



An ITW Company

PRODUCT CATALOG



Electronic Assembly



Semiconductor

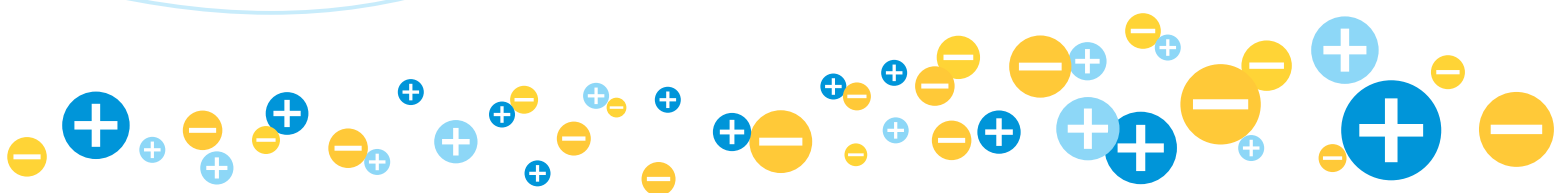
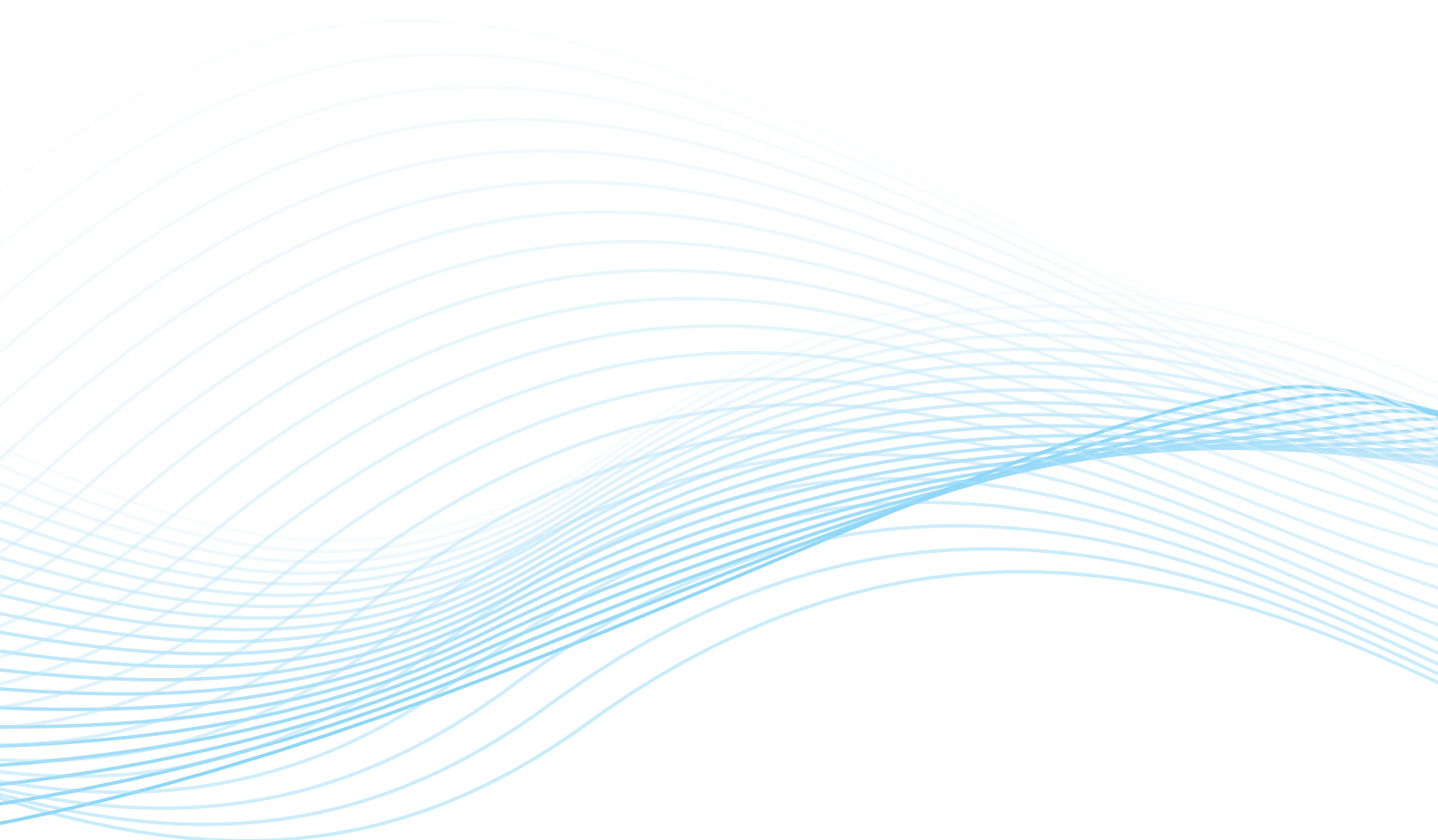
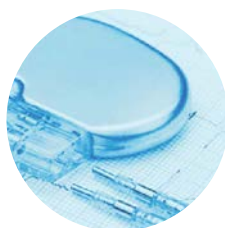


Flat Panel Display



Medical Device

WORLDWIDE LEADERS IN STATIC CONTROL



Simco-Ion

Illinois Tool Works (ITW) (www.itwinc.com, NYSE:ITW) is a Fortune 200 global diversified industrial manufacturer of value added consumables and specialty equipment with related service businesses. Our businesses serve local customers and markets around the globe. In 2016, ITW's revenues totaled USD13.6 billion.

The Simco-Ion business unit is the world's leading provider of electrostatic control and process environment monitoring solutions. It includes the Technology Group in Alameda, California; the Industrial Group in Hatfield of Pennsylvania; Simco-Ion Nederlands in Lochem of Netherlands; Simco-Ion Japan in Kobe of Japan; and ITW Simco-Ion (Shenzhen) in Shenzhen of China. The Technology Group focus on the development and sales of ionization and monitoring equipment to the electronic assembly, semiconductor, medical/life sciences, hard disk drive and display industries.

The Technology Group was formed in 2010, when ITW acquired Ion Systems, Inc. including Novx product lines, and merged with existing Simco Electronics business unit. Simco Electronics traces its roots to 1936, when it was founded to provide industrial ionization. The Electronics unit was established in 1996, and soon grew to become a leading supplier of ionization to 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, acquired in 2006 by Ion Systems, is a leading supplier of electrostatics monitoring equipment providing

additional capabilities. Today, the Technology Group offers a broad line of AC-, DC- and modulated frequency ionizers, monitoring and control systems, and electrostatics consulting to solve the 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 when that standard went into effect in 2004.

Simco-Ion provides :

- Expert workflow analysis to compliance process reviews
- 24-hour shipping of stocked products
- Worldwide distribution network
- Continuing commitment to new product development



APPLICATION

Ionization is typically used to provide two functions in the manufacture and assembly of products. The more obvious use is to keep the local environment electrically neutral, substantially reducing or eliminating the possibility of electrostatic discharge (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.

Semiconductor Industry :

Almost each wafer and chips are subjects to the possibility of damage due to ESD or contamination by ESA. Consequently, semiconductor industry uses ionization extensively to protect during manufacturing and testing. Most process tools incorporate ionizers at multiple points, including incoming load, process and outgoing unload. With the use of ionizer, advanced processes incorporate process monitoring system as the standard

electrostatic control configuration for stringent requirements.

Electronic Assembly :

- Manufacture and repair electronic products, including phone, computer, communication and consumer electronics.
- Assemble PCB, including SMT, manual inserting components, solder reflow, test and board handling.

Flat Panel Display :

The production handles layers of glass and plastic film where the electronic circuitry and chemical elements may be damaged or polluted by effect of electrostatic charges. So, a lot of ionizers are installed in the production equipments for eliminating the built-up or accumulation of charges during transportation and handling.

Medical/Life Science Industry :

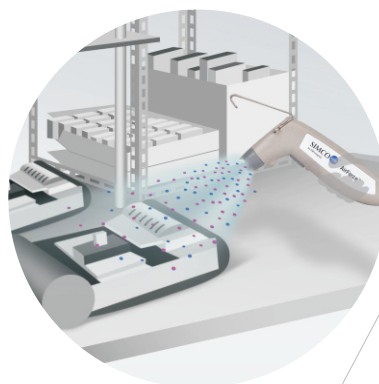
- Manufacture, Inspection and Packaging
- Glass or plastic containers and plates in diagnostic equipments.
- Fast development of medical electronic industry



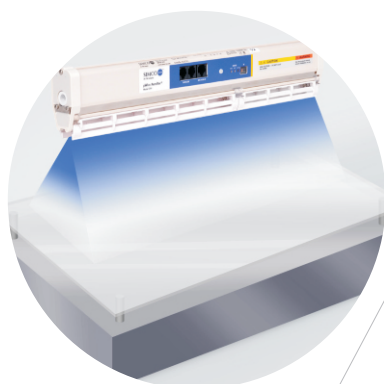
PRODUCT TYPE



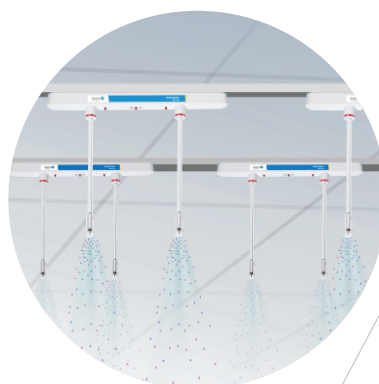
Ionizing Blower
05-28



Ionizing Gun
/ Nozzle
29-32



Ionizing Bar
33-42



Room
Ionization
System
43-44



Special
Application
45-49



Instrumentation
50-52

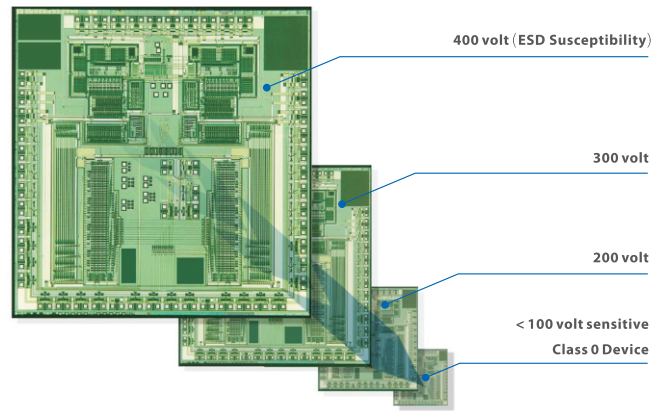
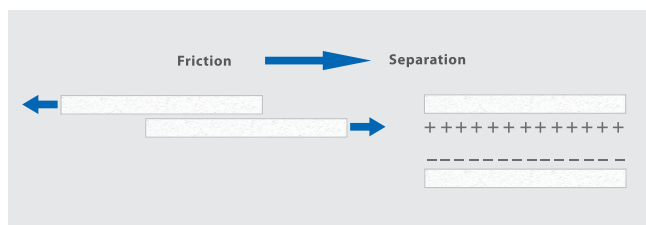
BASIC KNOWLEDGE

How is static electricity generated?

Charge generation will occur when two different materials come in contact and then separate. As shown below, after separation, 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 onto their surface to remove the charges.

Why is static a problem?

Damage and yield losses attributed to the effects of static charges are well documented. Particle contamination is a major issue as charged materials attract more particles to their surfaces than their non-charged counterparts, i.e. 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 various industries at a rapid pace. In the last few years, many facilities have struggled with ESD damage directly resulting from limitations of those 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. Air entering the cleanroom is stripped of its normal ion content as it moves through the air filtration system. 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 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, and is very difficult to remove. Contamination of this nature is a major contributor to product degradation and device failure.

BASIC TECHNOLOGY

AC

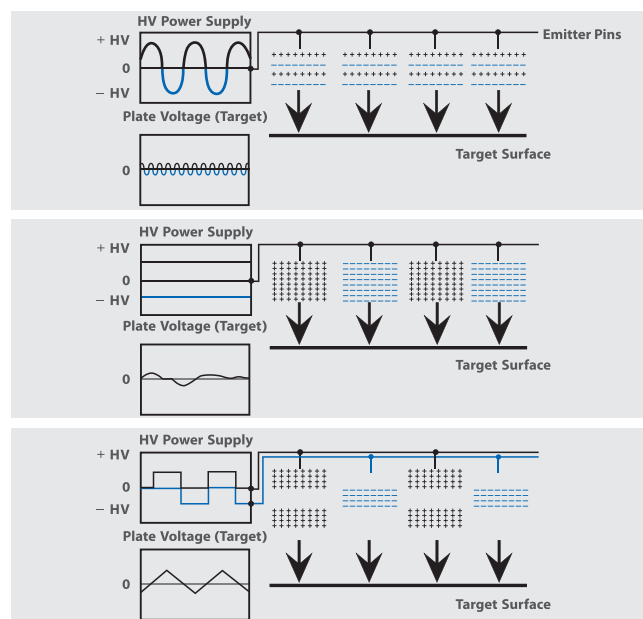
AC ionizers are comprised of an alternating high voltage supply that is connected to emitters. All emitters receive both positive and negative voltage. Air assist is critical with this arrangement because ion-to-ion recombination frequently occurs. Pulse AC is similar to AC, but variations of the frequency and signal shape enable faster discharge times. However, high voltage offsets are possible.

Steady-State DC

Steady State DC ionizers are comprised of separate sets of emitters connected to separate positive and negative supplies. The high voltages (positive and negative) both stay on simultaneously and constantly in this "steady state" configuration. Better discharge times can be realized versus AC ionizers without air assist.

Pulsed DC

Pulsed DC is similar to Steady State DC (separate positive and negative supplies), but on/off pulses are applied to the emitters on an alternate basis. The discharge times can be substantially better than Steady State DC ionizers; however voltage offsets can be greater than.



Remark

Recent ionization technologies are based on the above 3 basic technologies, adding some improvements, such as frequency and wave shape, or complicating the wave form so as to achieve performance for specific application. No matter what kind of ionization technology, the ionizers are tested based on ANSI/ESD STM3.1 standard. In this catalog, the data of ion balance/offset voltage and decay time/discharge time are recorded with this test standard.

DISTINCTIVE FEATURE

Cleaning on Emitter

The regular maintenance of ionizers keep sensitive environments as protected as possible from harmful static charge effects. Periodically inspect emitter points for breakage, buildup on the tips, or any discoloration is required: usually, the cycle is quarterly; some may extend to yearly; tightening request may ask for monthly. It is one of the most important components of ionizer maintenance, and ensure continued optimum performance from ionizers.

Manual Cleaning: Simco-Ion ionizers are designed with integrated brush, by a simple action -one turn, one press or one pull, the dirt on the emitter tips are removed.

Automated Cleaning: To minimize the contamination and time involved, Simco-Ion developed the patented Auto-Clean Systems as an option. Since it works automatically each time the ionizer is turned on or off, it reduces maintenance time and ionizer down time.

Material of Emitter

Simco-Ion's ionizer emitter assembly are made of various materials and shapes: metallic (stainless steel, tungsten, titanium) and non-metallic (single crystal silicon); pin-type or wire-type. This provides

longer working life and better cleanliness for applications in various industries.

Facility Monitoring System (FMS)

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.

Compatible to ISO 14644-1 Cleanroom standards

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.

Simco-Ion's ionizers are compatible with different level of cleanroom, some can be up to ISO 14644-12 (nanoscale particles), providing the best solution in static control industry.

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.

Bench-top Ionizing Air Blower

ENDSTAT 2020



Simco-Ion's Endstat 2020 ionizing air blower provides economical control of electrostatic charges over a targeted work surface area. It provides protection from the destructive effects of Electrostatic Discharge (ESD) by neutralizing static charges in the work environment.

The Endstat 2020 ionized air blower produces airflow enriched with positive and negative air ions. Directing the ionized airflow on an object that has an electrostatic charge will neutralize the charge. Surfaces with negative charge will draw positive ions and surfaces with positive charge will draw negative ions. The air ions act as charge carriers, neutralizing the surface.

The Endstat 2020 is suitable for a variety of applications. It uses a two speed fan to provide an adaptable airflow. Ionization is produced using an AC corona discharge ionizer and AC high voltage transformer. AC ionization technology provides for economical and reliable static control.



