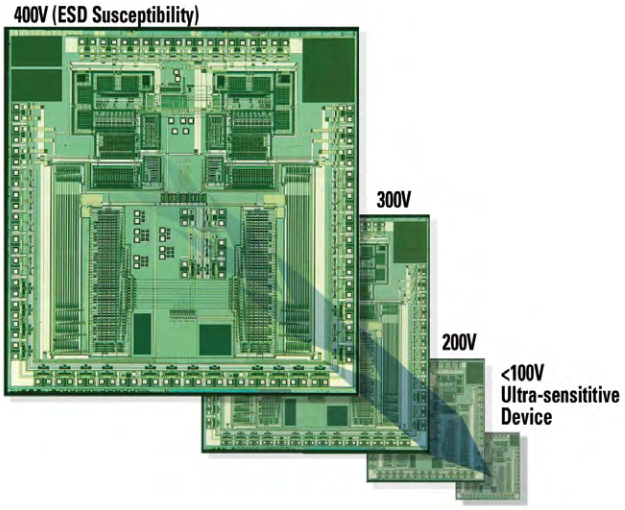
Why is static a problem?

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.

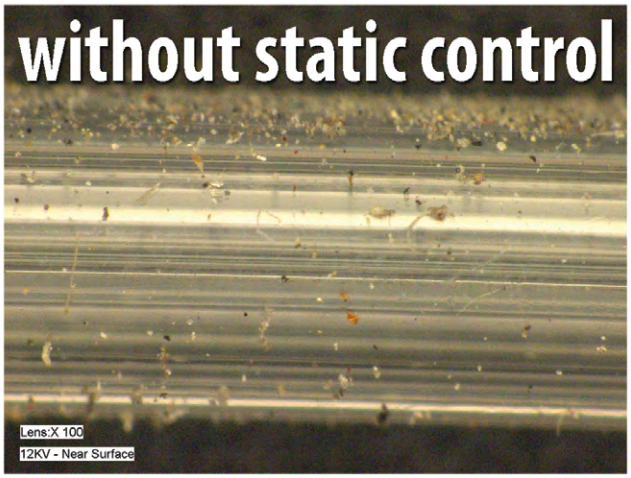
In the last few years, many facilities have struggled with ESD damage directly resulting from limitations of the manufacturing industries' standard ESD controls that have been used so effectively in the past. Ionization and continuous monitoring with the latest technology, is crucial in combating the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

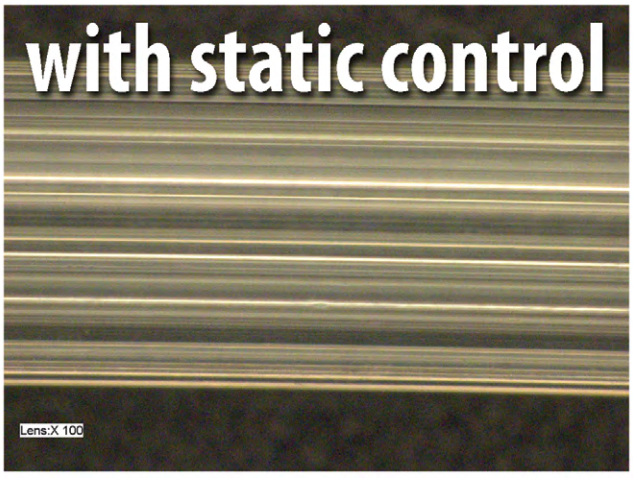


Electrostatic Attraction

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

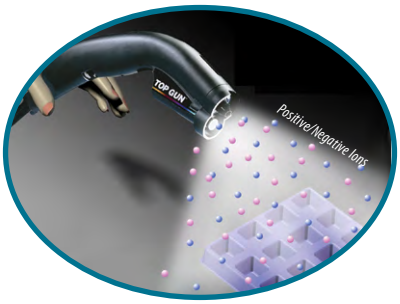
Measurements

	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.

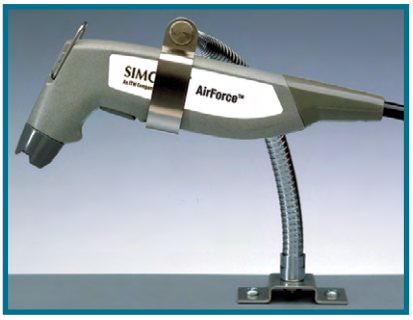
- Fast static discharge ±1000V to ±100V, 1 sec @ 6" (152 mm)
- Operates on air input of 20-65 psi
- Airgun body/console is made from lightweight static dissipative plastic; ergonomic designed gun reduces wrist fatigue
- Cleanroom ISO Class 4 rated for cleanroom applications
- Quick eject filter insures 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 ±1000V to ±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

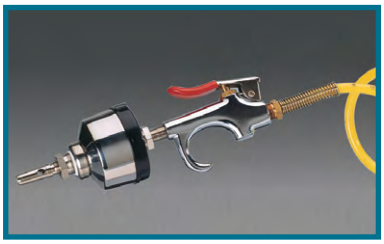
Measurements

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





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

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

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

- Fast static discharge ±1000V to ±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	orION Air Nozzle, 120V, 7' cable, NA
4009046	orION Air Nozzle, 230V, 7' cable, EU
4009220	orION Air Nozzle, 230V, 7' cable, UK
4012209	orION Air Nozzle, 120V, 5' cable, sensor, NA
4012210	orION Air Nozzle, 230V, 5' cable, sensor, EU
4012211	orION Air Nozzle, 230V, 5' cable, sensor, UK
4009245	orION Air Nozzle, 120V, Sidekick (hands free stand), NA
4009246	orION Air Nozzle, 230V, Sidekick (hands free stand), EU
4009449	orION Air Nozzle, 230V, Sidekick (hands free stand), UK
4012212	orION Air Nozzle, 120V, Sidekick (hands free stand), sensor, NA
4012213	orION Air Nozzle, 230V, Sidekick (hands free stand), sensor, EU
4012214	orION Air Nozzle, 230V, Sidekick (hands free stand), sensor, UK
4107399	orION 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 ands helps to insure balanced performance.

- Directed static discharge ±1000V to ±100V, <4 sec @ 1' (305 mm)
- Operational failure alarm on blower and also to remote location via Facility Monitoring System capability
- ±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 ±1000V to ±100V, <4 sec @ 1' (305 mm)
- Operational failure alarm on blower and also to remote location via Facility Monitoring System capability
- ±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 ±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 ±1000V to ±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 ±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 ±1000V to ±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 ±15V, the Endstat 2020 is designed for use in both electronics and manufacturing environments.

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

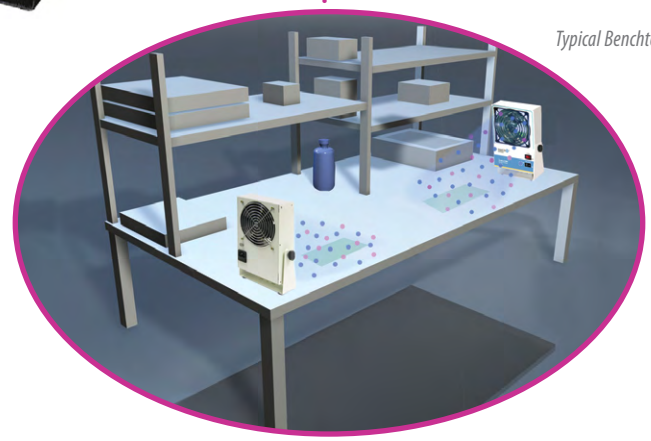
Measurements

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 ±5V. A 3-speed fan delivers a controlled air volume of 70, 90 or 120 CFM.

- Fast static discharge ±1000V to ±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 ±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 ±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 ±1000V to ±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 ±5V balance over an extended period of use.