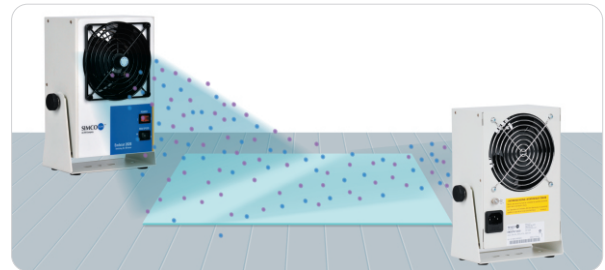
Features

- Compact design
- Easy to install and operate
- Two speed fan control
- Built-in emitter cleaner
- Electrically grounded metal enclosure
- Inherent balance to ± 15 V



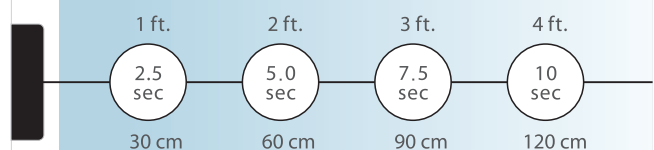
Benefits

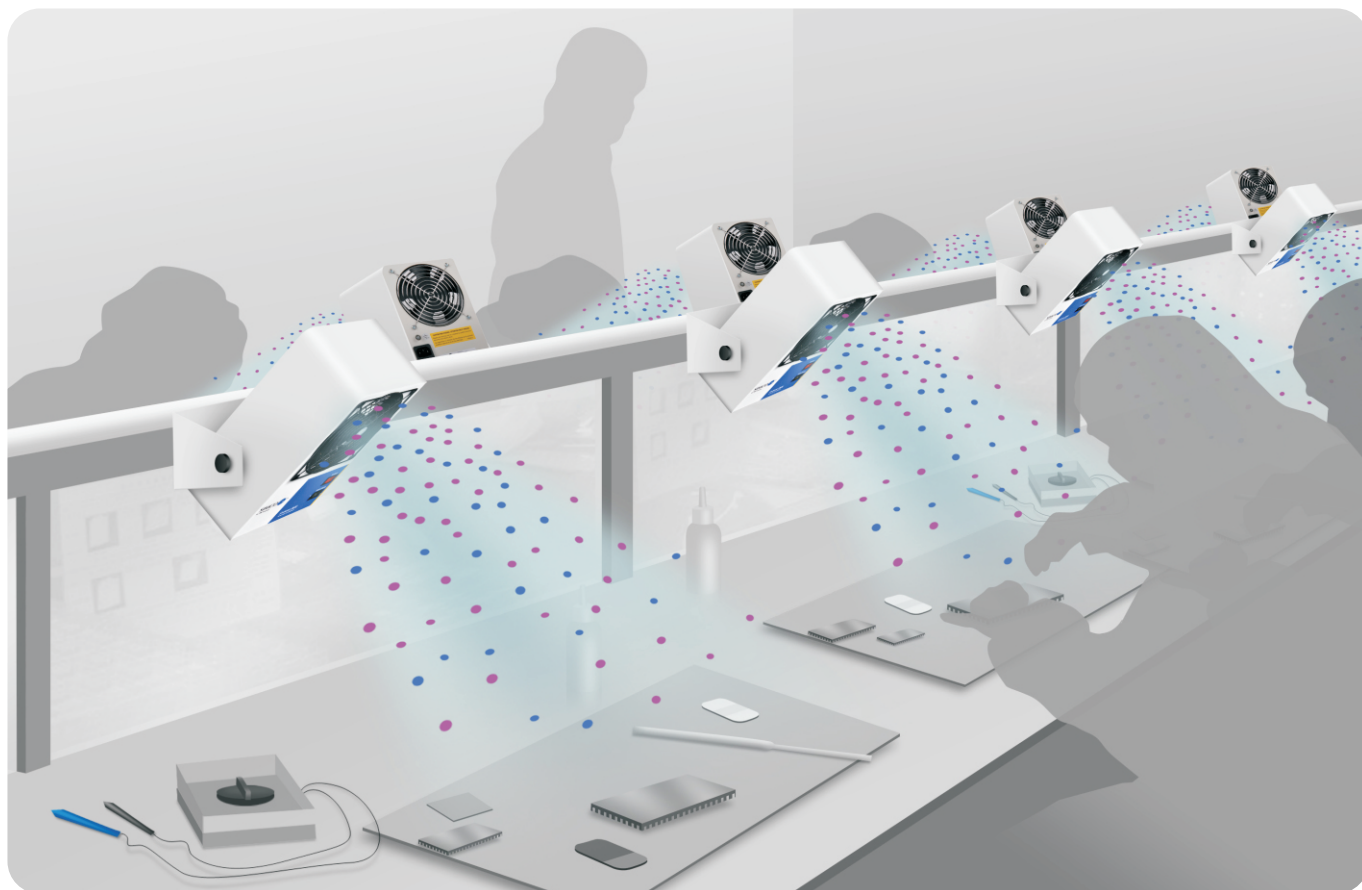
- Perfect fit for complete bench-top work area ESD protection
- Convenient front panel controls for blower operation
- Application specific optimized performance
- Easy to maintain long-term ESD protection
- Ensure durability even under the most extreme workstation conditions
- Designed for electronic assembly and manufacturing applications



Typical Decay Time (sec)

Maximum Fan Speed





Specifications

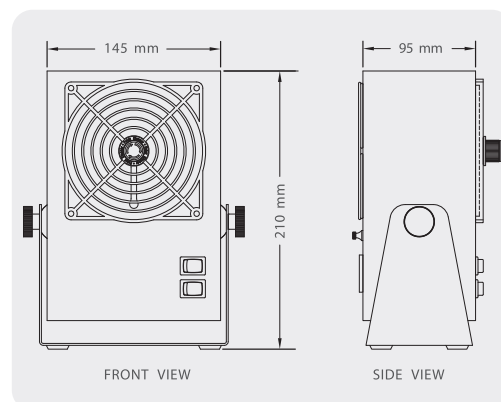
Endstat 2020

Input Voltage	120 VAC, 60 Hz, 0.4 A max; 230 VAC, 50 Hz, 0.2 A max
Decay Time	< 2.5 s @ (1000 V to 100 V, 30 cm, Fan-high)
Balance	0 ± 15 V (intrinsic, no calibration required)
Technology	AC Ionization
Emitter	Stainless steel
Coverage	30 x 120 cm
Controls	Power On/Off switch; Fan High/Low speed switch
Indicators	Power switch - Red
Airflow (m ³ /min)	1.42 @ Fan-low; 2.83 @ Fan-high
Audible Noise	55 dB @ (1 m, Fan-high)
Ozone	< 0.016 ppm (typ) @ 48 hour accumulation
Operating Env.	10 - 35°C, 30 - 60% RH (non-condensing)
Mounting	Metal mounting stand/bracket included
Enclosure	Enamel Finish Steel
Dimensions	21H x 14.5W x 9.5D cm
Weight	3.2 kg
Certifications	CE



Emitter Point Cleaner

The Endstat 2020 features a built-in manual emitter point cleaner which takes only seconds to remove accumulated contamination on emitter points so as to keep it working in the best.



Ionizing Air Blower

AEROSTAT® PC



Simco-Ion's Aerostat PC Ionizing Air Blower provides localized coverage with superior charge decay efficiency. The Aerostat PC operates on AC technology and is designed to provide ionization to a targeted work surface.

Distinguished by its variable fan speed control, heater element, and emitter point cleaner, the Aerostat PC is an excellent choice for eliminating static in production processes. While helping to protect products and personnel from the effects of static discharge, the Aerostat PC is lightweight, small, and quiet, making it easy for the user to direct the ionization where it is needed.



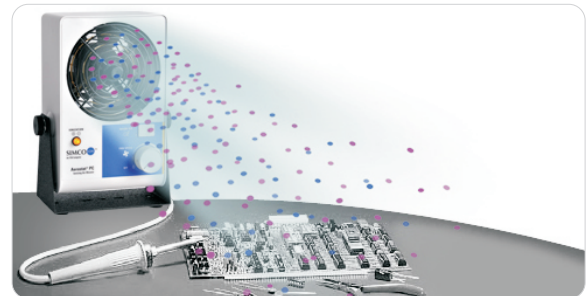
Features

- Discharge time of < 2 seconds at 30 cm
- Lightweight, compact and quiet for unobtrusive use
- Built-in emitter point cleaner
- Variable speed fan for airflow control
- Status lamp indicates high voltage is present at the emitter points
- Integrated heater for warm air flow
- Optional Fan Air Filter



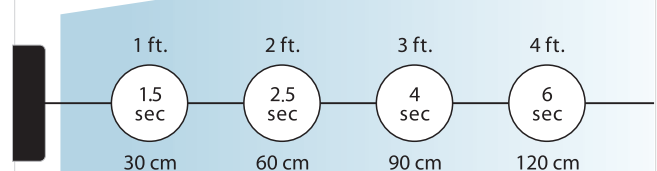
Benefits

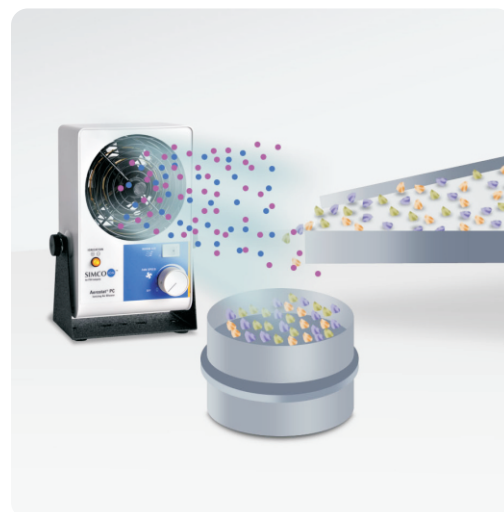
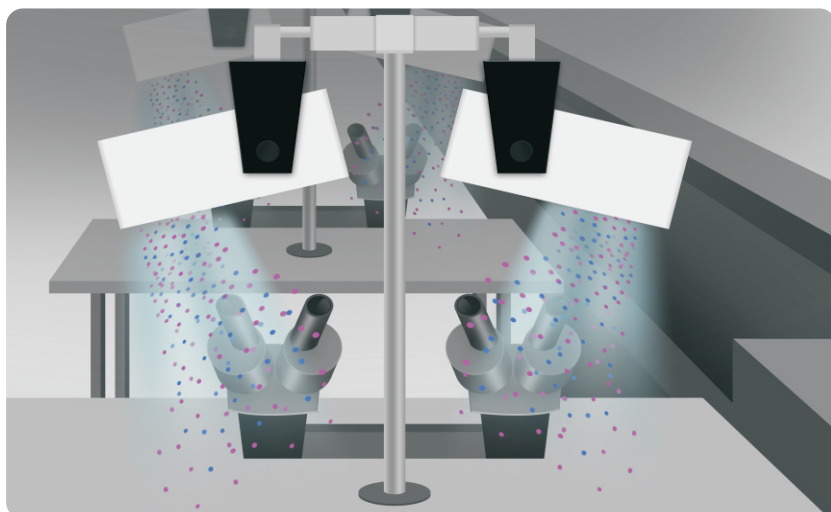
- Fast, targeted neutralization of static charges
- Directed ionization designed for workbench area
- Minimizes the time required to perform normal maintenance
- Matches ionization performance to targeted work area
- Minimizes component loss due to unintentional ionization stoppage
- User comfort helps to insure that ionization remains on
- Protection for internal components from environmental contamination



Typical Decay Time (sec)

Maximum Fan Speed





Specifications

Aerostat PC

Input Voltage	100 VAC, 50/60Hz; 120 VAC, 60 Hz; 230 VAC, 50 Hz; 25 W (Warm Air version – 204 W)
Decay Time	< 2 s @ (1000 V to 100 V, 30 cm, Fan-high)
Balance	± 10 V @ (intrinsic, no calibration required)
Technology	AC Ionization
Emitter	Stainless Steel
Coverage	30 x 150 cm
Controls	Power On/Off with fan variable speed control; Heater On/Off switch
Indicators	Ionization - Orange
Connections	IEC power In
Airflow (m³/min)	0.99 - 1.98
Air Velocity (m/s)	Fan-low/high - 1.27/2.54 @ 30 cm; 1.01/2.02 @ 60 cm; 0.78/1.52 @ 90 cm; 0.64/1.28 @ 120 cm
Warm Air	Above ambient : + 4 - 5°C @ Fan-low; + 7 - 8°C @ Fan-high
Audible Noise	50 - 57 dB @ 60 cm
Ozone	< 0.005 ppm @ 15 cm in front
Operating Env.	15 - 35°C, 30 - 70% RH (non-condensing)
Air-Filter	Optional 30 ppi open cell polyurethane foam
Mounting	Metal mounting stand/bracket included
Enclosure	Polyester Epoxy Aluminum
Dimensions	22.1H x 14W x 8.4D cm
Weight	2.6 kg
Certifications	CE cULus KC ENEC



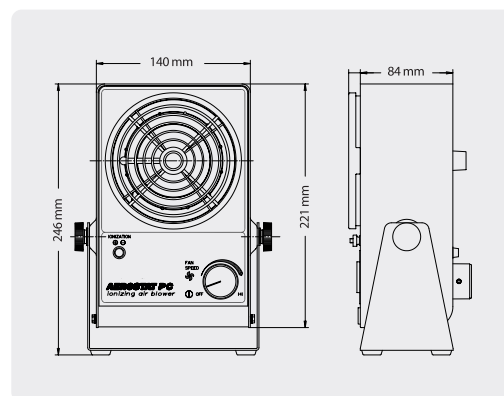
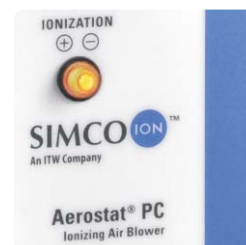
Emitter Point Cleaner

The Aerostat PC features a built-in emitter point cleaner which takes only seconds to clean the emitter points. This prevents the build-up of airborne debris and keeps it working in the best.



Ionization Indicator

Aerostat PC has the ionization indicator, which is a neon lamp, to assure the proper high voltage output and ionization to generate ions.



Extended Coverage Ionizing Blower AEROSTAT[®] PC2



Simco-Ion new Aerostat PC2 is designed and built for reliable, long-term static control for a variety of electronic, semiconductor, flat-panel display and life science assembly applications. It offers outstanding charge neutralization for targeted mini environments and bench-top work surface. Its weight-saving design allows to be easily mounted inside process tools.

Aerostat PC2 offers inherent balance to $0 \pm 10V$, loaded with usability features including an adjustable locking stand, fan speed control, separate balance and fan stall alarm LED, and optional audible alarm. These makes it the ideal mini environment ionization blower for assembly, test and packaging area.



Features

- Discharge time of < 2 seconds at 1 foot*
- Lightweight, compact and quiet for unobtrusive use
- Local alarm LEDs, Facility Monitoring System (FMS) connection and optional audible alarm
- $\pm 10V$ self-balancing (Micropulse) technology
- Built-in emitter point cleaner



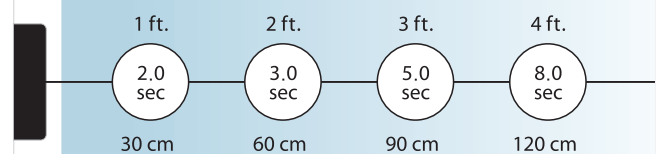
Benefits

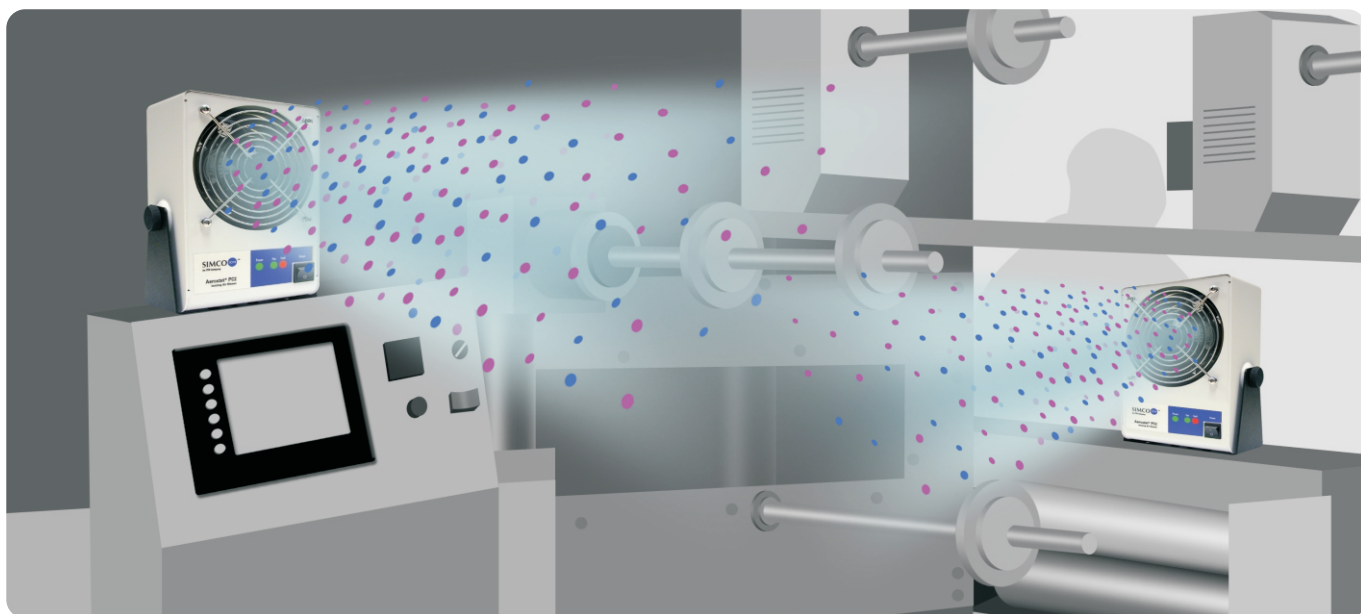
- Fast, targeted neutralization of static charges
- Directed ionization designed for workbench or in-tool areas
- Worry-free ionization status can easily be monitored locally and at a remote location
- High precision balance insures controlled and consistent ion output
- Minimizes the time required to perform normal maintenance



Typical Decay Time (sec)

Maximum Fan Speed





Specifications

Aerostat PC2

Input Voltage	100 - 240VAC, 50/60Hz; 0.14A
Decay Time	< 2 s @ (1000 V to 100 V, 30 cm, Fan-high)
Balance	0 ± 10 V
Technology	Micropulse
Emitter	Stainless Steel
Coverage	30 x 120 cm
Controls	Power On/Off switch, Fan speed high/mid/low
Indicators	Power - Green, Fault - Red, Fan Stall - Red
Connections	Power - IEC320/C14, FMS - RJ-9
Airflow (m³/min)	Fan-high - 3.68
Audible Noise	Fan-high - 65 db @ 30 cm centerline, 30 cm off center
Air Velocity (m/s)	Typically - Fan-high - 2.3, Fan-mid - 1.65, Fan-low - 1.4
Ozone	< 0.05 ppm @ 30 cm in front
Operating Env.	10 - 35°C, 30 - 60% RH (non-condensing)
Audible Alarm	Optional - Fault, Fan Stall
Air-Filter	Optional - 30 ppi Open Cell Polyurethane Foam
Mounting	Metal stand with skid resistant rubber feet
Enclosure	Powder-coated Aluminum Chassis
Dimensions	23.1H x 17.3W x 8.4D cm (with Stand)
Weight	1.25 kg (with Stand)
Certifications	



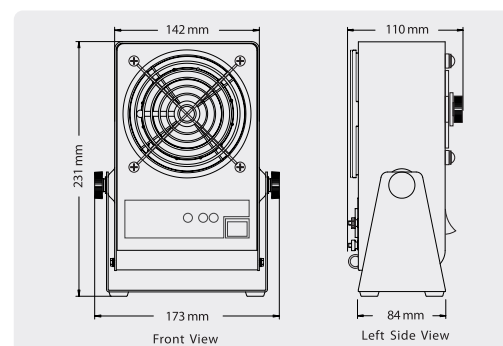
Emitter Point Cleaner

The PC2 features a built-in emitter point cleaner which takes only seconds to clean the emitter points. This prevents the build-up of airborne debris and keeps it working in the best.



Alarm Capabilities

Separate alarm LEDs on the front of the blower for ionization balance fault and fan stall plus a facility monitoring system (FMS) interface for remote alarm status (accessible on the rear of the blower) offers worry-free static control for the production area.



Extended Coverage Ionizing Blower AEROSTAT[®] XC



Simco-Ion's Aerostat XC Extended Coverage Ionizing Blower provides excellent coverage, balance stability, and rapid static charge decay times. The XC can be used in a variety of electronics and medical assembly environments. It features inherent balance to 0 ± 5 V to protect sensitive electronic components, together with Simco-Ion's emitter point cleaner, an ionization status light and an integrated heater. The XC neutralizes static across a broad 90 cm by 180 cm area and operates on AC technology to provide stabled balanced performance over time.



Features

- Inherently balanced to 0 ± 5 V
- Rapid static charge decay times over a wide area
- Integrated emitter point cleaner
- Ionization status light
- Integrated Heater
- Optional Air Filter



Benefits

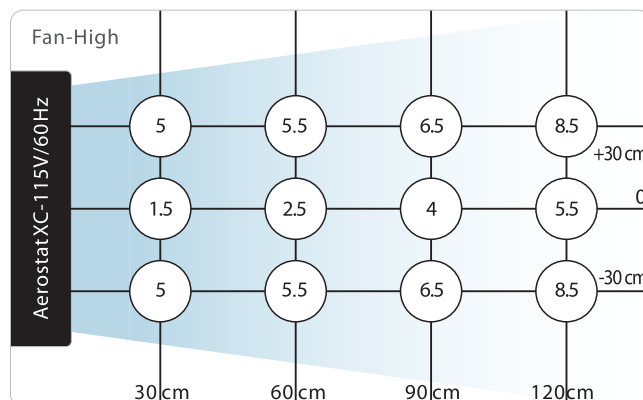
- Protects even the most sensitive electronic components
- Neutralizes charges over the entire workbench
- Easy to maintain for sustainable static charge control
- Easy to verify the presence of ionization
- Provides a comfortable working environment for operators,
- ensuring continuous operation
- Adapts for use in extremely dusty environments



No warm air version



Typical Decay Time (sec)





Operational Convenience



Emitter Point Cleaner



Ionization Indicator



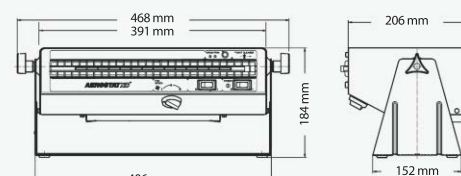
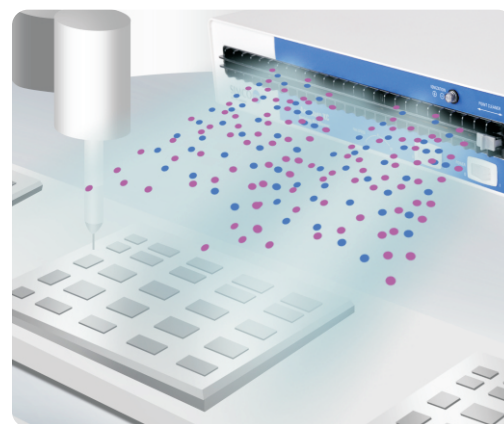
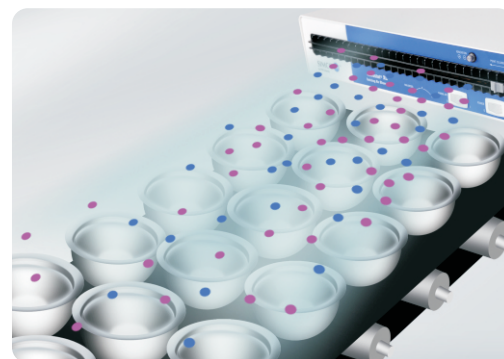
Optional Locking Stand Kit



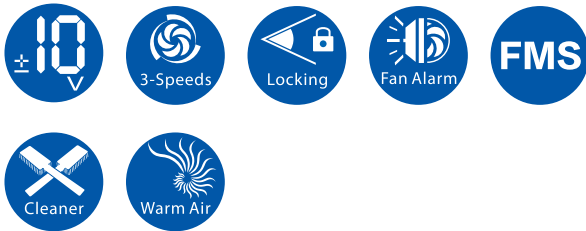
Specifications

Aerostat XC

Input Voltage	100 VAC, 50/60Hz; 120 VAC, 60 Hz; 230 VAC, 50 Hz; 72 W (Warm Air on – 430 W)
Decay Time	< 2 s @ (1000 V to 100 V, 30 cm, Fan-high)
Balance	0 ± 5 V (intrinsic, no calibration required)
Technology	AC Ionization
Emitter	Stainless Steel
Coverage	90 x 150 cm
Controls	Power On/Off switch; Fan Low/Medium/High speed switch; Heater On/Off switch
Indicators	Ionization - Orange; Power - Orange; Warm Air - Orange
Airflow (m³/min)	1.98 @ Fan-low, 2.69 @ Fan-medium, 3.40 @ Fan-high
Audible Noise	52 dB @ Fan-low, 58 dB @ Fan-medium, 64 dB @ Fan-high
Air Velocity (m/s)	Fan-low/medium/high : 3.05/4.06/5.08 @ 30 cm; 1.52/2.03/2.54 @ 60 cm; 0.91/1.12/1.27 @ 90 cm; 0.61/0.91/1.02 @ 120 cm
Warm Air	Above ambient : +3-4°C (Fan-low), +2-3°C (Fan-medium), +2-3°C (Fan-low) @ 30 cm in front
Ozone	< 0.05 ppm @ 15 cm in front
Operating Env.	10 - 35°C, 30 - 70% RH (non-condensing)
Air-Filter	Optional 30 ppi open cell polyurethane foam
Mounting	Metal mounting stand/bracket included
Enclosure	Powder-coated White Steel
Dimensions	39.1W x 11.4H x 20.6D cm
Weight	7.9 kg
Certifications	CE cULus KC E



Extended Coverage Area Ionizing Blower AEROSTAT[®] XC2[™]



Simco-Ion's new Aerostat XC2 provides complete wide area ionization protection. As with its predecessor, the Aerostat XC Ionizing Blower, 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 XC2 offers outstanding coverage for larger areas with < 12 second discharge times at 1.8 m distance from the face of the blower. 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 Aerostat XC2 offers inherent balance to 0 ± 10 V for protection of sensitive electronic components. The XC2 is loaded with usability features including a built-in emitter point cleaner, adjustable locking stand, fan speed control, optional airflow heater and separate balance and fan-stall alarm LEDs with optional audible alarm. These features, plus its stylish design, make the Aerostat XC2 the ideal extended coverage ionization blower for assembly, test and packaging areas.



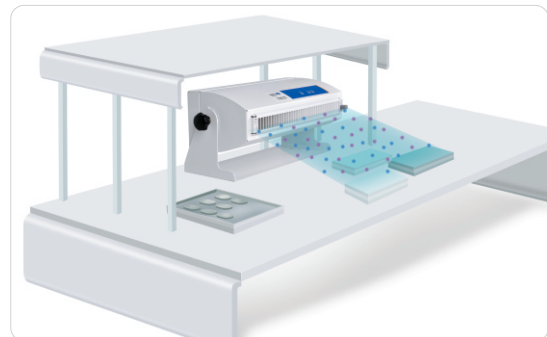
Features

- Large, near symmetric ionization area coverage
- Weight saving design
- Easy to use, built-in emitter cleaner
- ± 10 V self-balancing (Micropulse) technology
- Local alarm LEDs, Facility Monitoring System (FMS) connection and optional audible alarm
- Integrated heater for warm air flow

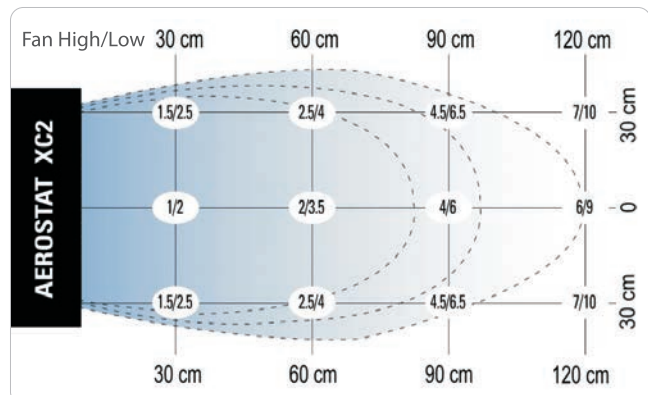


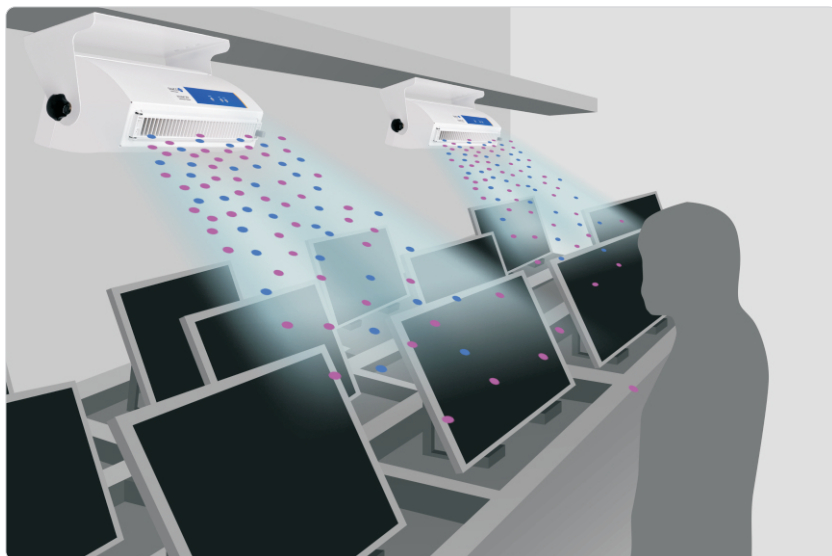
Benefits

- Designed for complete static neutralization across the entire work surface area
- Light enough to be easily mounted on or above the work surface
- Insures consistent, balanced performance over a long time
- High precision balance never needs calibrating
- Ionization status can easily be monitored locally and at a remote location
- User comfort helps to insure that ionization remains on



Typical Decay Time (sec)





Low Maintenance

The Aerostat XC2 utilizes micropulse technology which reduces ion recombination at the emitter, thus increasing product efficiency and performance. Using this breakthrough technology, the Aerostat XC2 maintains long term peak performance and balance stability for extended periods between cleanings.

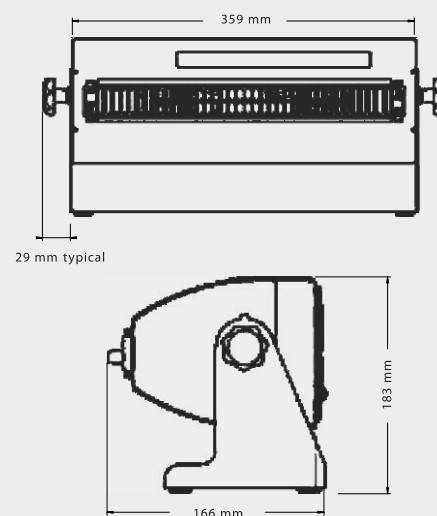
The only maintenance required for the Aerostat XC2 is periodic cleaning of the emitter points using the easy, built-in push button so as to remove any debris and ensuring balanced, continuous ion output.



Specifications

Aerostat XC2

Input Voltage	100 - 240 VAC, 0.5A, 55 W max @ no heater (Warm Air on - 460 W);
Decay Time	< 1 s @ (1000 V to 100 V, 30 cm, Fan-high)
Balance	0 ± 10 V
Technology	Micropulse
Emitter	Stainless Steel
Coverage	90 x 180 cm
Cleanroom Class	ISO 14644-1 Class 6
Controls	Power On/Off switch; Fan Low/Medium/High speed switch; Balance adjustment; Optional - Heater On/Off switch
Indicators	Power - Green; Fault - Red alarm; Fan Stall - Red alarm
Connections	IEC power in; FMS fault alarm output
Airflow (m ³ /min)	1.98 @ Fan-low, 4.25 @ Fan-high
Audible Noise	58 dB @ (60 cm, Fan-low), 70 dB @ (60 cm, Fan-high)
Air Velocity (m/s)	3.15 @ 30 cm; 2.21 @ 60 cm; 1.65 @ 90 cm; 1.35 @ 120 cm
Warm Air	Optional - Above ambient : 2 - 3°C @ 30 cm in front
Ozone	< 0.05 ppm @ 30 cm in front
Operating Env.	10 - 35°C, 30 - 60% RH (non-condensing)
Audible Alarm	Optional - Fault, Fan Stall
Air Filter	Optional - 30 ppi open cell polyurethane foam
Mounting	Powder-coated steel stand with skid, resistant rubber feet
Enclosure	Powder-coated Aluminum Chassis
Dimensions	35.9W x 18.3H x 16.6D cm (with Stand)
Weight	3.2 kg (with Stand)
Certifications	CE cULus ENEC



Wide Coverage Ionizing Blower AEROSTAT® FPD



The Aerostat FPD series of products has been designed to control electrostatic charges in flat panel assembly and electronics manufacturing applications requiring stable operation with exceptionally fast discharge time performance. The FPD ionizing blowers are built for reliability and simplicity.

Aerostat FPD utilizes reliable, low maintenance AC corona technology with high flow rate fans to provide fast static discharge performance. The inherent stability of the Aerostat FPD reduces maintenance frequency and a built in emitter cleaner reduces maintenance time. Our unique geometry and airflow control provide consistent performance, meeting the demands of product assembly operations.

The Aerostat FPD's self-monitoring feature assures the user of controlled, consistent ion output. A light indicates both that power is applied to the unit and that ions are being produced. Performance is enhanced by use of Simco-Ion's industry leading and highly reliable AC technology.



Features

- High output, high velocity fans
- Inherently balanced ionization
- Ionization indicator light
- Built-in emitter point cleaner
- Optional fan air filter



Benefits

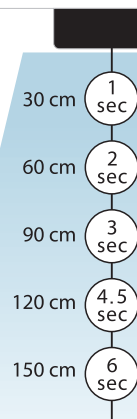
- Extremely fast static charge neutralization over a wide horizontal or vertical application area
- Offers consistent performance with low maintenance frequency
- Visual indication that the target product is being neutralized
- Continued blower operation will little required maintenance
- Protection for internal components from environmental contamination



Bench Top

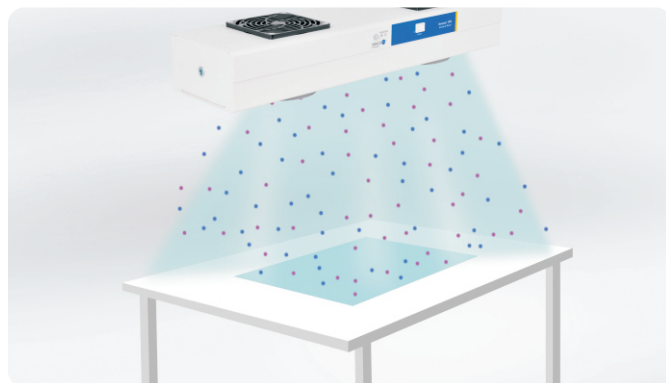
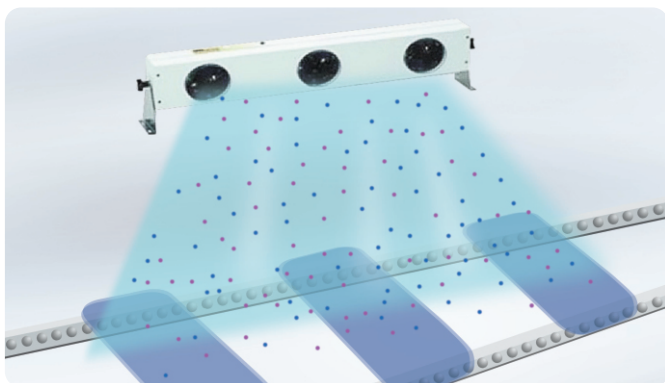


Typical Decay Time (sec)



Direct downward, maximum fan speed





Specifications

Aerostat FPD series

Input Voltage 120 VAC, 60 Hz, 0.3 A @ 2-fan, 0.4 A @ 3-fan, 0.5 A @ 4-fan;
230 VAC, 50 Hz, 0.2 A @ 2-fan, 0.2 A @ 3-fan, 0.3 A @ 4-fan

Decay Time < 1 s @ (1000 V to 100 V, 30 cm, Fan-high)

Balance 0 ± 10 V

Technology AC Ionization

Emitter Stainless Steel

Controls Power On/Off switch; Recessed variable fan speed

Indicators Ionization - Orange

Connections IEC power in

Audible Noise 59 - 69 dB @ (60 cm, Fan-high)

Air Velocity (m/s) Fan-low/high : 2.45/5.08 @ 30 cm; 1.78/3.56 @ 60 cm;
1.27/2.54 @ 90 cm; 1.02/2.03 @ 120 cm; 0.76/1.52 @ 150 cm

Ozone < 0.02 ppm @ equilibrium concentration

Operating Env. 10 - 32°C, 30 - 70% RH (non-condensing)

Air-Filter Optional 30 ppi open cell polyurethane foam

Mounting Stainless steel bracket

Enclosure Powder-coated White Enamel Aluminum Chassis

Dimensions 10H x 16D x Length 59 (2-fan), 90 (3-fan), 121.5 (4-fan) cm

Weight 2-fan : 4.5 kg; 3-fan : 5.9 kg; 4-fan : 7.3 kg

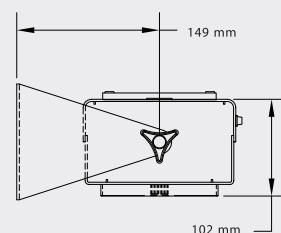
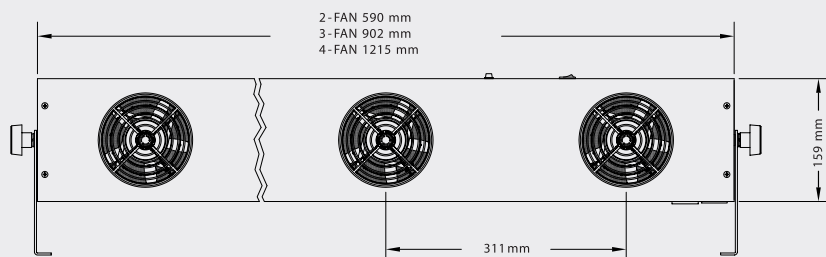
Certifications



FPD Coverage Areas

The Aerostat FPD ionization blower comes in either 2-fan, 3-fan or 4-fan chassis lengths. Each length is designed for optimal coverage area and a variety of applications :

	Overhead	Bench Top
2-fan	0.6 m x 0.6 m	0.6 m x 1.5 m
3-fan	0.6 m x 0.9 m	0.9 m x 1.5 m
4-fan	0.6 m x 1.2 m	1.2 m x 1.5 m



Point of Use Ionizing Blower 6422e/6422e-AC



The Simco-Ion's Point of Use Ionizing Blower Model 6422e is the most efficient small blower of its kind for controlling static discharge in hard-to-reach areas. In the tight confinement of process tools, ionization must be easy and cost-effective, but carry the same level of sophistication found in larger ionizers. The model 6422e meets the challenge of cost and features that process demands by delivering worry-free ionization. It utilizes IsoStat technology, making it the most reliable blower of its kind.