- Fast static discharge ±1000V to ±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

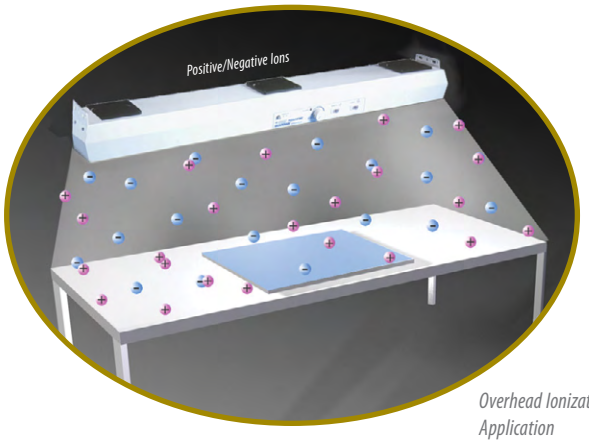
Measurements

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 ±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 ±1000V to ±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 ±10V.

- Extremely fast static discharge ±1000V to ±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.

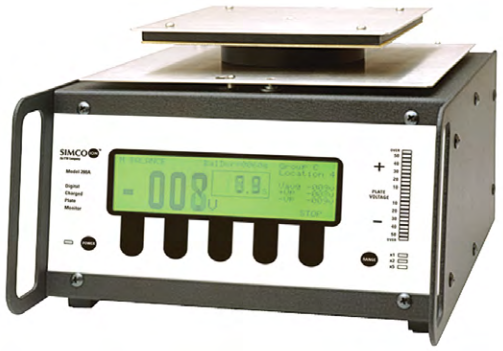
- AC line input or battery operation for portability in a variety of applications
- CPM comes with 6" detachable plate which is ideal for inside process tools
- Built-in temperature and humidity sensors accurately documents environmental test conditions
- Digital LCD display is easy to read and to interpret 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 ±20kV (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



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)

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

Critical Environment Bench-top Blower Model 5802i

Critical Environment Bench-top Blower Model 5802i provides reliable, fast static charge control for benchtop work areas and small spaces, allowing optimal electrostatics management that minimizes cost and maximizes protection for ESD-sensitive areas. An internal automatic balance correction system ensures ionization continues to reach your target with complete accuracy presenting a significant time and cost savings.

- ±3V or better balance (±1V with the optional external feedback system)
- Aluminum or stainless steel chassis
- Options for sensor input, FMS connection, alarms, and management control
- Unique airflow directing collimator option
- Auto-Clean System option

Measurements

Dimensions	10.5H x 7.6W x 5D in. (26.7H x 19.3W x 12.7D cm)
Weight	Aluminum 3 lb (1.36 kg); stainless steel 5.1 lb (2.3 kg)

Part Numbers

91-5802i-CPz	Powder-coated white aluminum blower, ±3V balance, high fixed fan speed
91-5802i-CXz	Powder-coated white aluminum blower, ±3V balance, low/high fan speed
91-5802i-CPz-FMS/SS	Powder-coated white aluminum blower, ±1V balance, high fixed fan speed, FMS output
91-5802i-CXz-FMS/SS	Powder-coated white aluminum blower, ±1V balance, low/high fan speed, FMS output
91-5802iS-CPB	Stainless steel blower, ±3V balance, high fixed fan speed, stainless steel locking stand
91-5802iS-CXB	Stainless steel blower, ±3V balance, low/high fan speed, stainless steel locking stand
91-5802iS-CPB-FMS/SS	Stainless steel blower, ±1V balance, high fixed fan speed, FMS output, stainless steel locking stand
91-5802iS-CXB-FMS/SS	Stainless steel blower, ±1V balance, low/high fan speed, FMS output, stainless steel locking stand
99-5802i-CLMT	Optional Collimator
99-5802i-AALARM	Optional Audible alarm
99-8500i-01	Optional Auto-Clean System



Critical Environment Overhead Ionizer Model 5810i

Critical Environment Overhead Ionizer Model 5810i is designed to provide industry-leading balanced ionization performance in cleanroom environments. The Model 5810i is certified for use in ISO Class 4 cleanrooms (Fed. Std. 209(e) Class 10). The ionizer can operate with external sensors to maintain precise balance (better than ±1V) by altering ion output and adapting to environment changes. With the reliability of steady-state DC, the established method for eliminating the effects of ESD and ESD-induced electromagnetic interference (EMI) in high-tech facilities, the Model 5810i delivers maximum ion output where and when you need it.

- ±3V or better balance (±1V with the optional external feedback system)
- Aluminum or stainless steel chassis
- Options for sensor input, FMS connection, alarms, and management control
- Auto-Clean System option

Measurements

Dimensions	3.8H x 6.1D x 32L in. (9.6H x 15.5D x 81.3L cm); 3.8H x 6.1D x 40L in. (9.6H x 15.5D x 101.6L cm); 3.8H x 6.1D x 44L in. (9.6H x 15.5D x 111.8L cm)
Weight	Aluminum 44" unit 10.3 lb (4.6 kg); stainless steel 44" unit 15.3 lb (6.9 kg)

Part Numbers

91-5810i-CzzH	Powder-coated white aluminum blower ±3V, high fixed fan speed (zz = 32", 40" or 44" length)
91-5810i-CzzX	Powder-coated white aluminum blower ±3V, low/high fan speed, (zz = 32", 40" or 44" length)
-FMS/SS	Adds FMS and sensor (±1V balance)
91-5810iS-C44H	Stainless steel blower ±3V, high fixed fan speed (44" length)
91-5810iS-C44X	Stainless steel blower ±3V, low/high fan speed (44" length)
-FMSSS	Adds FMS and sensor (±1V balance)
99-5810i-AALARM	Optional Audible alarm
99-8500i-01	Optional auto-clean system (requires one per fan)
25-20660	IEC power cable, US plug, 8.2 ft (2.5m)
25-0670	IEC power cable, US plug, 10 ft (3m)
25-0680	IEC power cable, US plug, 15 ft (4.6m)
25-0700	IEC power cable, no plug, 10 ft (3m)
25-20710	IEC power cable, UK plug, 8.2 ft (2.5m)
25-20735	IEC power cable, German-Schuko plug, 8.2 ft (2.5m)
25-20750	IEC power cable (China Plug), 8.2 ft (2.5m)
25-0720	Daisy-chain power cable



Critical Environment In-tool Ionizer Model 5822i

The compact design of the Critical Environment In-tool Ionizing Blower, Model 5822i is designed to meet small-footprint ionizer requirements in automated process tools, offering exceptional performance in hard disk drive manufacturing and back-end semiconductor environments. The ionizer maintains a ±3V or better balance standard and exceptional ±1V with the optional external feedback system. An internal, automatic balance correction system ensures your target is ionized accurately, presenting significant reduction in calibration and maintenance time resulting in cost savings. A collimator installed over the fan directs precisely balanced ionized air to the target without taking up valuable room in your environment.

- ±3V or better balance (±1V with the optional external feedback system)
- Facility Monitoring System (FMS) connection and audible alarm
- The remote Control Box allows greater flexibility in mounting while maintaining excellent performance

Measurements

Dimensions	Blower: 4.5H x 3.3W x 2.4D in. (11.5H x 8.3W x 6.1D cm) Control Box: 1.0H x 5.2W x 2.4D in. (2.5H x 13.2W x 6.0D cm)
Weight	Blower 1.14 lb (.51 kg); Control Box 0.56 lb (.25 kg)

Part Numbers

92-5822i-001	Blower Kit with Tungsten Emitter Points (includes fan unit, control box, external power supply and all interface cables)	
92-5822iC-001	Blower Kit with Titanium Emitter Points (includes fan unit, control box, external power supply and all interface cables	
Kit Contents (may be ordered separately)	91-5822i	Fan Unit with Tungsten Emitter Points
	91-5822iC	Fan Unit with Titanium Emitter Points
	91-5822i-CTRL	Control Box
	25-20500-8	Fan Unit to Control Box CAT-5 Cable
	14-21108	External Power Supply
	33-1720-8	4-pin Cable, Fan Unit to Control Box
	33-1740-1	6-pin Cable, FMS Out to Novx Feedback System
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)	
33-25822i-10	Ionizing Blower Mounting Stand	
33-25822i	Tungsten Emitter Point Replacement Kit	
33-25822iC	Titanium Emitter Point Replacement Kit	



Digital AeroBar® with Software Control Model 5225

Digital AeroBar with Software Control Model 5225 is designed to handle the demanding requirements of in-tool ionization. With high ion output providing fast neutralization of electric charge on wafers, E78 compliance at the most stringent levels can be achieved.

An aerodynamic design and cleanroom compatible materials allow the Model 5225 to deliver complete and efficient ionization in mini-environments without disrupting laminar airflow.

- Complete integration with tool control system
- Fully adjustable parameters for each AeroBar
- Ion current monitoring
- Several lengths available including 3 specifically designed for EFEMs
- Single-crystal silicon emitter points

Measurements

Dimensions	2.1H x 1.2W x 22.4, 28.4, 35.7, 44.4, 55.6, 64.4, 75.5, or 84.4L in. (5.3H x 3.1W x 56.9, 72.1, 90.7, 112.8, 141.2, 163.6, 191.8, or 214.4 L cm)
Weight	1.5 lb (1.02 kg) for a 22 in (56.9 cm) bar (approx. 6 oz per additional ft/0.17 kg per additional 30 cm)

Part Numbers

91-5225U-xxR	AeroBar with silicon emitter points in -22, -28, -36, -44, -56, -64, -76, or -84 inch bar lengths
91-5225U-xx-SUPR	AeroBar with silicon emitter points in -22, -28, -36, -44, -56, -64, -76, or -84 inch bar lengths; single unit packaging
91-5200-IM6T-Vx.x	Interface Module Model IM6T
33-5200	100-240 VAC Transformer



Standalone Digital AeroBar® Model 5225S

Standalone Digital AeroBar Model 5225S ionizing bar is specifically designed to provide high performance with simple integration and operation. Adjustable and precise, easy-to-use digital settings allow the AeroBar to be used in a multitude of applications, ranging from inside tools to work stations and cleanroom areas. A choice of ionization modes, output voltage, and timing provide versatility to meet static charge neutralization requirements.

An aerodynamic design and cleanroom-compatible materials allow the Model 5225S to deliver complete and efficient ionization in mini-environments and cleanrooms without disrupting laminar airflow.

- All parameters are held within the AeroBar. No controller required.
- Fully adjustable parameters for each AeroBar utilizing pulsed DC or steady-state DC modes
- Several AeroBar lengths including three lengths specifically designed for EFEMs
- Ion current monitoring
- FMS alarm output
- Single-crystal silicon emitter points

Measurements

Dimensions	2.1H x 1.2W x 22.4, 28.4, 35.7, 44.4, 55.6, 64.4, 75.5, or 84.4L inches (5.3H x 3.1W x 56.9, 72.1, 90.7, 112.8, 141.2, 163.6, 191.8, or 214.4 L cm)
Weight	1.5 lb (1.02 kg) for a 22 in. (56.9 cm) bar (approx. 6 oz per additional ft/0.17 kg per additional 30 cm)

Part Numbers

91-5225SU-xxR	AeroBar with silicon emitter points in -22, -28, -44, -64, and -84 inch nominal bar lengths and the following EFEM configuration lengths 36 (2 loadport), 56 (3 loadport), 76 (4 loadport) inches
91-5570	IR Handheld Remote
14-21730	DIN-rail mount transformer (230/24 VAC)
14-1538	120 VAC (60 Hz) to 24 VAC Transformer, 10' cable, 6' US plug power cord
14-1539	230 VAC (50 Hz) to 24 VAC Transformer, 10' cable, IEC socket, requires power cord below
25-20710	IEC Power Cord (UK Plug), 8.2' (2.5m) (use with 14-1537 230V transformer)
25-20735	IEC Power Cord (German Schuko Plug), 8.2' (2.5m) (use with 14-1539 230V transformer)
25-20750	IEC Power Cord (China Plug), 8.2' (2.5m) (for use with 14-1539 230V transformer)



AeroBar® Ionizer Model 5285E

AeroBar Ionizer Model 5285e is designed to control static charge in mini-environments, laminar flow hoods and workstations and has a unique aerodynamic design that ionizes a local area without disrupting laminar flow. Its pulsed DC technology, combined with optimized emitter point spacing, provides uniform performance over the work area.

- Sequenced bipolar ionization
- Unique aerodynamic design
- Individual positive and negative power controls at each bar
- Ion current regulation and operational failure alarm

Measurements

Dimensions	2.1H x 1.2W x 22, 28, 44, 64, or 84L in. (5.3H x 3.0W x 55.8, 71.1, 111.8, 162.6, or 213.4 cm)
Weight	6 oz per ft of bar length (0.17 kg per 30 cm)

Part Numbers

91-5285E-xxR	AeroBar with alarm, tungsten emitter points -22, -28, -44, -64, -84 in. bar lengths
91-5285EC-xxR	AeroBar with alarm, titanium emitter points -22, -28, -44, -64, -84 in. bar lengths
91-5285EU-xxR	AeroBar with alarm, silicon emitter points -22, -28, -44, -64, -84 in. bar lengths
91-5024-CER	Controller, supports up to 4 AeroBars
91-5024E-CER	Controller with alarm, supports up to 20 AeroBars
91-5024E-CE-ALMR	Controller with audible alarm, supports up to 20 AeroBars



Modulated Pulse AeroBar® for Extended ISO Class 1, Model 5635

The Model 5635 AeroBar MP ionizing bar is specifically designed to eliminate static charge in ultraclean semiconductor and other clean manufacturing processes where fast discharge time, low swing voltages, and precision balance are required. The Model 5635 utilizes MP technology, combining a high-frequency sine wave with modulated pulses (MP) for high ion output and delivery. This breakthrough technology enables AeroBar mounting within 150 mm of the wafer. MP technology, combined with ultraclean emitter points and precision adjustment, provides "Extended ISO Class 1*" cleanliness, critical for smaller technology nodes. For processes that do not require extreme cleanliness, the optional air-assist accelerates ion delivery, providing faster discharge times and performance over longer distances.

- Extended ISO Class I cleanliness (using the optimized default settings and without air-assist)
- Modulated pulse technology
- Excellent lateral uniformity
- Low field voltages
- Air-assist capability
- Quarter-turn nozzles
- Optional software with easy-to-use interface with wide adjustability
- Alarm output signal



Measurements

Dimensions	3.1H x 1.3W x 18/24/34/39/45/51/57/63/69/75/81/87/93L in. (78H x 34W x 450/600/850/1000/1150/1300/1450/1600/1750/1900/2050/2200/2350L mm)

Part Numbers

91-5635U-xxxx	xxxx (bar lengths): -450*/600*/850/1000/1150/1300/1450/1600/1750/1900/2050/2200/2350 mm
91-5635U-xxxx-yy	yy (nozzle spacing): -50 for 50 mm; -75 for 75 mm
33-5601-01	Model 5601 Power Distribution Box, 24 VDC; powers up to 8 MP AeroBars
14-21241	24 VDC Power Supply for Model 5601 Power Distribution Box (power cord ordered separately)
33-21491	Signal and Power Junction Box
92-5635-001	AeroBar MP Remote Serial Adapter Kit
33-25625	24 VDC Power Converter with Power/Signal Junction Box Kit
25-0540-xx	CAT-5 with RJ-45 Ethernet Cable in 6, 10, 15 ft lengths, white
28-6370	Flat mounting clips. Recommended usage: 450-1150 mm, 2 clips; 1300-2050 mm, 3 clips; 2200 mm and above, 4 clips
32-22210	Horizontal rotatable mounting bracket. Recommended usage: 450-1150 mm, 2 clips; 1300-2050 mm, 3 clips; 2200 mm and above, 4 clips
32-22220	Vertical rotatable mounting bracket. Requires 2 brackets for each ionizer bar to hold one at the top and one at the bottom
33-5353	Flat Mounting Clip with Active/Screw Fasteners (2) for AeroBar. Recommended usage: 450-1150 mm, 2 clips; 1300-2050 mm, 3 clips; 2200 mm and above, 4 clips

AeroBar® Ionizer Model 5685

AeroBar Ionizer Model 5685 is designed to control static charge in mini-environments, laminar flow hoods and workstations. The Model 5685 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 5685 utilizes steady-state DC ion emission and Simco-Ion's IsoStat® Technology. IsoStat technology guarantees intrinsically balanced ionization. No complicated feedback circuits are required to maintain balance and adjustment is never needed. The Model 5685 is available in four different lengths and installation is fast, using easy-mount clips. Plug and play, the ionizer provides balanced ionization upon power up.