The Model 6422e-AC incorporates our auto-clean system that cleans the emitter points each time the unit power down. Automated cleaning reduces maintenance time, extends emitter point life and assures balanced performance.



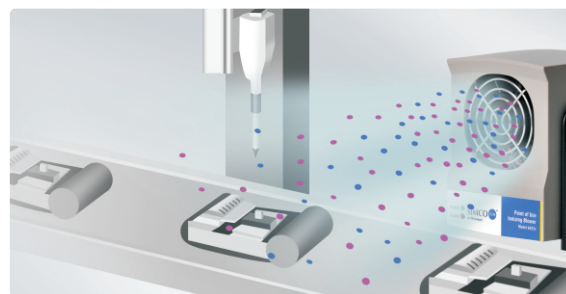
Features

- IsoStat® technology
- Small form factor available in steady-state DC ion emission blowers
- 24VDC or 24VAC input
- Facility Monitoring System (FMS) interface
- Operational failure alarm
- U-bracket mounting
- Auto-Clean System

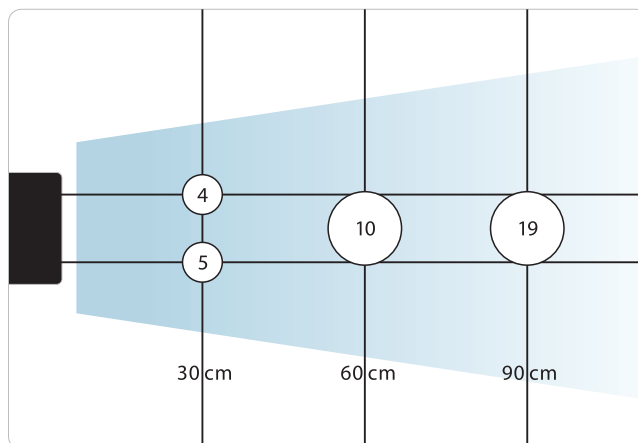


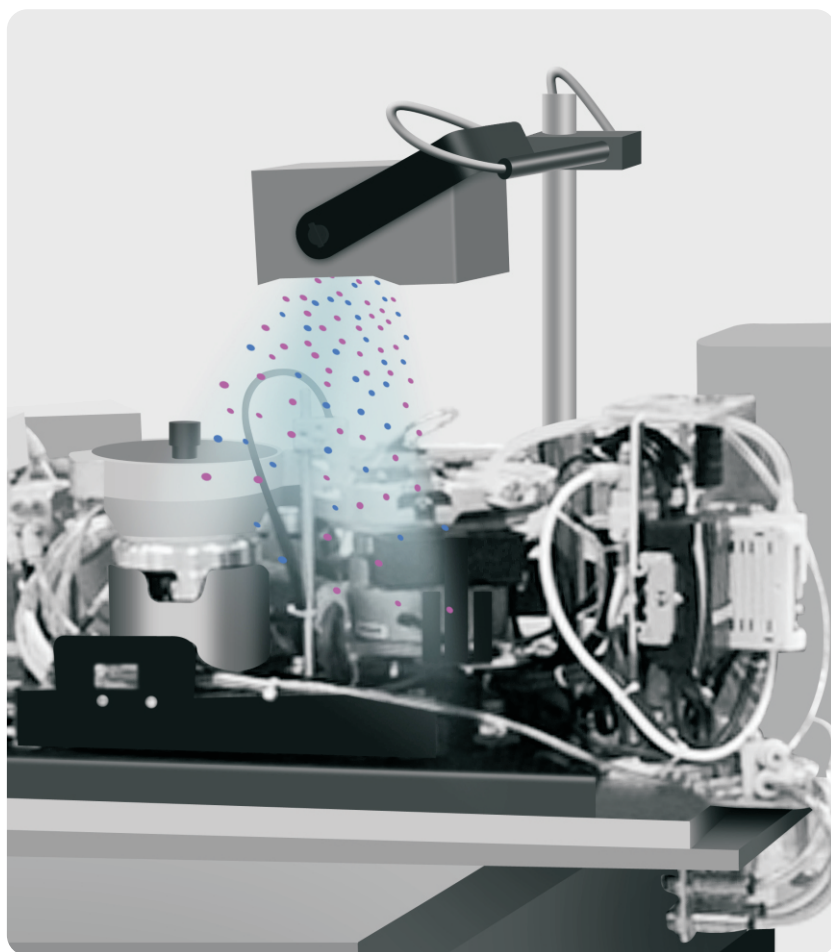
Benefits

- Intrinsically balanced; no calibration needed
- Offers fast discharge times in confined areas
- Can connect directly to either equipment or wall power
- Faster response to failure with notification
- Provides visual notification of failures
- Flush or angled mounting means the blower will reach constrained spaces
- Reduced maintenance time, longer emitter point life, and assured balanced performance



Typical Decay Time (sec)





Specifications

6422e / 6422e-AC

Input Voltage	24 VDC or 24 VAC, 50/60 Hz, 6 W max
Decay Time	< 4 s @ (1000 V to 100 V, 30 cm, 24 VAC input)
Balance	± 20 V @ 30 cm
Technology	Steady-state DC
Emitter	Tungsten; internally shielded
Cleanroom Class	ISO 14644-1 Class 5
Indicators	Power - Green; Fault - Red alarm
Connections	Terminal block for power and FMS fault signal output
Airflow (m³/min)	0.65 (typ)
Ozone	< 0.004 ppm (typ)
Operating Env.	10 - 35°C, 20 - 60% RH (non-condensing)
Mounting	U-bracket with factory installed
Dimensions	With bracket : 12.5H x 10.4W x 6.3D cm; Without bracket : 11.1H x 8.3W x 6.3D cm
Weight	With bracket : 0.357 kg; Without bracket : 0.314 kg
Certifications	CE, RoHS, REACH, ISO 9001, ISO 14001



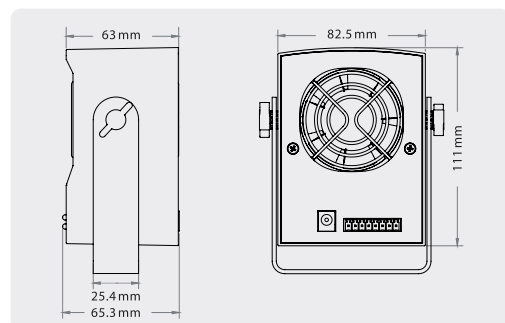
Auto-Clean System

The Auto-Clean System features a brush mechanism that sweeps the emitter points when the blower is turned off and on, which significantly reduces the need for manual cleaning. Simco-Ion recommends activating the Auto-Clean System at least once a week. Cleaning schedules will vary depending on environmental conditions.



Enhanced Capabilities

An alarm LED on the front indicates a high voltage circuitry failure and a five-pin facility monitoring system (FMS) interface is on the rear of the blower, which provides a 4 - 20 mA current loop and relay output connection. With 24 VDC input connection, the FMS output is situated on a convenient terminal block, designed for easy integration.

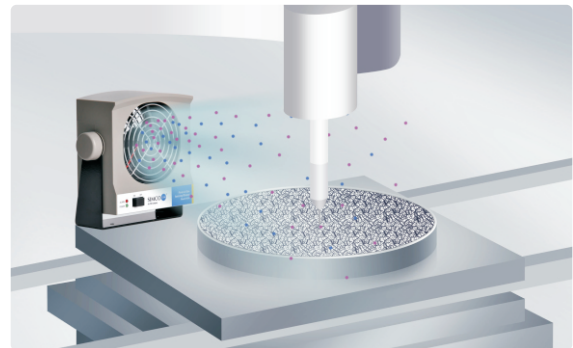


Point of Use Ionizing Blower 6432e



Simco-Ion's Point of Use Ionizing Blower Model 6432e controls static discharge in assembly, inspection, and packaging areas. The Model 6432e can also be used in-tool to control static build-up problems such as product contamination, material mis-handling or microprocessor lock-up.

IsoStat technology provides several useful benefits for the 6432e blower. It's small size and ability to operate in balance without grounding wires or cables allows easy and quick installation and setup. The blower's internal emitter points are electrostatically shielded to eliminate field-induced charging. Steady State DC operation provides fast discharge with low airflow for greater operator comfort.



Features

- IsoStat® technology
- Steady-state DC ion emission
- 24 VDC or 24 VAC input power
- Facility Monitoring System (FMS) interface
- Operational failure alarm
- Small footprint design with in-tool stand or benchtop stand

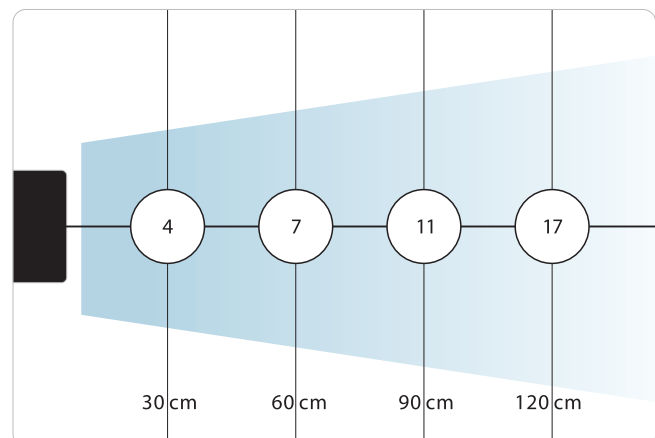


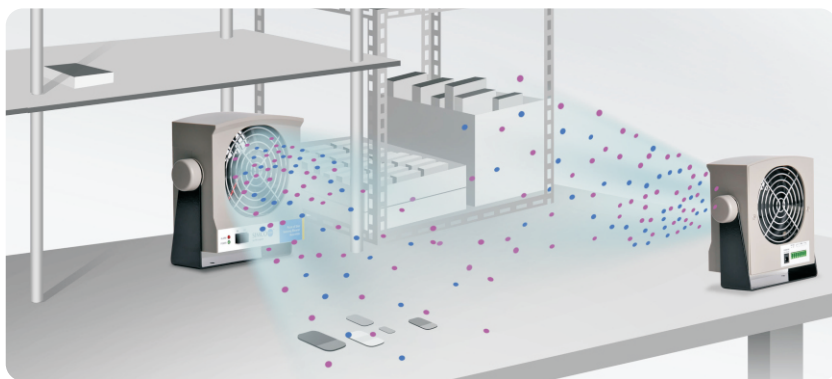
Benefits

- Intrinsically balanced; no calibration needed
- Minimum ion recombination provides maximum static control
- Convenient power options, wall-provided AC or tool-provided DC
- Faster response to ionization failure
- Provides visual notification of failures
- Occupies little work or tool space, and cleanroom-compatible.



Typical Decay Time (sec)





Specifications

6432e

Input Voltage	24 VDC or 24 VAC, 50/60 Hz, 6 W max
Decay Time1	< 4 s @ (1000 V to 100 V, 30 cm, 24 VAC input)
Balance	± 20 V @ 30 cm
Technology	Steady-state DC
Emitter	Tungsten; internally shielded
Cleanroom Class	ISO 14644-1 Class 5
Indicators	Power - Green; Fault - Red alarm
Connections	Terminal block for power and FMS fault signal output
Airflow (m ³ /min)	1.39 (typ)
Ozone	< 0.005 ppm (typ)
Operating Env.	10 - 35°C, 20 - 60% RH (non-condensing)
Mounting	U-bracket : in-tool (4.5 x 12.9 cm), benchtop (10.8 x 12.9 cm)
Dimensions	13.3H x 12.7W x 6.3D cm; Base (in-tool 4.5 cm, benchtop 10.8 cm)
Weight	With benchtop bracket : 0.595 kg
Certifications	CE, RoHS, REACH, ISO 9001, ISO 14001



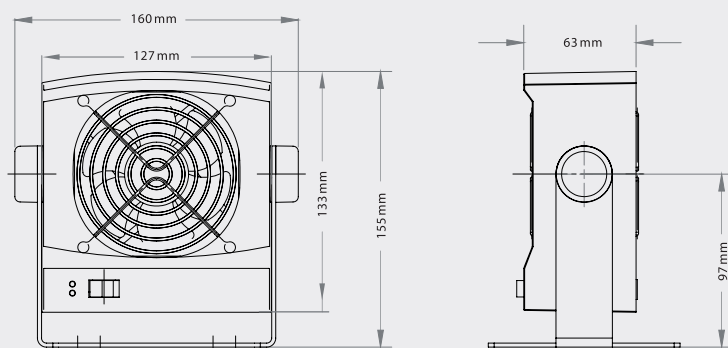
Enhanced Features

An alarm LED on the front indicates a high voltage circuitry failure and a five-pin facility monitoring system (FMS) interface is on the rear of the blower, which provides a 4 - 20 mA current loop and relay output connection. With 24 VDC input connection, the FMS output is situated on a convenient terminal block, designed for easy integration.



Power Options

For increased flexibility, the Model 6432e Blower can be directly powered by process equipment or 24 VDC or 24 VAC power to fit the needs.



Critical Environment Bench-top Blower 5802i



The Simco-Ion 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 the target with complete accuracy presenting a significant time and cost savings.

Model 5802i can operate with external sensors to maintain better than ± 1 V balance by altering ion output and adapting to environment changes. With the optional sensor and collimator, it delivers precisely balanced and directed ionized air to the target without taking up valuable room in environment. A greater concentration of emitter points and internal circuitry suited for high humidity applications makes the Model 5802i the standard choice for environments that need quality ESD protection with solid design.