- IsoStat technology
- Steady-state DC ion emission for high ion density
- Single-crystal silicon or titanium emitter points
- Multiple lengths, including short 11 inch AeroBars

Measurements

Dimensions	2.1H x 1.13W x 11, 22, 44, 64L in.) (5.3H x 2.9W x 27.9, 55.9, 111.8, 162.6L cm)
Weight	9 oz per foot of bar length (255g per 0.3m)

Part Numbers

91-5685C-xxR	AeroBar with titanium emitter points in -11, -22, -44, -64 inch bar lengths
91-5685U-xxR	AeroBar with silicon emitter points in -11, -22, -44, -64 inch bar lengths
14-1306	100 VAC Transformer (requires power cord)
14-21527	120 VAC Transformer (includes 6' hardwired US power cord)
14-21570	230 VAC Transformer (requires power cord)



µWire AeroBar®
Model 5710

µWire ("Microwire") 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. MicroPulse technology reduces ion recombination at the corona wire, thus increasing product efficiency and performance. Using this breakthrough technology, the µWire Bar maintains peak performance for longer periods between cleanings, resulting in extended cleaning cycles compared with conventional products.

- Unique corona wire design (no emitter points)
- MicroPulse high voltage technology
- Flexible and powerful setup

Measurements

Dimensions	3.3H x 1.3W x 15.75/19.7/25.6/29.5/35.4/39.4/45.3/49.2/55.1/59.1/65/68.9/74.8/78.75/84.65/88.6/94.5/98.4/104.3/108.25/114.15/118.1L in. (84H x 33W x 400/500/650/750/900/1000/1150/1250/1400/1500/1650/1750/1900/2000/2150/2250/2400/2500/2650/2750/2900/3000L mm)

Part Numbers

91-5710-xxxx-01	Model 5710 in 400/500/650/750/900/1000/1150/1250/1400/1500/1650/1750/1900/2000/2150/2250/2400/2500/2650/2750/2900/3000 mm lengths
91-5700-HHT-01	Handheld Terminal (HHT) with 4-line LCD display and two 15 ft (4.5m) cables
33-5700-01	Power-Signal Distribution Box
33-5701-01	24 VDC Power Supply for 5710 (requires 1 power cord, see below)
25-20xxx	IEC Power Cord, xxx = 660 (US plug), 710 (UK plug), 735 (German Schuko plug), 750 (China plug)
33-1710-xx	Interconnect cable, xx = 10, 15, 20, 40 ft lengths
25-0540-xx	CAT-5 with RJ-45 Ethernet Cable, xx = 06, 10, 15 ft lengths
32-2211-01	5710 Rotatable Mounting Bracket, SST (require 2 per bar <1250 mm, 3 per bar between 1250-2150 mm and 4 per bar >2150 mm lengths)
32-2213	5710 Flush Mounting Bracket, SST (require 2 per bar <1250 mm, 3 per bar between 1250-2150 mm and 4 per bar >2150 mm lengths)
91-5700-01	µWire AeroBar Model 5710 Emitter Wire Cleaner 3 ft rod (must order 22-1000)
33-5715-01	µWire AeroBar Model 5710 Emitter Wire Cleaner 3 ft extension rod
22-1000	Emitter Cleaners (box of 50)



Ceiling Emitter
Model 5509E

In a matter of seconds, the Model 5509e ceiling ionization system eliminates electrostatic discharge and particle contamination caused by electrostatic attraction. The 5509e ceiling emitters are designed to provide uniform ionization throughout the open areas of a cleanroom. Mounted onto the ceiling surface or inside a flush mount channel, Model 5509e ceiling emitters maintain aesthetics without disrupting cleanroom laminar airflow or compromising the integrity of operating class 1 cleanrooms.

- Low voltage operation (24 VAC)
- Individually adjustable ion emission output
- Feedback with alarms available at each emitter
- Pulsed DC technologies with local and system-wide adjustment controls
- Available with single crystal silicon emitter points

Measurements

Dimensions	1.25H x1.5D x 17.5L in. (3.2 x 3.8 x 44.5 cm)
Weight	1.4 lb (0.5 kg)

Part Numbers

91-5509EC-XX-SDL	Emitter with titanium emitter points in 2.5, 5, 10, 15, 24, 36, or 60 inch rod lengths
91-5509EU-XX-SDL	Emitter with silicon emitter points in 2.5, 5, 10, 15, 24, 36, or 60 inch rod lengths
91-5024-CER	Model 5024 Controller, supports up to 4 emitters
91-5024E-CER	Controller with alarm, supports up to 20 emitters
91-5024E-CE-ALMR	Controller with audible alarm, supports up to 20 emitters
91-5084E-CE	Controller with alarm, supports up to 80 emitters
91-5080	Model 5080 Handheld Terminal for Model 5084 Controller



Digital Room Ionization System
MODEL 5515 CEILING EMITTER, MODELS 5522/5582 CONTROLLERS AND IONMANAGER PRO SOFTWARE

The Model 5515 Ceiling Emitter and Controller Models 5522/5582 comprise our state-of-the-art digital room ionization system. The two controller models enable the user to start with the Model 5522 controller capable of controlling a small system with 20 or fewer ceiling emitters and grow into a large system with full software monitoring capabilities by simply moving to the Model 5582 Controller. Digital technology allows each ceiling emitter's parameters, including ion output, ion pulse timing or digital address, to be either individually set at its location using the Model 5571 and Model 5572 handheld controllers, or remotely set through IonManager Pro when integrated with the software. Precision fine tuning of each ceiling emitter enables the ionization system to achieve maximum performance in any airflow condition and for each application.

- Fully digital technology
- Single-crystal silicon or titanium emitter points
- Advanced Feedback Technology
- Small and large capacity controllers

Measurements

Dimensions	1.2H x 1.4W x 17.5L in. (3.1H x 3.6W x 44.5L cm)

Part Numbers

91-5515C-xxR	Digital Ceiling Emitter with titanium emitter points in 2.5, 5, 10, 15, 24, 36, or 60 inch rod lengths
91-5515U-xxR	Digital Ceiling Emitter with single-crystal silicon emitter points in 2.5, 5, 10, 15, 24, 36, 60 or 66 inch rod lengths
91-5522-01	Digital Controller, supports up to 20 emitters (not compatible with IonManager Pro)
91-5582R	Digital Controller, supports up to 80 emitters
91-5582-SW-Vx	IonManager Pro software (x represents current version number)
91-5572	Infrared Remote Controller
91-5571	Handheld Terminal



Clean Ionizing Bar
scorpION3™

scorpION3 Ionizing Bar is designed to meet today's requirements for cleanliness and performance for the semiconductor front-end, semiconductor back-end, and general electronics markets. It's unique combination of available air assist, "Peak-reduction" technology, multiple emitter point materials and lengths make it suitable for a wide range of applications. It can be used to reduce charge on surfaces to minimize ESD events, as well as to reduce airborne particle contamination landing on product surfaces during manufacturing.

- Air assist versions
- "Peak-reduction" technology
- Daisy-chain feature with "master/slave" capability

Measurements

Dimensions	18, 24, 36, 44, 64, 74, 84L x 2.95H x 1.89W in. (45.7, 61, 91.4, 111.8, 162.6, 188, 213.4 x 75H x 48W cm)
Weight	0.8 kg (1.8 lb), 1 kg (2.1 lb), 1.3 kg (2.8 lb), 1.5 kg (3.2 lb), 2.0 kg (4.3 lb), 2.2 kg (4.9 lb), 2.5 kg (5.5 lb)

Part Numbers

4011546-4011552	scorpION3 Ionizing Bar, Tungsten (W) emitters in 18" (7), 24" (7), 36" (11), 44" (15), 64" (19), 74" (19), 84" (19) bar lengths
4015454-4015460	scorpION3 Ionizing Bar, Ultra-clean Silicon (SCSi) emitters in 18" (7), 24" (7), 36" (11), 44" (15), 64" (19), 74" (19), 84" (19) bar lengths
4011560-4011566	scorpION3 Ionizing Bar w/Air Assist, Tungsten (W) emitters in 18" (7), 24" (7), 36" (11), 44" (15), 64" (19), 74" (19), 84" (19) bar lengths
4015461-4015467	scorpION3 Ionizing Bar w/Air Assist, Ultra-clean Silicon (SCSi) emitters in 18" (7), 24" (7), 36" (11), 44" (15), 64" (19), 74" (19), 84" (19) bar lengths
5051328- 5051330	scorpION3/3/3S Power Supply Kit (120V 60 Hz; 230V 50 Hz, EU or 230V 50 Hz, UK
4011574	scorpION3 MMI Module Remote
4371327	scorpION3 Replacement Ultra-clean Silicon (SCSi) emitter point
5051248-5051251	scorpION Replacement (W) emitter kit (7, 11, 15, 19 emitters)



Low Profile Ionizing Bar
IONforce with PFC or visION Controllers

IONforce Low Profile Ionizing Bar provides rapid neutralization of static charges to prevent electrostatic attraction of particles (ESA) and electrostatic discharge (ESD) in applications such as cleanrooms and workstations. Powered with a Simco-Ion PulseFlow® (PFC) or visION Controller unit, the IONforce bar produces positive and negative ions that rapidly neutralize any potentially destructive charges in the work area.

- Low Profile
- Operates in either steady state DC or pulse DC mode
- Optional compressed air assist feature
- Tungsten and ultra-clean silicon emitter point options

Measurements

Dimensions	5.75L x 5W x 1.65D in. (14.6 x 12.7 x 4.2 cm)
Weight	22.5 oz (700g)

Part Numbers

4011443-4011453 (odd numbers only)	IONforce Ionizing Bar, Tungsten (W) emitters in 14" (7), 20" (7), 32" (11), 44" (15), 56" (19), 67" (19) bar lengths
4015579-4015584	IONforce Ionizing Bar, Ultra-clean Silicon (SCSi) emitters in 14" (7), 20" (7), 32" (11), 44" (15), 56" (19), 67" (19) bar lengths
4011455-4011465 (odd numbers only)	IONforce Ionizing Bar w/Air Assist, Tungsten (W) emitters in 14" (7), 20" (7), 32" (11), 44" (15), 56" (19), 67" (19) bar lengths
4015585-4015590	IONforce Ionizing Bar w/Air Assist, Ultra-clean Silicon (SCSi) emitters in 14" (7), 20" (7), 32" (11), 44" (15), 56" (19), 67" (19) bar lengths
4005184	PFC-20 PulseFlow® Controller, 120V, 60 Hz
4005185	PFC-20 PulseFlow Controller, 230V, 50 Hz, EU
4009734	PFC-20 PulseFlow Controller, 230V, 50 Hz, UK
4011154	visIONi™ Controller, 120V, 50 Hz
4011155	visIONi Controller, 230V, 60 Hz, EU
4011156	visIONi Controller, 230V, 60 Hz UK
4010726	visION2™ Controller, 120V, 50 Hz
4010727	visION2 Controller, 230V, 60 Hz, EU
4010730	visION2 Controller, 230V, 60 Hz UK
5050538	HV2 - Two to One Connector Kit
5050539	HV4 - Four to One Connector Kit
5050548	7' High Voltage Extension Cable
5050533	12' High Voltage Extension Cable
5050534	18' High Voltage Extension Cable
4371327	IONforce Replacement Ultra-clean Silicon (SCSi) emitter point
4370760	IONforce Tungsten (W) emitter point



In-line Gas Ionizer
Model 4210

Most high technology manufacturers rely on air ionization to control problems associated with static charge—thus increasing yields, minimizing down-time and microprocessor lock-up and reducing cost of ownership. Unfortunately, mini-environments and process equipment prevent traditional ionizers from reaching one of the most important production areas—the inside of process equipment.

- Easily connects to delivery manifolds
- Ionizes either Clean Dry Air or Nitrogen
- IsoStat® technology
- Steady-state DC ion emission
- Ultra-clean emitter points (u/un models)
- Ultra-clean construction with carefully controlled current and geometry

Measurements

Dimensions	2.4D x 4.75L x 3.13W (6.1D x 12.1L x 8.0W cm)
Weight	37 oz (1.04 kg) including fittings and power cord

Part Numbers

91-4210-01	4210 Gas Ionizer w/tungsten emitter points for CDA/Nitrogen; 120 VAC, US wall plug
91-4210-100V-01	4210 Gas Ionizer w/tungsten emitter points for CDA/Nitrogen; 100 VAC, US wall plug
91-4210-230V-01	4210 Gas Ionizer w/tungsten emitter points for CDA/Nitrogen; 230 VAC, German Schuko Wall Plug
91-4210-UK-01	4210 Gas Ionizer w/tungsten emitter points for CDA/Nitrogen; UK wall plug
91-4210U-01	4210U Gas Ionizer w/silicon emitter points for CDA; 120 VAC, US wall plug
91-4210U-100V-01	4210U Gas Ionizer w/silicon emitter points for CDA; 100 VAC, US wall plug
91-4210U-230V-01	4210U Gas Ionizer w/silicon emitter points for CDA; 230 VAC, German Schuko Wall Plug
91-4210U-UK-01	4210U Gas Ionizer w/silicon emitter points for CDA; UK wall plug
91-4210UN-01	4210UN Gas Ionizer w/silicon emitter points for nitrogen; 120 VAC, US wall plug
91-4210UN-100V-01	4210UN Gas Ionizer w/silicon emitter points for nitrogen; 100 VAC, German Schuko Wall Plug
91-4210UN-230V-01	4210UN Gas Ionizer w/silicon emitter points for nitrogen; 230 VAC, US wall plug
91-4210UN-UK-01	4210UN Gas Ionizer w/silicon emitter points for nitrogen; UK plug



In-line Ultra-clean Nitrogen Ionizer Model 4214

In-line Ultra-clean Nitrogen Ionizer Model 4214 is specifically designed to ionize a nitrogen gas flow in ultra-clean semiconductor or other high purity processes. Unlike other nitrogen ionizers which depend on the trace gases in the nitrogen stream to produce ionization, this state-of-the-art product ionizes nitrogen molecules using a small, but efficient power supply.