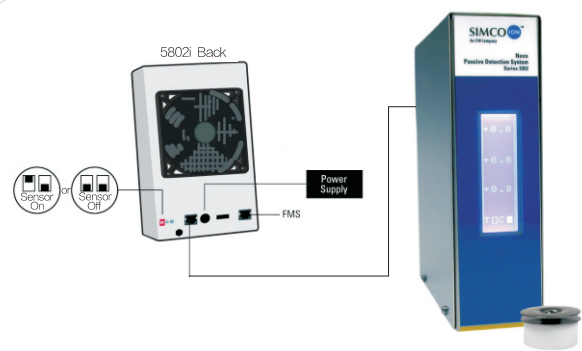
Features

- ± 3 V or better, ± 1 V with the optional external feedback system
- Cleanliness rated at ISO 14644-1 Class 4
- Options for sensor input, FMS connection, alarms, and management control
- Unique airflow directing collimator option
- Auto-Clean System option



Benefits

- Provides the best ESD protection for maximizing yields
- Designed for use in an environment with a controlled level of contamination
- Increased control with immediate notification of alarms and prevention of unauthorized adjustment
- Significantly improves airflow delivery with faster discharge times from greater distances
- Automates emitter point cleaning, reducing maintenance costs and time

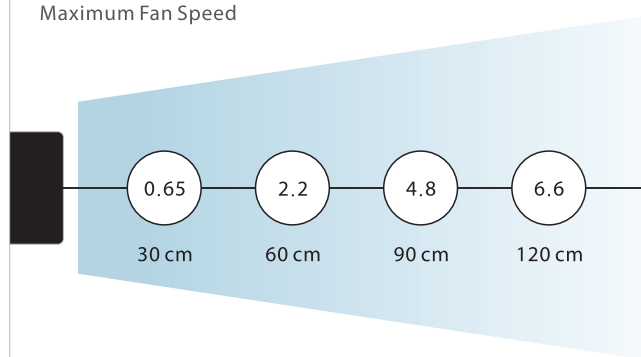


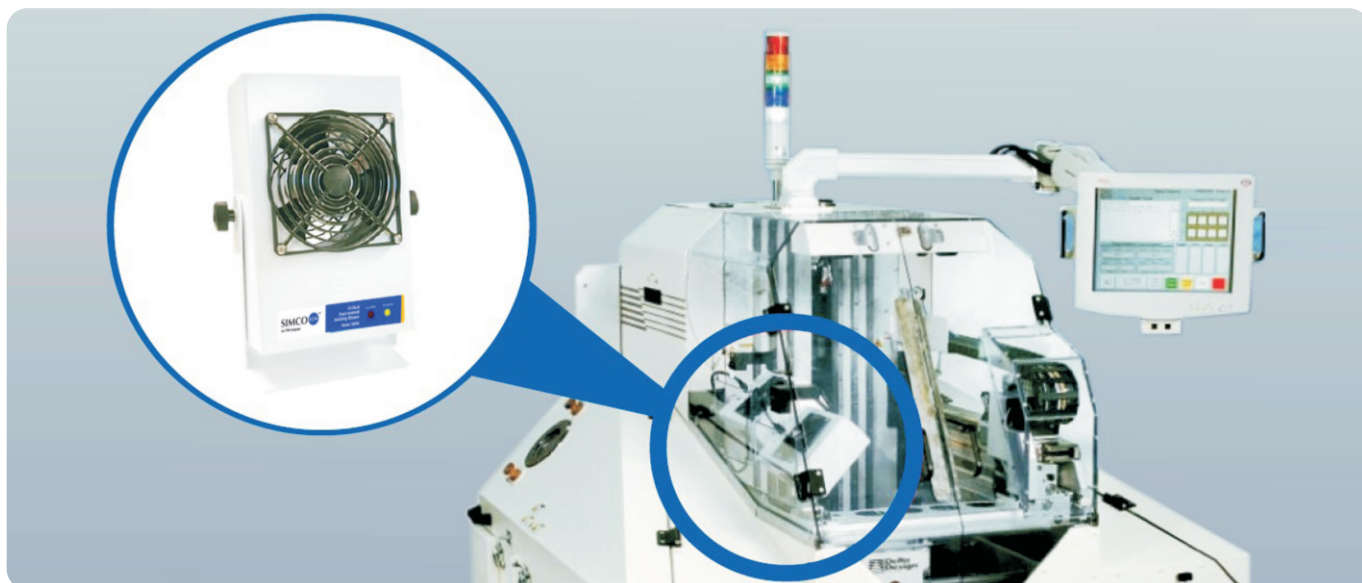
5802i can operate with a Novx 3352, 3362 or 7000 to control its offset voltage at ± 1 V or better performance.



Typical Decay Time (sec)

Maximum Fan Speed





Specifications

5802i

Input Voltage	24 VDC, 0.47 A max
Decay Time	< 1 s @ (1000V to 100V, 30 cm, with Collimator); < 2 s @ (1000V to 100V, 30 cm, without Collimator)
Balance	< ± 3 V typ. @ (30 cm, without external sensor); < ± 1 V typ. @ (30 cm, with external sensor)
Technology	Steady-state DC
Emitter	Machined Titanium
Cleanroom Class	ISO 14644-1 Class 4
Controls	Power with fan speed slide switch - Off/Low/High (Optional - Fixed at High speed); Balance adjust; Optional sensor gain adjust; Sensor type selection
Indicators	Power - Green; Fault - Red alarm
Connections	Optional FMS fault signal output; Optional external sensor input
Airflow (m ³ /min)	3.06 (typ)
Audible Noise	52 dB @ (30 cm, Fan-low), 61 dB @ (30 cm, Fan-high)
Ozone	0.008 ppm (typ)
Operating Env.	10 - 32°C, 30 - 70% RH (non-condensing)
Options	External sensor inputs with FMS connection; Audible alarm; Collimator; Internal pre-set fan speed on high; Power cord bracket; Auto-Clean System
Mounting	Tilt Lock Mounting Stand; Optional - wall mount bracket
Enclosure	Epoxy-polyester powder-coated Aluminum Chassis
Dimensions	26.7H x 19.3W x 12.7D cm
Weight	1.36 kg
Certifications	CE, RoHS, REACH, ENEC



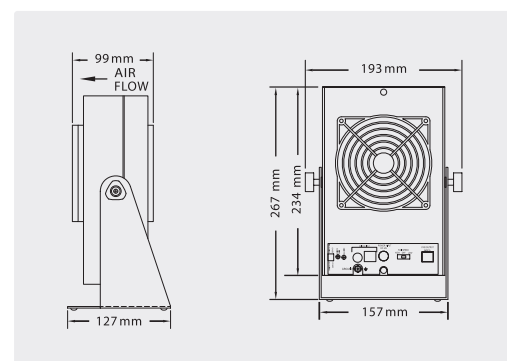
Directed Airflow

The optional collimator fits over the fanstack of the blower and directs ionized air straight to the target so that it can be placed further away from the target with continued excellent discharge times. This significantly improves discharge times by removing common ion disbursement and recombination problems.



Adaptable Options

- An internally preset fan speed on high, ensuring uninterrupted delivery of ionization in critical work areas.
- An audible alarm can operate with the visible red LED on the blower to indicate operational failures including a stopped fan or loss of ionization.
- The Auto-Clean System reduces maintenance periods by sweeping the emitter points when the blower is turned off and on, allowing the blower to continually perform at optimum ion output and balance.



Critical Environment Overhead Ionizer

5810i



The Simco-Ion Critical Environment Overhead Ionizer Model 5810i is designed to provide industry-leading balanced ionization performance in cleanroom environments. It is certified for use in ISO 14644-1 Class 4 cleanrooms. It can operate with external sensors to maintain precise balance (better than ± 1 V) by altering ion output and adapting to environment changes. With the reliability of steady-state DC and the established method for eliminating the effects of ESD and ESD-induced electromagnetic interference (EMI) in high-tech facilities, it delivers maximum ion output where and when needs it.

Complete compatibility with the operating conditions in today's cleanrooms is ensured with silicone-free air bearing fans. Each fan inside is engineered for cleanliness, and sealed off from the rest of the chassis to meet critical cleanroom requirements. Ionizers that don't match these quality standards risk contaminating manufacturing processes and possibly reducing product yields.

Model 5810i may connect with other 5810i (daisy-chain) in series, up to 10 units, using the female AC outlet provided on one end.



Features

- ± 3 V or better, ± 1 V with the optional external feedback system
- Cleanliness rated at ISO 14644-1 Class 4
- Options for sensor input, FMS connection, alarms, and management control
- Auto-Clean System option

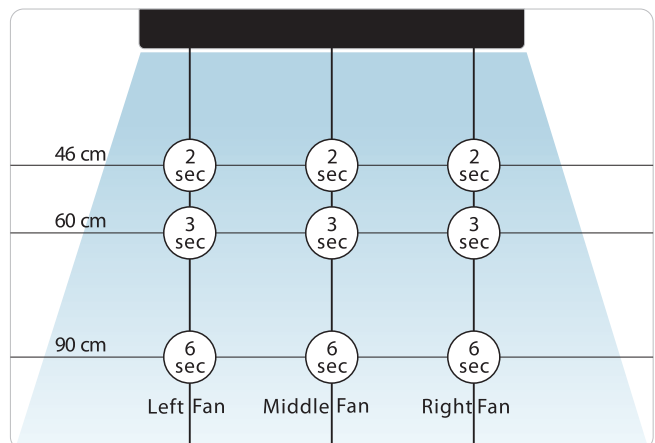


Benefits

- Provides the best ESD protection for maximizing yields
- Designed for use in an environment with a controlled level of contamination
- Increased control with immediate notification of alarms and prevention of unauthorized adjustment
- Automated emitter point cleaning for reduced maintenance cost and time







Typical Decay Time (sec)





Specifications

5810i

Input Voltage	100 - 240 VAC ($\pm 10\%$), 50/60 Hz, 28 W max
Decay Time	< 3 s (1000V to 100V, 46 cm, Fan-High)
Balance	< ± 3 V typ. @ (30 cm, without external sensor); < ± 1 V typ. @ (30 cm, with external sensor)
Technology	Steady-state DC
Emitter	Machined Titanium
Cleanroom Class	ISO 14644-1 Class 4
Controls	Power with fan speed switch - Off/Low/High (Optional - Fixed at High Speed); Balance adjust trimpot per fan; Optional sensor gain trimpot per fan; Sensor type or no sensor slide switch
Indicators	Power - Green; Fault - Red alarm
Connections	IEC Power In and Out for daisy chain up to 10 units in series from one power source; Optional external sensor input
Airflow (m ³ /min)	3.06 (typ) per fan
Audible Noise	52 dB @ (30 cm, Fan-low), 61 dB @ (30 cm, Fan-high)
Ozone	< 0.02 ppm
Operating Env.	10 - 32°C, 30 - 70% RH (non-condensing)
Options	External sensor inputs; FMS 4-20 mA RJ-11 output (available with sensor option only); Audible alarm; Cord lock; Auto-Clean System
Mounting	Eye-bolts and S-hooks provided; Optional - U-shape bracket
Enclosure	Epoxy-polyester powder-coated Aluminum Chassis
Dimensions	9.6H x 15.5D x Length 81.3 (32" 2-fans) , 101.6 (40" 3-fans), 111.8 (44" 3-fans) cm
Weight	44" (3-fans) : 4.6 kg
Certifications	   



± 1 V Operation

The Model 5810i ionizer's optional external feedback sensor operates with the Novx Process Monitor 7000, Novx Passive Detection System 3352 and Novx Active Detection System 3362 to detect and automatically correct the balance. This ensures to maintain a ± 1 V or better balance at all times.



Fan Speed Choices

The 5810i was designed specifically for use in cleanrooms up to and including ISO 14644-1 Class 4 in cleanliness. To minimize disruption of laminar airflow, the unit has a 3-position fan setting that optimizes static discharge performance with the smallest volume and velocity of airflow.



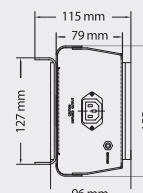
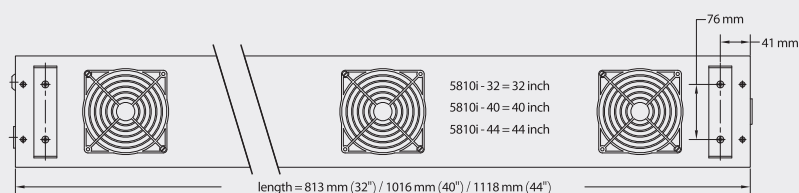
Factory Monitoring System

The blower includes an LED alarm light that indicates a range of possible conditions, including absence of ionization or a stopped fan. An optional Audible Alarm is available. The optional Facility Monitoring System (FMS) feature provides an industry-standard 4 - 20 mA signal output for remotely monitoring error detection.



Auto-clean System

The optional Auto-clean System is an automated feature that provides reduced operation costs due to lower maintenance. It features a brush mechanism that sweeps the emitter points when the blower is turned off and on, allowing the Model 5810i to continually perform at optimum ion output and balance.



Critical Environment In-tool Ionizer

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 ± 3 V or better balance standard and exceptional ± 1 V with the optional external feedback system. An internal, automatic balance correction system ensures 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 environment.



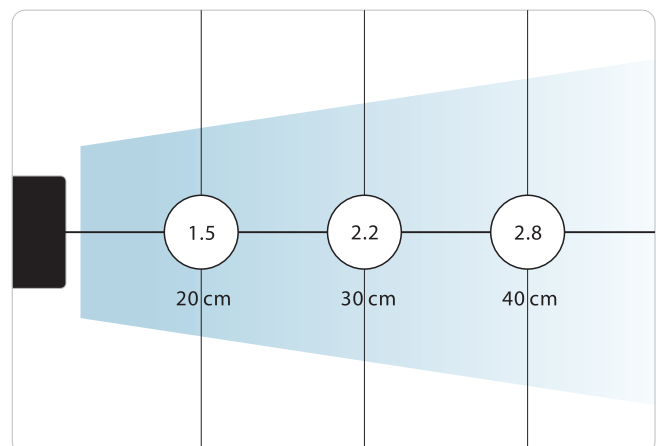
Features

- ± 3 V or better, ± 1 V with the optional external feedback system
- Facility Monitoring System (FMS) connection and audible alarm
- Separate control box
- Cleanliness rated at ISO 14644-1 Class 4

Benefits

- Provides the best ESD critical environment protection available for maximizing yields
- Faster response to ionization failure with notification through tool or FMS
- Allows the blower to be situated close to the target area for fast electrostatic discharge
- Designed for use in environment with a controlled level of contamination

Typical Decay Time (sec)





Optional Feedback

The Model 5822i ionizer's optional external feedback sensor operates with the Novx Process Monitor 7000, Novx Passive Detection System 3352 and Novx Active Detection System 3362 to detect and automatically correct the balance. With the antenna placed at the target area, feedback is sent to the Model 5822i blower's internal control system. This ensures the target maintained at ± 1 V or better balance at all times, no matter what environmental variables exist.



Directed Airflow

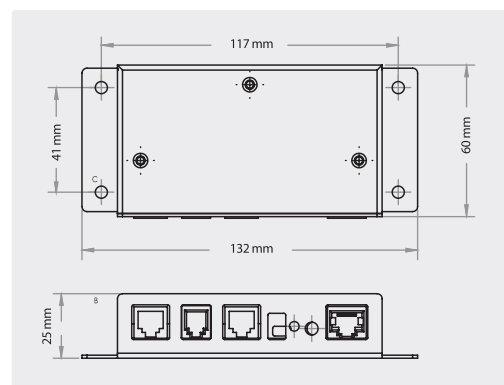
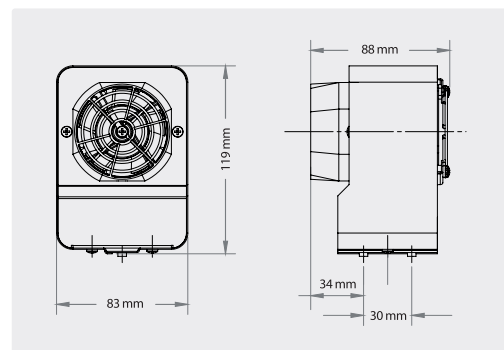
The collimator fits over the air outlet of the blower and directs ionized air straight to the target, so that the blower can be placed further away from the target with continued excellent discharge times and good performance at extended distances. This faster, directed airflow method improves ion and static elimination, significantly minimizing ion recombination.



Specifications

5822i

Input Voltage	24 VDC, 1 A max, External Power Supply (100 – 240 VAC, 50/60 Hz)
Decay Time	< 2.5 s @ (1000 V to 100 V, 30 cm)
Balance	< ± 3 V typ. @ (30 cm, without external sensor); < ± 1 V typ. @ (30 cm, with external sensor)
Technology	Steady-state DC
Emitter	Tungsten Alloy; Optional - Machined Titanium
Cleanroom Class	ISO 14644-1 Class 4
Controls	Balance adjust; Sensor gain adjust; Fan Slow/Off/Fast speed; Fan adjustment at "Slow" position; Sensor Mode DIP switch
Indicators	Control Box : Power - Green; Alarm - Red
Airflow (m ³ /min)	0.58 (typ)
Audible Noise	< 56 dB @ 30 cm
Operating Env.	10 - 35°C, 30 - 65% RH (non-condensing), \leq ISO 14644-1 Class 7 or better
Mounting	2 mounting screw holes 3.05 cm apart on bottom of blower
Enclosure	Stainless Steel
Dimensions	Blower : 11.5H x 8.3W x 6.1D cm; Control Box : 2.5H x 13.2W x 6.0D cm
Weight	Blower : 0.51 kg; Control Box : 0.25 kg
Certifications	CE, A, E



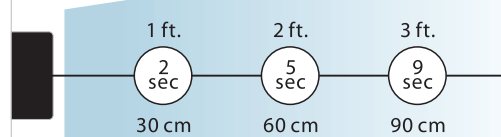
Compact Ionizing Blower minION™2

minION2

Input Voltage	24 VDC, 0.25 A, 6 W
Decay Time	< 2 s @ (1000 V to 100 V, 30 cm, Fan-high)
Balance	± 10 V (Self-balance)
Technology	Steady-state DC
Emitter	Stainless Steel
Coverage	30 x 90 cm
Controls	Power On/Off switch; Recessed Variable Fan speed
Indicators	Power - Green; Fault - Red alarm
Connections	Two 4P4C RJ-11 sockets for power and daisy chain; Terminal block for power and FMS fault signal output
Airflow (m³/min)	0.59 - 1.19
Audible Noise	52 dB max @ (60 cm, Fan-high)
Operating Env.	0 - 50°C, 30 - 70% RH (non-condensing)
Mounting	Stainless Steel bracket; Optional - Articulating Arm
Enclosure	White Reinforced Polycarbonate
Dimensions	9.8W x 13.6H x 6D cm
Weight	0.5 kg
Certifications	CE cULus



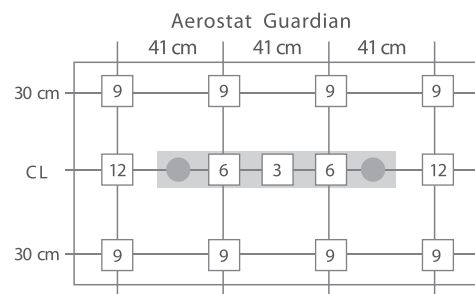
Fan-high



Overhead Ionizing Blower GUARDIAN

Aerostat Guardian

Input Voltage	120 VAC, 60 Hz, 2.5 A; 230 VAC, 50 Hz, 1.5 A (Fan-high, Warm Air/Light on)
Decay Time	< 3 s @ (1000 V to 100 V, 46 cm, Fan-high)
Balance	0 ± 5 V (intrinsic, no calibration required)
Technology	AC Ionization
Emitter	Stainless Steel
Cleanroom Class	ISO 14644-1 Class 5
Airflow (m³/min)	4.25 - 8.50 (total output)
Warm Air	Above ambient: (14°C - Fan-low, 6°C - Fan-high) @ 15 cm in front
Ozone	0.02 ppm @ 30 cm
Operating Env.	0 - 50°C, 30 - 70% RH (non-condensing)
Enclosure	Powder-coated White Enamel Aluminum
Dimensions	10.2H x 17.1D x 108.6L cm
Weight	7.3 kg
Certifications	CE cULus



Discharge Time (1kV to 100V) determined per ESD Std 3.1
i.e. Unit 46 cm above test plate with fan at high speed

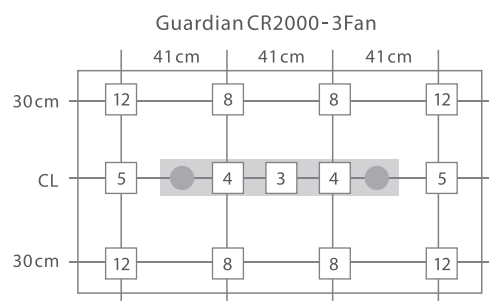


Overhead Ionizing Blower GUARDIAN CR2000



Guardian CR2000 series

Input Voltage	2-fan : 120 VAC, 0.2 A; 230 VAC, 0.1 A 3-fan : 120 VAC, 0.3 A; 230 VAC, 0.15 A
Decay Time	< 3 s @ (1000 V to 100 V, 46 cm, Fan-high)
Balance	0 ± 5 V @ 46 cm
Technology	AC Ionization
Emitter	Stainless Steel
Coverage	2-fan : 60 x 90 cm; 3-fan : 60 x 120 cm
Cleanroom Class	ISO 14644-1 Class 4
Airflow (m ³ /min)	2-fan : 2.55 @ Fan-low, 5.10 @ Fan-high; 3-fan : 3.82 @ Fan-low, 7.65 @ Fan-high
Audible Noise	(48dBA @ Fan - low, 58dBA @ Fan - high) @ 61 cm
Ozone	0.02 ppm @ 46 cm
Operating Env.	0 - 50°C, 30 - 70% RH (non-condensing)
Enclosure	Glossy White Polyurethane Finish Aluminum
Dimensions	10 H x 17 D x Length 81 (2-fan), 109 (3-fan) cm
Weight	2-fan : 5.5 kg; 3-fan : 6.8 kg
Certifications	CE cULus



Discharge Time (1kV to 100V) determined per ESD Std 3.1
i.e. Unit 46 cm above test plate with fan at high speed

Ionizing Air Gun/Nozzle TOP GUN™ / orION™



Simco-Ion's Top Gun Ionizing Air Gun is a high-performance ionizing air gun designed for a wide variety of electronic manufacturing, medical and assembly applications. Balanced to $\pm 15V$, the Top Gun features high blow-off force and low air consumption providing high efficiency cleaning and maximum static charge decay. A filter at the exit of the gun ensures that the air is clean.

The gun body is lightweight but durable. It features a light-touch trigger, making it comfortable even for extended use. All functionality is built into the gun, including a flow control valve, a balance adjustment for calibration, and a two level LED which indicates both power and ionization. Both the gun and cable are static dissipative. A hanger is provided for easy mounting.

The orION, converted from Top Gun to work as ionizing air nozzle, also features high blow-off force capability and reliable balance stability maintained at better than $\pm 15V$. An easily replaceable 0.01 micron particle filter is positioned at the nozzle air exit to provide the highest confidence that clean air is delivered to sensitive product.



Features

- Lightweight, Ergonomic Design
- Flow Control Valve for Adjustable Airflow (Top Gun only, not for orION)
- Electrically balanced ion output
- Integrated, Replaceable Filter-Nozzle
- Ionization Indicator Light



Benefits

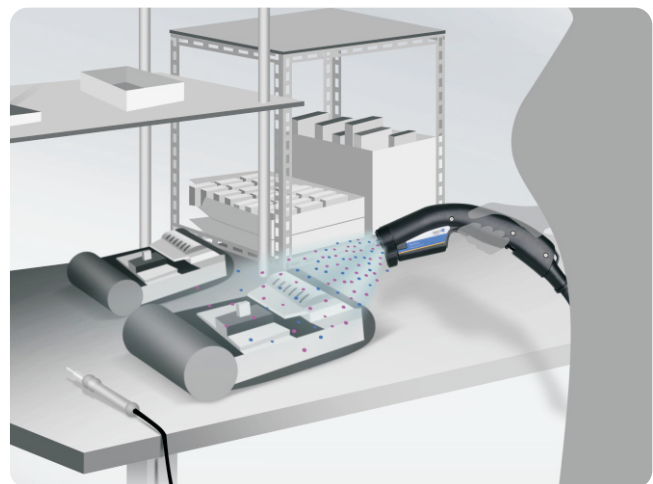
- Maximum user comfort prevents operator fatigue and increases productivity
- Airflow use that meets the specific application requirements
- Protects ESD sensitive components and assemblies
- Insures air contacting the target area is clean
- Eliminates the guesswork of ionization at target area



TOP GUN



orION





Specifications

Top Gun 3 or orION

Input Voltage	120 VAC, 60 Hz, 0.2 A; 230 VAC, 50 Hz, 0.1 A
Decay Time	1.3 s @ (1000 V to 100 V, 15.2 cm, 2 bar); 0.5 s @ (1000 V to 100 V, 5 cm, 4 bar)
Balance	0 ± 15 V
Technology	AC Ionization
Emitter	Stainless Steel
Indicators	Power – Red in reduced intensity; Trigger – Intensity increase
Gas Input	Clean Dry Air (CDA) or Nitrogen
Gas Connection	1/4" NPT female
Gas Consumption	0.068 m³/min @ 2 bar; 0.13 m³/min @ 4 bar; 0.21 m³/min @ 7 bar
Blow-off Force	0.18 kg @ (7 bar, 5 cm Dia target, 7.5 cm distance)
Audible Noise	(76 db @ 2 bar; 89 db @ 4 bar; 97 db @ 7 bar) @ 60 cm
Gas Filter	0.01 micron, replaceable
Ozone	0.001 ppm @ (1 bar, 0.45 m)
Operating Env.	0 - 40°C; 30 - 60% RH (non-condensing)
Enclosure	Gun : Static Dissipative Polycarbonate/ABS Blend; Cable : Static Dissipative Polyurethane
Gun Cable	Standard 7' or 14', Optical Sensor version 5' or 14'
Weight	Gun : 0.185 kg; Air hose : 0.115 kg/meter
Certifications	CE, RoHS, REACH, ISO 9001

Console

Input Voltage	120 VAC / 0.10 A, 230 VAC / 0.05 A
Gas Pressure	7 bar max, Clean Dry Air (CDA) or Nitrogen
Gas Connection	1/4" NPT female
Enclosure	Powder-coated Steel
Dimensions	13.2W x 16.4H x 8.5D cm
Weight	2.7 kg

Top Gun 3 balance long term stability (V)

Distance	0 hr	195 hrs	465 hrs	1440 hrs
		@ 2 Bar		
5 cm	-8	5	0	-12
10.2 cm	-8	8	1	-10
15.2 cm	0	6	5	-1
		@ 4 Bar		
5 cm	-2	2	-1	-10
10.2 cm	-5	2	-1	-8
15.2 cm	-1	1	1	-5



Sidekick (Foot-pedal)

The Top Gun with Sidekick offers hands-free operation and flexible positioning during assembly and manufacturing processes. A foot-pedal controls both ionization and airflow, which reduces compressed air costs and extends the life of the ionizer.



Top Gun Sidekick
(Hands-free) Foot-pedal

The flexible gun mount allows the operator to focus the ionized airflow where it is needed. The stand includes a steel bracket for easy bench top mounting.

- Fully adjustable 46cm neck focuses the ionized airflow
- Tabletop bracket provides easy mounting
- Foot-pedal permits hands-free operation



Optical Sensor

For automated assembly, Top Gun and orION are available with an optional Optical Sensor, which automatically activates Top Gun and orION when an object is in range.



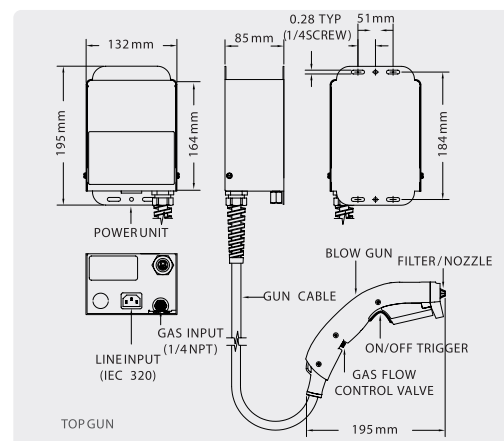
Optical Sensor

The Optical Sensor has an adjustable sensing range from 2.5 - 76 cm.



Applications

- Medical device manufacturing and packaging
- Precision parts assembly
- Particulate removal in optics
- Cleaning glass or molded parts prio to finishing
- Cleaning thermo-formed trays



AirForce Ionizing Blow-off Gun 6115



Simco-Ion AirForce 6115 Ionizing Blow-off Gun was designed with the operator in mind. Its lightweight and flexible air hose moves with the operator and makes work easier. No high voltage cable means improved operator safety. The gun's ergonomic design, with a light touch trigger and easy-view LED, minimizes fatigue and eliminates wrist hyperextension. The compact console can be mounted anywhere, so it doesn't take up valuable workspace but is still easily accessible. To make the work environment more pleasant, the AirForce 6115 also features low audible noise.

Strong blow-off power makes the AirForce 6115 effective in removing particle contamination and ideal for use in clean process applications. It is the only gun product rated at ISO 14644-1 Class 4 cleanliness. Steady-state DC ion emission provides efficient ionization with an average discharge time of less than 1.0 second. Results are even better as IsoStat technology means static charge being controlled with constantly balanced ionization.



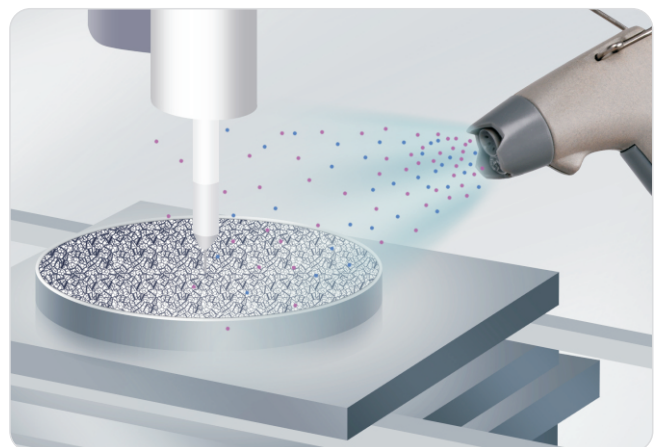
Features

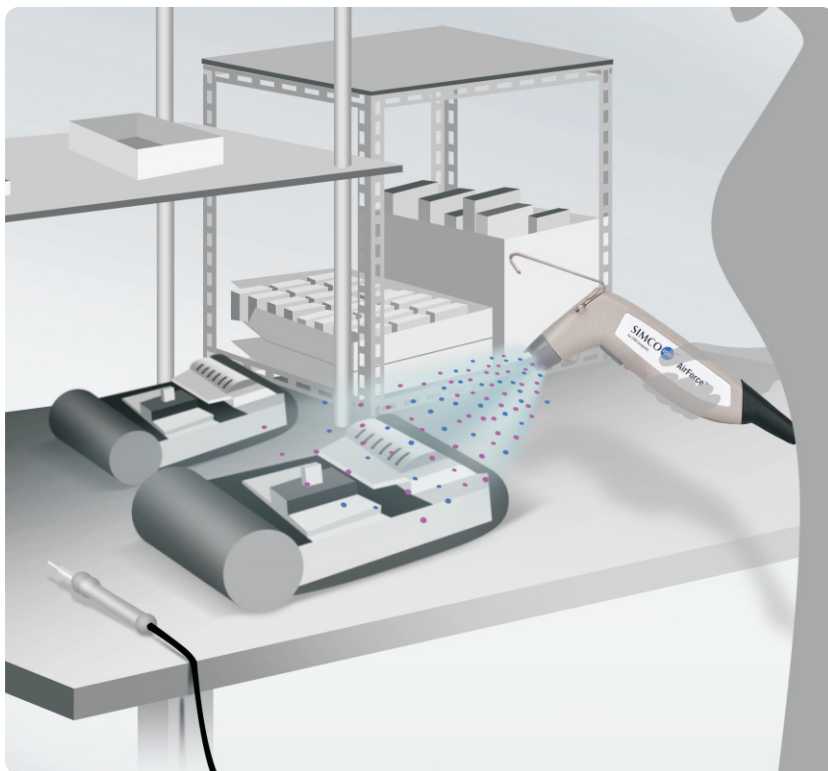
- Ergonomic gun design
- Flexible, lightweight air hose with low voltage power cable
- Replaceable emitter point assembly and quick-eject filter
- Strong blow-off force
- Steady-state DC ion emission
- IsoStat® technology
- Durable static-dissipative materials
- ISO 14644-1 Class 4 cleanliness operation



Benefits

- Reduces fatigue and wrist hyperextension
- Moves with operator and does not interfere with work
- Minimizes maintenance downtime
- Effective removal of particle contamination
- Fast discharge times; efficient ion delivery
- Intrinsically balanced; no calibration needed
- Holds up to high impact; ESD-safe
- Suitable for use in cleanroom applications for semiconductor, medical and hard disk drive



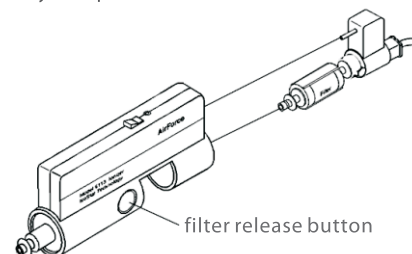


Optional Foot Pedal



Grooseneck Mounting Stand

Easy to replace filter



Specifications

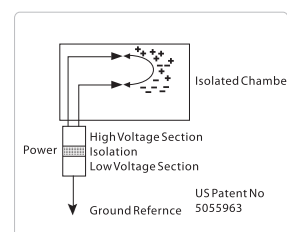
6115

Input Voltage	24 VAC, 10 W
Decay Time	< 1 s @ (1000 V to 100 V, 15.2 cm, 2 bar)
Balance	± 30 V
Technology	Steady-state DC
Emitter	Tungsten
Cleanroom Class	ISO 14644-1 Class 4
Indicators	Power - Green on both console and gun
Gas Input	1.38 - 4.49 bar, Clean Dry Air (CDA) or nitrogen
Gas Connection	1/4" NPT male quick connector
Blow-off Force	0.041 kg @ (2 bar, 5.1 cm Dia target, 7.6 cm distance)
Audible Noise	70 dB @ (2 bar, 1 m)
Gas Filter	99.9% efficient on 0.01 micron or larger; 99.9% coalescing efficiency
Gun Cable	Static Dissipative Polyurethane, 2.4m in length
Conduct EMI	29 dBµV, 100 KHz to 1.1 MHz average level
Ozone	< 0.005 ppm (typ)
Mounting	Metal mounting plate for Console
Enclosure	Gun and Console : Static Dissipative Polycarbonate
Dimensions	Gun : 20.3L x 7.6W x 2.5D cm; Console : 21.6L x 7.6W x 4.1D cm
Weight	Gun and 2.4m cable : 0.341 kg; Console : 0.326 kg
Certifications	CE cUL US



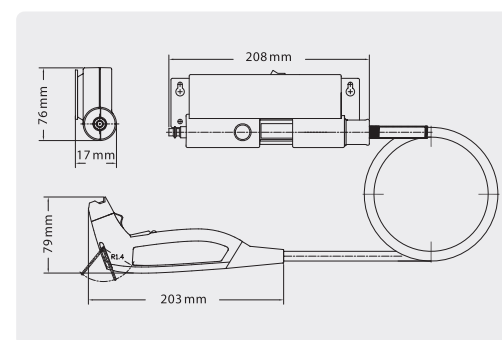
IsoStat® Technology

Simco-Ion's IsoStat technology is the first balancing technology for ionizers to guarantee intrinsically balanced ionization and elimination of complicated feedback circuits.



IsoStat is based on a law of physics - Conservation of Charge - which states that charge cannot be created or destroyed in an isolated system. By isolating the ionizer's emitter points from ground, IsoStat ensures equal numbers of positive and negative ions. Characteristics of IsoStat ionizers include:

- Ionizers never need calibration and require very little maintenance.
- Small size and operation without grounding wires.



μWire AeroBar® 5710



Simco-Ion's μWire ("Microwire") AeroBar Model 5710 is a cost-effective, high-performance ionizer specifically designed to eliminate static charge on large surface areas. It is particularly suited for sensitive flat panels where fast discharge times and low swing voltages are desired. The use of Micropulse technology applied to a corona wire system for optimal performance. The technology reduces ion recombination thus increasing product efficiency and performance.

The μWire Bar is optimized for its unique corona wire design which produces more ions than emitter points. The corona wire design also permits the bar to be placed closer to substrates without causing the "striking effect" that emitter point bars can generate.

This latest version of the μWire AeroBar includes numerous changes to provide higher performance. Most notably, the addition of a 2nd air input connector improves performance on bars 2500 mm and longer. Shields have been added to protect wire contacts, making it truly a "one swipe to clean" bar.