- Extended ISO Class 1 cleanliness
- Alarms indicating low ion output (maintenance required), high voltage power supply failure, and low gas flow
- Standby mode
- Self-balanced ionization
- Auto shutoff with low gas flow
- Compact size
- +24 VDC Input Power

Measurements

Dimensions	6.0L x 2.85W x 1.26H in. (152.4 x 72.4 x 32 mm) without manifold
Weight	0.64 kg (1.4 lbs) without manifold

Part Numbers

91-4214UN-03	4214 Ionizer with Silicon Emitter Points for Nitrogen, 24 VDC
71-24219-01	Silicon Emitter Point Kit for 4214 Ionizer
33-24214-41	Filter Cartridge Kit, 99.99998% efficient (filter cartridge, 2 O-rings)
33-4214-05	4214 Power-Signal Distribution Box
33-4214-15	4214 Power-Signal Distribution Kit (Distribution Box, cable, 24 VDC universal input power supply); power cord must be specified separately, see below:
25-20660	Northern America Power Cord
25-20710	UK Power Cord
25-20735	Europe Power Cord
25-20750	China Power Cord



High Temperature Ionization System Model 4610TF Ionizer & 4052E Controller

High Temperature Ionizer Model 4610TF neutralizes static charge in environments with extreme conditions. Together with the High Temperature Controller Model 4052E, the High Temperature Ionizer Model 4610TF creates a uniquely capable ionization system that can withstand high heat and extreme cold, two challenging environments that cannot support other means of static elimination.

The compact size of the Model 4610TF and unique guides surrounding the emitter points make the ionizer perfectly suited for tight areas of extreme environments where adequate airflow can be an issue. The vanes can be adjusted by rotating to match airflow orientation, increasing the delivery of ions.

- Withstands temperatures up to 302°F (150°C) and down to -94°F (-70°C)
- IsoStat® technology
- Small form factor with large ion output
- Available with tungsten alloy or single-crystal silicon emitter points
- Unique ion guides

Measurements

Dimensions	2.3H x 3.8D x 8.3L in. (5.7H x 9.5W x 21L cm)
Weight	3 lb (1.6 kg)

Part Numbers

91-4610TF-TR	High-temp Ionizer with tungsten emitter points
91-4610TF-UR	High-temp Ionizer with silicon emitter points with 4m cable
91-4610TF-U-6R	High-temp ionizer with silicon emitter points and 6m cable
91-4052ER	Controller
33-4610TF-001	High Voltage Connector Kit



QuadBar™ Ionizer Model 4630

QuadBar Ionizer Model 4630 is the first corona ionizer to provide safe, effective static charge control in the ambient air inside a process chamber. Its unique quadropole configuration ensures effective ionization as close as 3 inches (7.6 cm) from the product. The 4630's compact size is designed to fit easily into the tight confines of any process equipment, and its ability to run on 24 VDC input power means it can connect to a tool's power source. In the rare event of a system failure, the QuadBar's status output notifies the process tool controller or a Facilities Monitoring System (FMS).

- Quadropole configuration with IsoStat® technology
- Compact size
- 24 VAC or 24 VDC operation
- Available with single crystal silicon emitter points
- Alarm output to FMS or process tool controller

Measurements

Dimensions	1.3H x 1.3W x 4.5L in. (3.3 x 3.3 x 11.4 cm)
Weight	3.44 oz (100.3g)

Part Numbers

91-4630EUR	QuadBar Ionizer
91-4030R	QuadBar Controller
14-1536	120 VAC (60 Hz) to 24 VAC Transformer, 10' cable, 6' US plug power cord
14-1537	230 VAC (50 Hz) to 24 VAC Transformer, 10' cable, IEC socket, requires power cord below
25-20710	IEC Power Cord (UK Plug), 8.2' (2.5m)
25-20735	IEC Power Cord (German Schuko Plug), 8.2' (2.5m)
25-20750	IEC Power Cord (China Plug), 8.2' (2.5m)



QuadBar™ with Air Assist Model 4635

QuadBar™ Ionizer with Air Assist Model 4635 provides effective static charge control in a small format. The unique Quadropole emitter point configuration enables the ionizer to be as close as 3 inches (7.6 cm) to the product. The Model 4635's compact size is designed to fit easily into the tight confines of any process equipment. With its own independent air delivery system, the Model 4635 provides ionization where airflow is limited or unavailable.

- Air assist cartridge design with cross-channel air delivery; two cartridge design options
- Rotatable cartridge design
- Quadropole configuration with IsoStat technology
- Compact size
- Single Crystal Silicon emitter points
- Alarm output to FMS or process tool controller

Measurements

Dimensions	1.3H x 1.3W x 4.5L in. (3.3 x 3.3 x 11.4 cm) air connection elbow on the side, width 1.92 in. (4.88 cm); air connection elbow on the end, ionizer body length 3.9 in. (10 cm)
Weight	3.8 oz (108g)

Part Numbers

91-4635EU-X-Y	QuadBar, standard or jet insert, choice of air inlet location, cable included
-S	QuadBar, standard insert with sheathed emitter points
-J	QuadBar, jet insert with center orifice
-1	Air Inlet on Left Side
-2	Air Inlet on Center Front
-3	Air Inlet on Right Side
91-4030R	QuadBar Controller (powers up to 16 QuadBar); power cord req'd
14-1536	120 VAC (60 Hz) to 24 VAC Transformer, 10' cable, 6' US plug power cord
14-1537	230 VAC (50 Hz) to 24 VAC Transformer, 10' cable, IEC socket, requires power cord below
25-20660	IEC Power Cable (US Plug), 7.6' (2.34m)
25-20710	IEC Power Cord (UK Plug), 8.2' (2.5m)
25-20735	IEC Power Cord (German Schuko Plug), 8.2' (2.5m)
25-20750	IEC Power Cord (China Plug), 8.2' (2.5m)
14-21108	DC Power Supply, 100-240 VAC input to 24 VDC output; power cord req'd
33-1721-6	DC Power Cable (QuadBar & #14-21108), 6'; no alarm output
33-1723-6	DC Power Cable (QuadBar & 24 VDC tool power), 6', 1 connector/1 pigtail



Localized In-Line Ionizer
IN-LINE fusION™ / fusION™

Simco-Ion's In-Line fusION Ionizer is capable of controlling electrostatic charge in the local area. Applications for In-Line fusION are those found inside process equipment and mini-environments in the semiconductor, flat panel display, pharmaceutical, and medical device industries. It is especially well suited for longer length delivery line applications.



Simco-Ion's fusION Ionizer is capable of controlling electrostatic charge in the local area. Applications for fusION are those found inside process equipment and mini-environments in the semiconductor, flat panel display, pharmaceutical, and medical device industries. It is especially well suited for applications with tight space constraints and low clearance.

The fusION delivers powerful electrostatic charge control capability by incorporating miniature power and control circuitry into a compact package. It can be installed in places where typical ionizer designs do not fit.



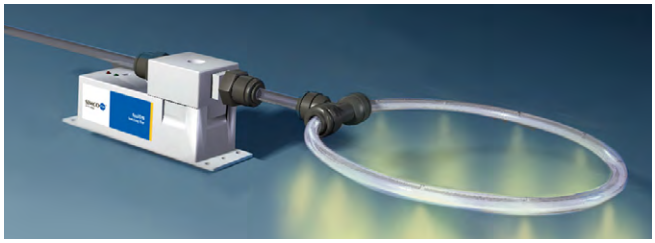
Localized Ionizer with Air Assist
fusION AA

Simco-Ion's fusION AA Ionizer is capable of controlling electrostatic charge in the local area. The fusION AA delivers powerful electrostatic charge control independent of ambient airflow conditions. Using CDA (clean dry air) at low flow rates the fusION AA will enjoy extended maintenance intervals. fusION AA incorporates miniature power and control circuitry in a compact package. No adjustments or calibration are necessary with Simco-Ion's patented auto balancing technology.

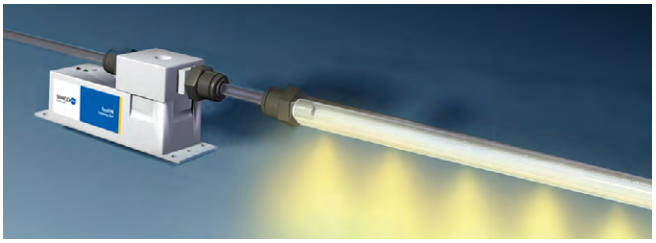




fusION with Fan Attachment



Air Ring Output Application



Air Knife Output Application

Critical Process Electrostatic Monitoring
Novx Series 7000

The Novx Series 7000 Process Monitor is a multi-purpose microprocessor based instrument for monitoring critical electrostatic related parameters in work station and process environments. The six dedicated use channels provide the flexibility to customize the instrument for the monitoring capability and communication required at each location. Module options include field voltage detection/Ionizer balance and/or decay testing, ESD event, body voltage detection or ground monitoring, and airborne laser particle counting.