Features

- Unique corona wire design, no emitter points
- Micropulse high voltage technology
- Flexible and powerful setup



Benefits

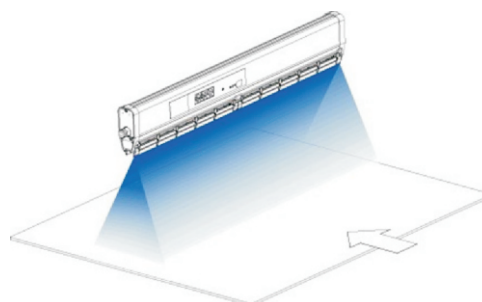
- Significantly longer cleaning intervals than those emitter point technology products
- Fast cleaning with a single swipe of the wire
- Allows mounting close to product without danger of stripping
- Long-term balance stability and discharge time performance
- Uniform balance over the length of the bar
- Lower cost-of-ownership
- Standard "plug-and-play" use or user-optimized performance for specialized applications



5710



Handheld Terminal (HHT)

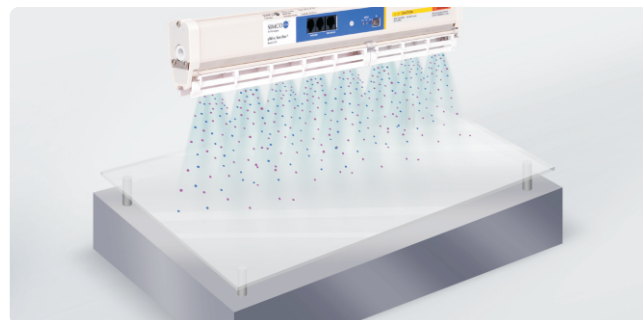
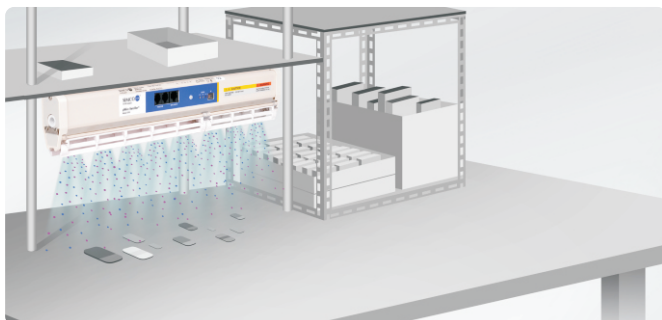


Typical Decay Time (sec)

100 mm	≤1	
200 mm	≤1.5	
300 mm	≤2	
600 mm	≤4	
1000 mm	≤6.5	seconds

μWire AeroBar Model 5710 (500 mm length) with 50 mm Air Jet Spacing. Measured using Simco-Ion CPM Model 280A w/HEPA flow 0.3m/sec & CDA flow at 0.05 m³/min.





Specifications

5710

Input Voltage	24 VDC \pm 10%, 12 W max
Output Voltage	Adjustable 13 kV pk-pk (typ)
Balance	$< \pm 25$ V over the length of the bar
Working Range	50 - 2000 mm, application and specification dependent
Technology	Micropulse
Frequency	Factory default at 1 Hz, adjustable from 0.1 - 35 Hz
Emitter	Tungsten wire, 80 micron dia., replaceable
Cleanroom Class	ISO 14644-1 Class 2
Controls	All parameters set via wired handheld terminal (HHT)
Indicators	Power - Green; Communication - Yellow; Alarm - Red; LED combinations indicate specific status conditions
Gas Input	Clean dry air (CDA)
Gas Pressure	3.45 bar (optimal); 6.2 bar max
Gas Connection	Bars 400-1500 mm (50 mm air jet spacing) : 6 mm OD quick connector; Bars 1650-2400 mm (50 mm air jet spacing) or bars 400-1500 mm (25 mm air jet spacing) : 8 mm OD quick connector; Bars \geq 2500 mm (50 mm air jet spacing) : Two 8 mm OD quick connectors
EMI Level	Below background level
Ozone	< 0.05 ppm
Operating Env.	15 - 35°C, 30 - 60% RH (non-condensing)
Enclosure	ABS Chassis, Stainless Steel Reference Plates
Dimensions	7.6H x 3.3W x Length : 40/50/ 65/75/90/100/115/125/140/150/ 165/175/190/200/215/225/240/ 250/265/275/290/300 cm
Certifications	CE ULS C E



Application Flexibility

The μ Wire AeroBar can be operated with the factory default settings in "plug-and-play" mode, or optimized for a specific application using the Handheld Terminal. The bar's ability to perform well in either a vertical or horizontal position along with the μ Wire AeroBar low profile height design makes it easy to install in a variety of flat-panel tool locations, including mail-slot, conveyor and load/unload cassette areas.

A maximum of three μ Wire AeroBars may be electrically connected together in a serial fashion ("daisy-chained").

Air jet spacing at either 25 mm (recommended for target distances up to 600 mm) or 50 mm offers optimal performance for each individual application.



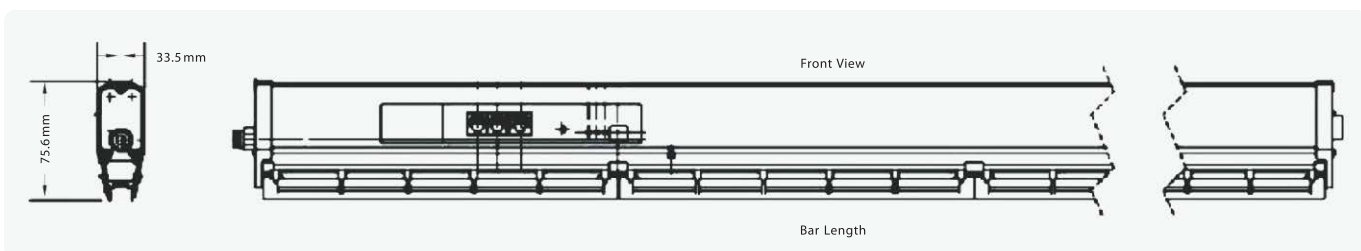
Handheld Terminal

Use the Handheld Terminal (HHT) to change the settings of the 5710 AeroBar. The HHT can also be used to monitor operation status and parameter, such as bar address, frequency, power output, standby mode, alarm test, and firmware version.



Emitter Wire Cleaner

The 5710 μ Wire AeroBar has a specific-design emitter wire cleaner : placing foam swap inside and swap along the emitter wire, those accumulated dirt can be removed in a fast and simple way. The emitter cartridge can also be detached for replacement.



μWire AeroBar® 5711



Similar to the μWire AeroBar 5710, the 5711 is particularly suited for sensitive flat panels where fast discharge times and low swing voltages are desired. The shorter bar length of the 5711 is ideal for space constrained tools in both the flat panel and backend semiconductor processes.

The μWire AeroBar 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.

The μWire Bar is optimized for its unique corona wire design which produces more ions than emitter points. The corona wire design also permits the bar to be placed closer to substrates, diminishing the recombination of ions and the resulting "striping effect".



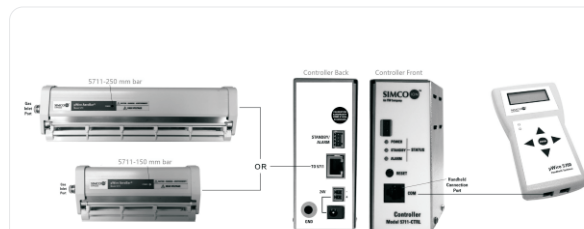
Features

- Compact Size (150 or 250 mm length)
- Unique corona wire design (no emitter points)
- Micropulse high voltage technology
- Remotely mounted controller for 5711 AeroBar

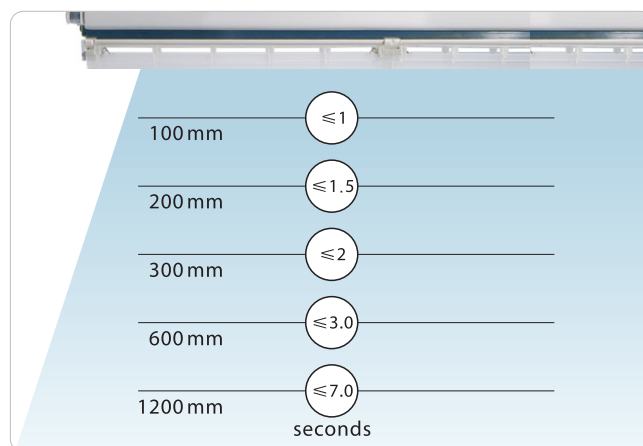


Benefits

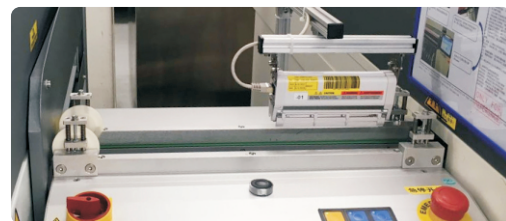
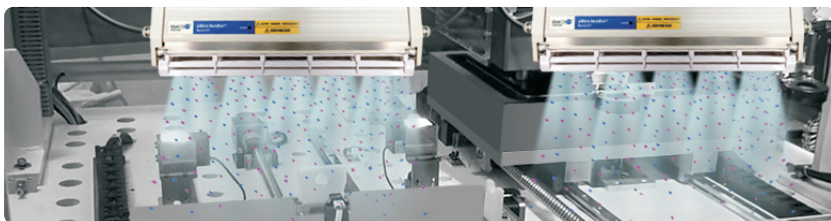
- Charge protection for even the most space-limited automation tools
- Bar mounted close to target without ionization "striping"
- One swipe cleaning with bar in place
- Long-term balance stability and discharge time performance
- Uniform balance over the length of the bar
- Innovative ionization generation that translates to lower total cost of ownership
- Convenient access to power input, status lights and remote alarm connection



Typical Decay Time (sec)



μWire AeroBar Model 5711 (250 mm length) with 25 mm Air Jet Spacing. Measured using Simco-Ion CPM Model 280A with CDA flow at 2 lpm per air jet (18 lpm total) and no HEPA flow.



Specifications

5711

Input Voltage	24 VDC \pm 10%, 12 W max
Output Voltage	Adjustable 13 kV pk-pk (typ)
Balance	$< \pm 25$ V over the length of the bar
Working Range	50 - 2000 mm, application and specification dependent
Technology	Micropulse
Frequency	Factory default at 1 Hz, adjustable from 0.1 - 35 Hz
Cleanroom Class	ISO 14644-1 Class 2
Controls	All parameters set via wired handheld terminal (HHT) by either wired connection or IR control to the 5711-CTRL Controller
Indicators	Power - Green; Communication - Yellow; Alarm - Red; LED combinations indicate specific status conditions
Gas Input	Clean dry air (CDA),
Gas Pressure	3.45 bar (optimal); 6.2 bar max
Gas Consumption	150 mm AeroBar = 10 LPM, overall per bar 250 mm AeroBar = 18 LPM, overall per bar (Recommended flow is 2 LPM per jet orifice)
Gas Connection	6 mm OD quick connector
EMI Level	Below background level
Ozone	< 0.05 ppm
Operating Env.	15 - 35°C, 30 - 60% RH (non-condensing)
Enclosure	5711 AeroBar: ABS Chassis; Stainless Steel Reference Plates 5711-CTRL Controller: Stainless Steel Chassis
Dimensions	5711 AeroBar: 7.6H x 3.3W x Length (16 cm or 26 cm) 5711-CTRL Controller: 11.9H x 4.8W x 8.3D cm
Certifications	CE cULus K E



Application Flexibility

The μ Wire AeroBar can be operated with the factory default settings in "plug-and-play" mode, or optimized for a specific application using the Handheld Terminal. The bar's ability to perform well in either a vertical or horizontal position along with the μ Wire AeroBar low profile height and length design makes it easy to install in a variety of flat-panel tool locations, conveyor and load/unload cassette areas as well as within many backend semiconductor assembly and test areas.



5711-CTRL Controller

The μ Wire AeroBar 5711 features a controller that can be placed in a convenient location for easy access to power input (local 24 VDC or power adapter from AC wall power), ionization status lights, handheld terminal setup connection and remote status connection.



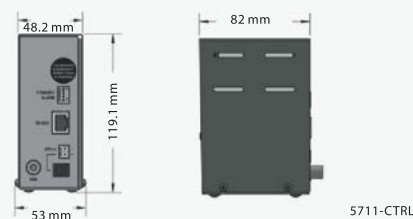
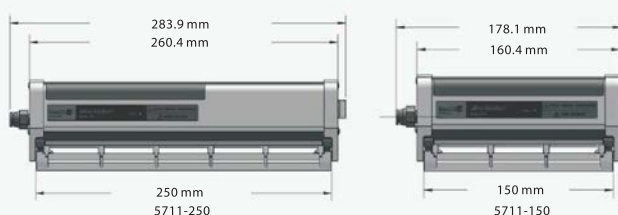
Handheld Terminal

Use the Handheld Terminal (HHT) to change the settings of the 5711 AeroBar. The HHT can also be used to monitor operation status and parameter, such as bar address, frequency, power output, standby mode, alarm test, and firmware version.



Emitter Wire Cleaner

The 5711 μ Wire AeroBar has a specific design emitter wire cleaner: placing foam swap inside the swap along the emitter wire, those accumulated dirt can be removed in a fast and simple way. The emitter cartridge can also be detached for replacement.



5711-CTRL

Modulated Pulse AeroBar® (ISO 14644-12 Compatible)

5635/5635M



Model 5635M AeroBar MP is metal-free design which is perfect for "No Metal" applications



Features

- ISO 14644-12 (0.01µm particles) cleanliness
- Modulated pulse technology
- Excellent lateral uniformity
- Low field voltages
- Air-assist capability
- Optional software with easy-to-use interface with wide adjustability
- Alarm output signal



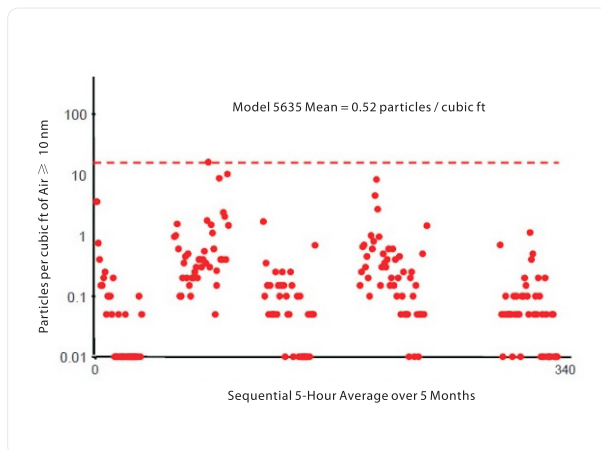
Benefits

- Compatible with all wafer technology nodes including 14 nm and below
- Precision balance, high ion output with long-term stability
- Uniform balance across the AeroBar
- Safe placement as close as 150 mm of the wafer or reticle
- Enhanced static charge neutralization at fast automation speeds
- Fast setup and easy optimization in any environment
- Communicate to tool or facility monitoring system



The Model 5635 AeroBar MP ionizing bar is specifically designed to eliminate static charge in semiconductor and other ultra-clean manufacturing processes where fast discharge time, low swing voltages, and precision balance are required. It 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 silicon emitter points and precision adjustment, provides ISO 14644-12 ionization (0.01 µm particles or nanoparticles) and ISO 14644-1 Class 1 (0.1µm particles) 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. MP technology is easy to adjust and features the ability to fine-tune voltage, frequency and balance to meet differing environmental and product sensitivity requirements. The 5635 AeroBars come with 50 mm emitter spacing for lengths ≤ 600 mm for the most dense, uniform ionization coverage.





Specifications

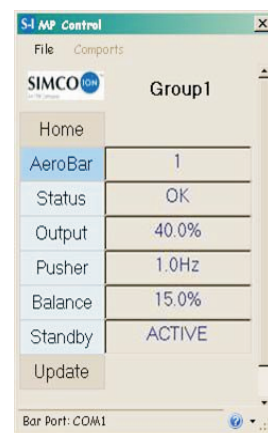
5635 / 5635M

Input Voltage	24 VDC $\pm 10\%$
Output Voltage	Adjustable 13.5 kV pk-pk max
Balance	$< \pm 20$ V over time and across the bar length @ (61 cm, controlled environment), auto balancing system
Working Range	150 - 1000 mm, application and specification dependent
Technology	Modulated pulse (MP) technology
Frequency	Adjustable from 0.3 - 33 Hz
Emitter	Single crystal silicon, replaceable
Emitter Pitch	75 mm; 50 mm available on 450 mm and 600 mm bar lengths
Cleanroom Class	(ISO 14644-12 cleanliness (0.01 μ m or less nanoparticles), ISO 14644-1 Class 1) @ 45 - 50% output
Controls	Power - DIP switches; Balance/Frequency/Output - Trimpots; Output to MP 5635 Bar control software for fine adjustments
Gas Input	Clean dry air (CDA) or nitrogen, Optional - 8 mm OD one-touch fitting
Gas Consumption	Optional - 3.1 bar max; 0.001 - 0.0035 m ³ /min per nozzle
EMI Level	Below background level
Ozone	< 0.05 ppm
Operating Env.	15 - 35°C, 30 - 60% RH (non-condensing)
Enclosure	ABS Chassis, Stainless Steel rails on bar body
Dimensions	7.8H x 3.4D x Length : 45/60/ 85/100/115/130/145/160/175/190/ 205/220/235 cm
Certifications	CE, UL, ENEC



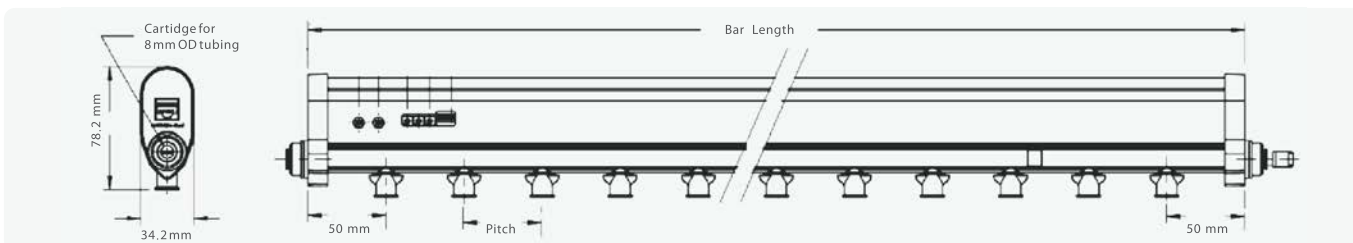
Simple Installation

The Model 5635 ionizing bar is quickly installed by simply plugging into a 24 VDC source and connecting an air line (if air-assist is desired). Set the DIP switches for general power levels as defined in the user manual to activate factory settings for a base discharge performance. Fine-tune the control parameters from the bar or through the easy-to-use software where optimized balance, swing voltage and discharge times are desired. An alarm connection in the Signal and Power Junction Box enables a signal output to the tool or for FMS monitoring.