- Smart Signal Processing
- Multiple sensor and antenna styles
- Daisy chainable; RS-485, Modbus, Ethernet, Wireless, or USB output
- ESD event detection tracking
- Three options for field voltage monitoring
- User-programmable alarm set-points with automated messaging
- Closed-loop control to tool computer
- Plug-in modules allow factory upgrades

Measurements

Dimensions	2.7W x 7H x 5.5D in. (6.9 x 17.8 x 14 cm)
Weight	2.5 lb (1.4 kg) passive, 2.5 lb (1.4 kg) active

Part Numbers

9960-7000-0000	Series 7000 (motherboard/enclosure, 128 kb microcontroller)
9000-5170-0001	Status Light with Audible Alarm
9960-7000-0100	Remote Display with LCD
9960-7000-0005	Standard LED Display (red/yellow/green)
9960-7000-0006	LED Display (red only)
9960-7000-0010	Passive Detection w/LED Display (antenna ordered separately)
9960-7000-0020	Active Detection w/LED Display (antenna ordered separately)
9960-7000-0031	NanoPulse ESD/EMI Detection (antenna assembly required)
9960-7000-0040	Dual-channel/Dual-wire Body Voltage & GND with Molded Remote Box
9960-7000-0041	Dual-channel/Dual-wire Body Voltage & GND with Dual Connection Remote Box
9960-7000-0081	Particle Counter Interface Board, 8-pin
9960-7000-0082	Airborne Particle Counter Serial Interface Board, Dual 6-pin
9960-7000-0070	RS-485 Board
9960-7000-0071	Ethernet Board
9960-7000-0072	Wireless Ethernet (802.11a/b/g) Board
9960-7000-0073	USB Communications Board



Multi-channel Field Voltage Detection
Novx Series 3350/3360/3370/3390

Novx Multi-channel Field Voltage Detection Systems provides the capability to simultaneously detect, measure, record and monitor electrostatic field voltages in multiple locations. The versatile antennas used with these systems allow their use in a variety of applications including monitoring sensitive workstations, in-tool voltages, or ionizer performance with the option of closed-loop control to select ionizer products. Up to 3 sensors can be connected to an individual instrument. This multi-channel capability provides a cost-effective monitoring solution for multiple areas or ionizers. Data input is actively monitored and logged with time stamps using Calibrator Reader. The instruments have user settable thresholds and alarm levels that provide a proactive safeguard for critical areas when interfaced to an alarm output. Out of range conditions can trigger a remote alarm light or audible alarms, shut down a critical process, or make adjustments to an ionizing fan.

- Digital, microprocessor-based controllers, multi-channel, digital I/O, auxiliary I/O, local addressability, micro USB, RS-485, and Modbus data output
- Multiple antenna configurations including passive, active, and high speed electrometer
- Precision resolution
- Programmable closed-loop control for up to 3 SSDC ionizer fans or a 3-fan blower
- Programmable alarm set-points with tool shutdown option
- Voltage/polarity displays, local red/green LEDs each channel

Measurements

Dimensions	1.75W x 6.5D x 6H in. (4.4W x 16.5D x 15.2H cm)
Weight	
3350	1.8 lb (.82 kg)
3360	1.8 lb (.82 kg)
3370	1.8 lb (.82 kg)
3390	1.8 lb (.82 kg)



Ionizer Balance Monitoring & Feedback Control
Novx Series 3150/3151 Single-Fan Ionizer Controllers

The Novx Single-fan Closed-loop Ionizer Controllers Series 3150/3151 are affordable field detection, ionizer balance, and feedback controller monitors. Monitoring and controlling ionization helps reduce manufacturing process variations and improve yields through fewer ESD events and lower particle contamination due to ESA. The Series 3150/3151 are digital instruments with settable warning and alarm levels. For process control, alarm conditions may be reported using an optional open collector alarm status signal. The Series 3150 is free-standing with an integrated antenna; the Series 3151 is for remote sensing, with a detached antenna.

- 3150 with integrated antenna
- Audible, LED, and FMS alarms
- Microprocessor-based digital control
- Programmable warning and alarm set-points
- 3151 with remote-mounted antenna

Measurements

Dimensions	3150: 3.53H x 1.12W x 1.6D in. (without antenna); 4.05H with 1.75 DIA (antenna attached); 4.20H (with antenna & mounting clip attached) 3151: 3.98H x 1.12W x 1.6D in. (without coax attached); 4.35H (with coax attached); 4.50H (with coax & mounting clip attached)
Weight	4 oz (116g)

Part Numbers

9910-3150-0001	Series 3150 with Integrated Antenna
9910-3151-0001	Series 3151 configured for Remote Antenna (passive antenna required)
33-1620-10	Cable Assembly, Modular 6/4-pin, Ionizer Feedback (24V), or for Remote Wrist-Strap, Molded for use with ionizers (5802i/5810i/5822i)
28-6281	Mounting Clip (1 mounting clip/unit, for use with either 3150/3155)
33-0510	Passive Antenna, 1.75" x 1" Tall with SMA-SMA Cable (5 ft)
33-1652-6	5822i Ionizer Status Cable, 6-6 pin, 6 ft length for use with power supply 14-1246
14-1246	International Power Supply
14-1247	110 VAC Power Supply -- Series 3150 (24 VDC @ 0.5A)



Body Voltage & Ground Monitoring
Novx Workstation Monitor Series 400

The Novx Series 400 Workstation Monitor is a microprocessor controlled instrument with alert notification and digital I/O capability for real-time process environment monitoring. The product is designed with a modular platform allowing the user to select the parameters to monitor at each workstation independently. The architecture consists of three plug-in modules that can be purchased when the instrument is ordered, or factory retrofitted at a later date.

- Body Voltage
- Particle Counter Interface
- Ground Monitoring
- Process Environment Monitoring, Control and Data Output
- User-Programmable Alarm Set-points
- Proactive Control
- Modular Construction
- RS-485, Modbus, Ethernet, Wireless
- Critical Alert Notifications

Measurements

Dimensions	2.5W x 3H x 5.5D in. (6.4 x 7.6 x 14 cm)
Weight	1.5 lb (0.7 kg)

Part Numbers

9960-0400-0000	Series 400 Workstation Monitor (basic config includes motherboard/enclosure)
9960-7000-0040	Dual-channel/Dual-wire Body Voltage/Current & GND w/Molded Remote Box
9960-7000-0041	Dual-channel/Dual-wire Body Voltage/Current & GND w/Dual Connection Remote Box
9960-7000-0050	Single-channel/Single-wire Current & GND
9960-7000-0070	RS-485 Board
9960-7000-0071	Ethernet Board
9960-7000-0072	Wireless Ethernet (802.11a/b/g) Board
9960-7000-0073	USB Communications Board
9960-7000-0081	Particle Counter Interface Board, 8-pin



Workstation Monitoring
Novx Operator/ground Monitor M220/M224

The Novx Operator and Ground Monitors M220 and M224 provide real-time detection and alarm. These digital, small-footprint monitors feature dual-channel/dual-wire body voltage (wrist-strap or garment) plus multi-channel ground (GND) monitoring with proprietary detection and alarm. Programmable with manual push-button alarm threshold set and zeroing, all three models feature individual red/green LEDs for channel status. Different audible alarm tones per channel differentiate alarm types.

- Extended ISO Class 1 cleanliness
- Alarms indicating low ion output (maintenance required), high voltage power supply failure, and low gas flow
- Standby mode
- Self-balanced ionization
- Auto shutoff with low gas flow
- Compact size
- Configurable hard and soft grounds (M224 only)
- Red/green LED per channel
- Digital architecture
- Modular construction

Measurements

	M220	M224
Dimensions	1.3H x 2.8W x 3.0D in. (3.3 x 7.1 x 7.6 cm)	1.5H x 4.6W x 4.3D in. (3.8 x 11.7 x 10.9 cm)
Weight	5 oz (142g)	11 oz (312g)

Part Numbers

9903-0200-0010	M220 (remote wrist strap boxes and cables separate) and alarm start up output
77-0004	Remote Wrist-strap Box #1 (1 cable, 18-4020-6, per box)
77-0005	Remote Wrist-strap Box #2 (1 cable, 18-4020-6, per box)
18-4020-6	Wrist-Strap remote box cables (1 per remote box)
33-2308	Remote Wrist-strap Box , 1 box for 2 wrist-straps (2 cables needed)
33-1600-6	Wrist-Strap remote box cables; 4 pin to 4 pin dual connection (2 per 33-2308 remote box)
14-21325	M220 Power Supply
33-0504	Passive Antenna, 1.75" x 4" Tall with SMA-to-SMA Cable (5 ft)
28-6282	Mounting Bracket for M220
92-M224	M224 with remote wrist-strap boxes and alarm start up output. Passive Proximity Antennae sold separately
77-0021	Remote Wrist-strap Box #1 (1 cable, 18-4020-6, per box) for M224
77-0022	Remote Wrist-strap Box #2 (1 cable, 18-4020-6, per box) for M224
33-1650-6	Wrist-Strap remote box cables (1 per remote box) for M224
14-21323	M224 Power Supply



Embeddable ESD Monitoring
Novx Minipulse ESD Event Monitor

The Novx MiniPulse ESD Event Detector is designed for tool and process monitoring. This affordable, small footprint embeddable monitor has been developed to warn of product damage risks at the point of electrostatic discharge. The MiniPulse uses time domain and threshold discrimination to detect pulse electromagnetic energy. Through the use of specific antenna configurations and placement, the MiniPulse can provide ESD event detection for well-defined small areas.

- Small Footprint
- Red/green LED alarm; audible alarm
- Open Collector Output on Alarm
- 9-24 VDC power input, including 9V battery operation
- Variable antenna orientations and adjustable threshold settings

Measurements

Dimensions	2.1W x 2.08L x 0.75H in. (5.3 x 5.0 x 1.9 cm) (not including mounting flanges)
Weight	4 oz (113 g)

Part Numbers

9904-0002-0000	MiniPulse ESD Event Monitor
14-1245	Universal Power Supply, 12 VDC @ 1.25A (optional)
33-3050	9V (adapter) battery included (optional)
33-0527-xx	Micro ESD antenna with cable (xx= cable length available in 6 ft or 12 ft)
33-4400-x	LCD Counter (x=cable length available in 1 ft or 5 ft length) (optional)
92-0003-01	Charge Device Model Event Simulator (incl. cable and 2 attenuators)
92-0003-02	Charge Device Model Event Simulator (incl. power supply, cables and 2 attenuators)

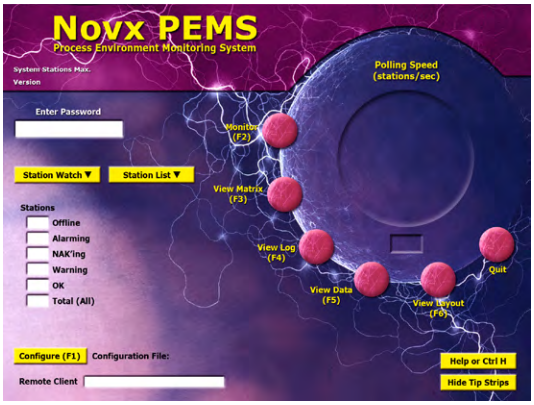


Real-time Monitoring & Proactive Control

Novx Process Environment Monitoring System (PEMS) Software

The Novx Process Environment Monitoring System (PEMS) Software is a fast multi-line serial polling system. Utilizing PEMS and Novx Data Acquisition Remote Terminal (DART2) along with associated sensors provides process and tool characterization and a more accurate way of evaluating operator and tool performance. This system provides a cost-effective solution to monitor and manage the manufacturing environment, processes, tools and cleanrooms. Simco-Ion's Novx product line provides software and hardware solutions for real-time monitoring and proactive communication to meet many process control requirements.

- Proactive Control
- Remote Monitoring
- Real-time Data Capture
- Machine Tool Interface
- Easy Installation and Maintenance
- User-friendly Interface
- Configure/Expand Easily
- Product Mix and Match Versatility
- Facility Layout and Matrix Display
- User-selectable Setup and Operation
- User-defined Area/Station Name
- Programmable Warning/Alarm Limits
- Audible, Lights, Paging Warning
- User-selectable Configuration Files
- RS-485, USB, Ethernet, Wireless



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.

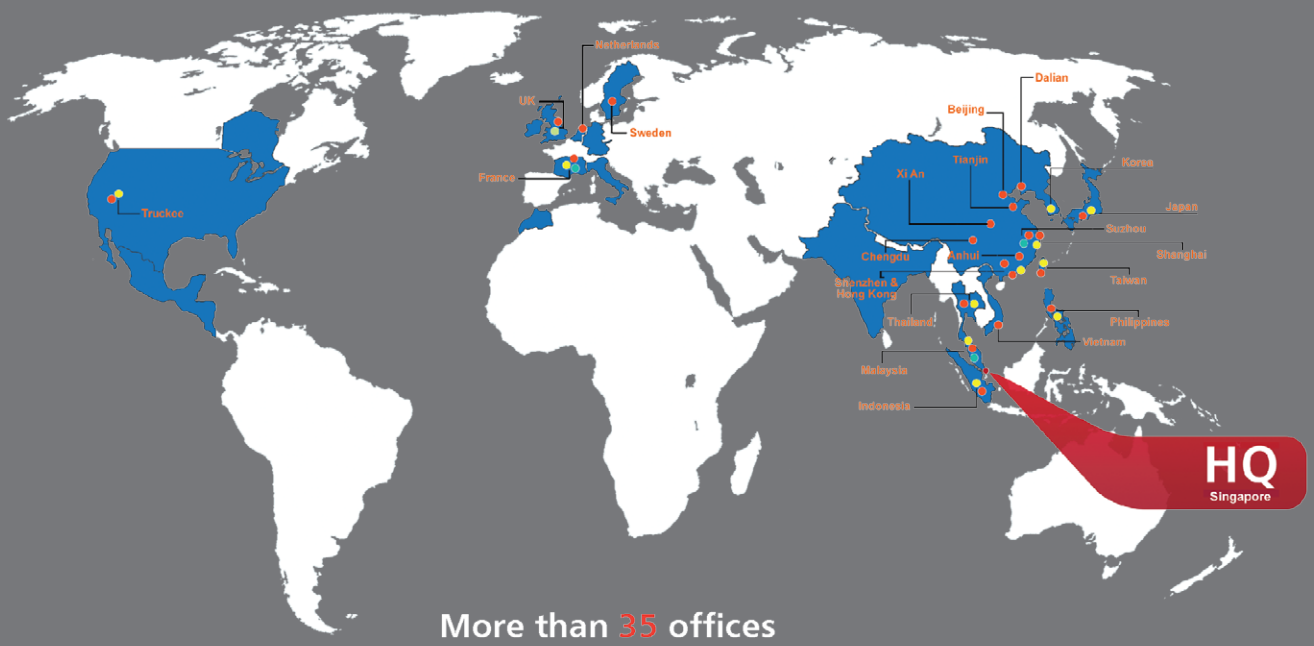
Certification Definitions

Registered trademarks of Underwriters Laboratories, Inc.

Registered trademark of Nemko, a Nationally Registered Testing Lab (NRTL).

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".



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