Power Distribution Box

The optional Model 5601 Power Distribution Box can be used to centralize power and software control for up to 8 bars.



Digital AeroBar® with Software Control



5225

5225	
Input Voltage	24 VAC, 50/60 Hz, 1 W (typ), by Interface Module
Output Voltage	0 - 20 kVDC \pm 10%, < 15 μ A, output level can be adjusted through software GUI
Technology	Pulsed DC, Steady-state DC, Standby
Frequency	0 - 10 s @ 0.1 s increments on both on and off timing for each polarity
Emitter	Single crystal silicon, replaceable
Cleanroom Class	ISO 14644-1 Class 1
EMI Level	Below background level
Ozone	< 0.005 ppm
Operating Env.	16 - 35°C, 40 - 65% RH (non-condensing)
Enclosure	ABS Plastics, fire retardant
Dimensions	5.3H x 3.1W x Length : 56.9/72.1/90.7/112.8/141.2/163.6/191.8/214.4 cm
Weight	1.02 kg @ 56.9 cm bar, 0.17 kg/30 cm in addition
Certifications	CE   SEMI-47



IonMonitor V3.0.0											
Edit View Help											
Disconnect from Interface Module											
	Name	Mode	Status	PosOut	NegOut	PosOn	PosOff	NegOn	NegOff	PFeed	PF
<input checked="" type="checkbox"/>	1	Able	Pulse	OK	51.2	51.2	1.9	0.4	2.2	0.4	18.4
<input checked="" type="checkbox"/>	2	Baker	Pulse	OK	51.2	51.2	2.3	0.2	2.2	0.4	18.0
<input checked="" type="checkbox"/>	3	Charlie	Pulse	OK	51.2	51.2	2.3	0.2	2.2	0.4	18.0
<input checked="" type="checkbox"/>	4	Delta	Standby	OK	51.2	51.2	2.4	0.4	2.4	0.4	18.4
	Name	Linked	Status	Bal (v)	BalMax	PPkMn	PPk	PPkMx	NPkMn	NPk	N
<input checked="" type="checkbox"/>	5	Sierra	OK	0.0	6.3	-5.6	6.3	5.6	-6.9	-6.0	
<input checked="" type="checkbox"/>	6	Tango	OK	-0.1	6.5	-5.9	6.3	5.9	-7.1	-6.5	



Interface Module 5200-IM6T

Input Voltage	24 VDC, 1 A by 100 - 240 VAC adapter
Output Current	20 μ A max.
Connections	6 RJ-11 ports connect up to six 5225 AeroBars
Dimensions	7.4H x 7.1W x 31.5L cm
Weight	2 kg
Certifications	CE   SEMI-47

Standalone Digital AeroBar®

5225S



5225S	
Input Voltage	24 VAC, 50/60 Hz, 1 W (typ)
Output Voltage	0 - 20 kVDC \pm 10%, < 15 μ A; output levels can be adjusted with IR Handheld Remote Controller
Technology	Pulsed DC, Steady-state DC, Standby
Frequency	0 - 10 s @ 0.1 s increments on both on and off timing for each polarity
Emitter	Single crystal silicon, replaceable
Cleanroom Class	ISO 14644-1 Class 1
EMI Level	Below background level
Ozone	< 0.005 ppm
Operating Env.	16 - 35°C, 40 - 65% RH (non-condensing)
Enclosure	ABS Plastics, fire retardant
Dimensions	5.3H x 3.1W x Length : 56.9/72.1/90.7/112.8/141.2/163.6/191.8/214.4 cm
Weight	1.02 kg @ 56.9 cm, 0.17 kg/30 cm in addition
Certifications	CE   SEMI-47

Clean Ionizing Bar scorplON3™

scorplON3

Input Voltage	24 VDC, 0.2 A per bar
Output Voltage	< 15 μ A for each polarity
Frequency	0 - 10 s @ 0.1 s increments
Emitter	Single crystal silicon or Tungsten, replaceable
Cleanroom Class	ISO 14644-1 Class 1 (Single Crystal Silicon), ISO 14644-1 Class 4 (Tungsten)
Gas Input	Air assist model available
EMI Level	Below background level
Ozone	< 0.02 ppm
Operating Env	15 - 35°C, 20 - 65% RH (non-condensing)
Enclosure	ABS chassis
Dimensions	7.5H x 4.8W x Length: 45.7/61/91.4/112/ 163/188/213 cm
Weight	0.8, 1.0, 1.3, 1.5, 2.0, 2.2, 2.5 kg
Certifications	CE, RoHS, REACH, ISO 9001



Low profile Ionizing Bar IONforce



PulseFlow Controller

Input Voltage	120 VAC, 230 VAC, 50/60 Hz
Output Voltage	3.5 - 8.0 kVDC adjustable, default at 6 kVDC
Output Current	3.0 - 7.0 μ A (max)
Dimensions	14.6L x 12.7W x 4.2D cm
Weight	0.7 kg
Certification	CE

IONforce

Input Voltage	\pm 3.5 kVDC (min), \pm 8 kVDC (max)
Technology	Pulsed DC or Steady-state DC
Emitter	Single crystal silicon or Tungsten, replaceable
Gas Input	Clean dry air (CDA), 1.72 - 3.1 bar,
Ozone	< 0.02 ppm
Operating Env.	10 - 35°C, 20 - 65% RH (non-condensing)
Dimensions	2.9H x 2.5W x Length: 35.6/50.8/81.3/ 111.8/142.2/170.2 cm
Weight	0.16 kg/30.5 cm

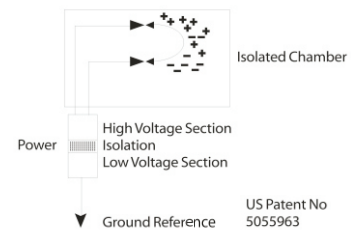
Vision Controller (Steady State DC)

Input Voltage	120 VAC, 230 VAC, 50/60 Hz
Output Voltage	\pm 10 kVDC (max)
Output Current	20 μ A (max)
Dimensions	12.1L x 19.7W x 7.0D cm
Weight	1.73 kg
Certifications	CE, cULus

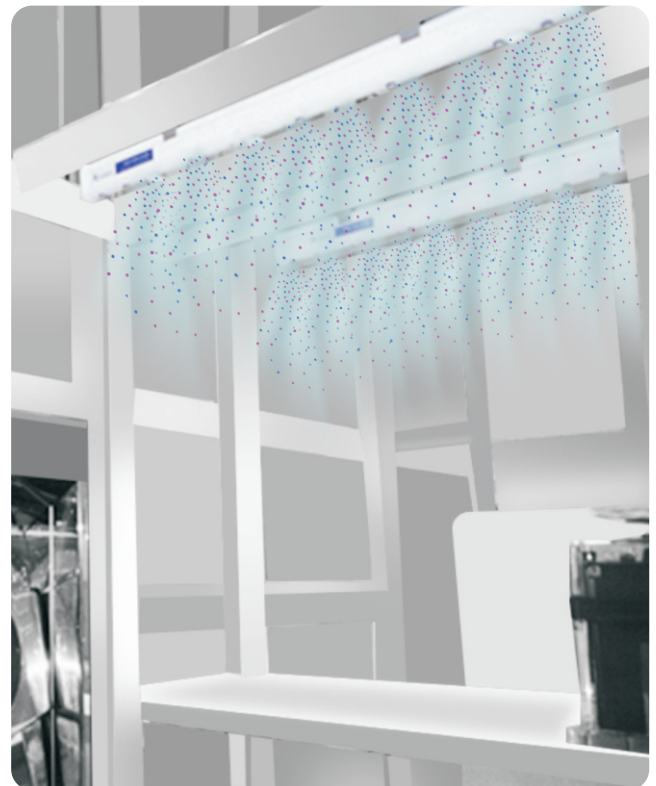
Steady State DC AeroBar® 5685

5685

Input Voltage	24 VAC \pm 10%, 50/60 Hz, 3.5 W max
Output Voltage	7.5 kV (typ)
Decay Time	< 25 s @ (1000V to 100V, 60 cm, min 0.3 m/s laminar)
Balance	\pm 50 V @ (60 cm, directly below two opposite polarity emitter points, installation far from any grounding at least 15 cm)
Technology	IsoStat Steady-state DC
Emitter	Single crystal silicon or machined titanium, replaceable
Indicators	Power - Green
Operating Env.	15 - 35°C, 20 - 60% RH (non-condensing), min 0.3 m/s laminar airflow
Mounting	Two mounting clips provided, various clips and hangers available
Dimensions	5.3H x 2.9W x Length : 27.9/55.9/111.8/162.6 cm
Weight	0.255 kg per 30 cm
Certifications	CE cULus



Simco-Ion IsoStat Technology

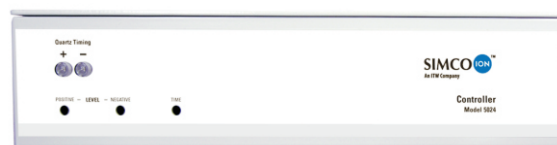




Sequential Bipolar AeroBar[®] 5285e

5285e

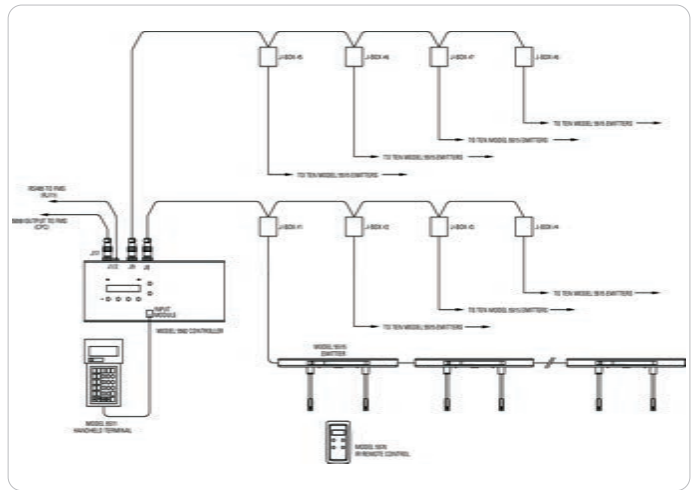
Input Voltage	24 VAC, 50/60 Hz, 1 W max
Output Voltage	< 15 μ A, current and voltage limited
Technology	Pulsed DC
Frequency	0 - 9.9 s precise timing supplied by controller
Emitter	Single-crystal silicon, machined titanium, or tungsten alloy, replaceable
Controls	Independently adjust positive and negative output at each bar
Indicators	Red LED on the AeroBar and Controller (if featured) indicate an alarm condition; Optional - Audible alarm at the 5024 Controller.
Connections	RJ-11 modular jack receptacle on both ends
EMI Level	Below background level
Ozone	< 0.005 ppm (24-hour accumulation)
Operating Env.	5 - 35°C, 30 - 60% RH (non-condensing),
Dimensions	5.3H x 3.0W x Length : 55.8/71.1/111.8/162.6/213.4 cm
Weight	0.17 kg per 30 cm
Certifications	CE cULus SEMI-47



5024 / 5024e Controller

Digital Room Ionization System

5515 & 5522/5582



Features

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



Benefits

- Provides precision control of all parameters with expansive data output capabilities
- Ensures ultra-clean performance with low maintenance; single crystal silicon emitter points meet the needs of leading-edge wafer processing applications
- Maintains balanced, high ion output over long periods for stable performance between emitter point cleanings
- Capable of growing from a small system with FMS output only to a large system using IonManager Pro software as requirements change



Metal-Free



Slim Body



Remote



Ultra-clean



FMS

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 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 or 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.

IonManager Pro software provides a visual management tool to monitor and manage the system, including alarm conditions, room layouts, and individual emitter and controller status. Automated notifications for alarm conditions and maintenance alerts are user controlled. Data logging provides a history of system changes and security levels assure access by only authorized users.





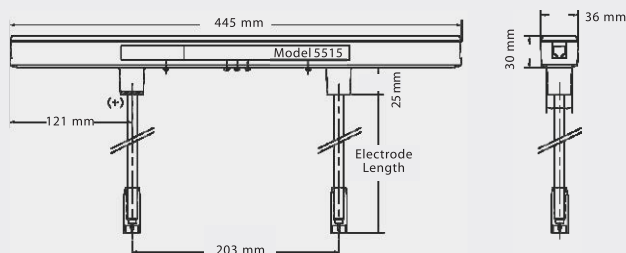
Specifications

Digital Emitter Model 5515

Input Voltage	24 VAC, 50/60 Hz, 1W (typ)
Output Voltage	0 - 20 kVDC for each polarity; positive and negative output levels adjusted separately
Technology	Pulsed DC, Steady-state DC, Standby
Frequency	0 - 10 s @ 0.1 s resolution by microcontroller; LEDs on each emitter indicate the polarity of the ion emission
Emitter	Single crystal silicon or Titanium; Field replaceable
Emitter Rod	6.4, 12.7, 25.4, 38.1, 61.0, 91.4, 152, 168 cm length
Cleanroom Class	ISO 14644 -1 Class 1 : Single crystal silicon; ISO 14644 -1 Class 3 : Titanium
Controls	Parameters adjusted through 5571 Handheld Terminal, 5572 IR Remote, or via IonManager Pro software
Indicators	Visual LED in the middle of the emitter; Optional audible alarm at controller
Connections	RJ-11 at both ends
Ozone	< 0.005 ppm
Operating Env.	15 - 35°C, 20 - 60% RH (non-condensing)
Dimensions	3.1H x 3.6W x 44.5L cm
Weight	0.465 kg
Certifications	CE cUL US E

Digital Controllers 5522 / 5582

Input Voltage	100/115/240 VAC \pm 10%, 50/60 Hz selectable with fuse protected
LED Indicators	Power : Green; Alarm : Red; Audible Alarm
Connections	RS-485 to Emitters (Capacity : 5582 - 80 sets, 5522 - 20 sets); FMS : Relay or 4-20 mA output; 5522 : No software capability 5582 : Ethernet or RS-485 to IonManager Pro
Dimensions	5522 : 7.5H x 7.0W x 31.6 L cm; 5582 : 15.8H x 11.1W x 33.5L cm
Weight	5522 : 1.4 kg; 5582 : 3.18 kg
Certification	CE cUL US E



Performance Security

The Model 5515 Ceiling Emitter, Model 5582 Controller and IonManager Pro software provide consistent ionization protection throughout the facility. The advance notification system communicates system alarms and warnings immediately so corrective action can be taken. The alarm notifications are user configurable and can be sent to multiple personnel via email, SMS or pager.



Installation in semiconductor facility



Application in life science industry



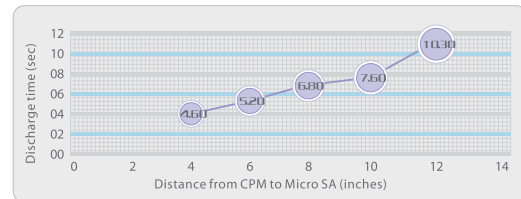
Contamination control in gowning room

IonONE Spot Ionizers

MICRO S / MICRO SA

Micro S / Micro SA

Input Voltage	Isolated 12 VDC, 30 mA
Decay Time	Micro S : < 10 s @ (1000 V to 100 V, 7.6 cm); Micro SA : < 8 s @ (1000 V to 100 V, 15 cm, 0.02 m ³ /min airflow)
Balance	Micro S : < ± 30 V; Micro SA : < ± 20 V
Emitter	Stainless Steel
Cleanroom Class	ISO 14644-1 Class 5
Gas Consumption	Micro SA : 0.01 - 0.03 m ³ /min @ 0.3 - 2.1 bar
Ozone	< 0.05 ppm
Operating Env.	5 - 50°C, 30 - 70% RH (non-condensing)
Enclosure	Polycarbonate-ABS Plastic Blend
Dimensions	5L x 4W x 1.7D cm; 6 mm flange; Micro SA: 10 mm air fitting
Weight	Micro S : 0.016 kg; Micro SA : 0.019 kg
Warranty	One Year Limited
Certifications	CE c UL US



Air Ionizing Cartridge

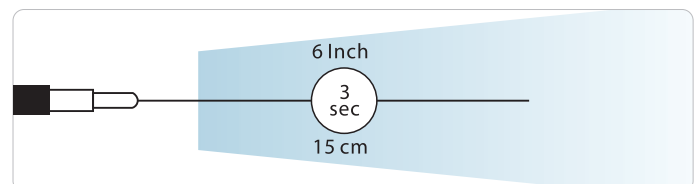
6110/6110A



6110 / 6110A

Input Voltage	24 VAC, < 1 W
Decay Time	< 4 s @ (1000 V to 100 V, 15.2 cm, 2 bar)
Balance	< ± 25 V @ 15.2 cm
Emitter	Tungsten alloy, Life : around 5 years
Gas Input	1/4 in. NPT female (input and output)
Gas Consumption	> 0.057 m ³ /min
Dimensions	5.6 Dia x 7.9L cm
Weight	0.17 kg
Certifications	CE

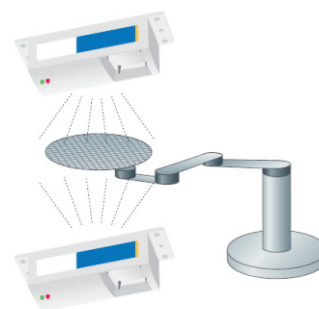
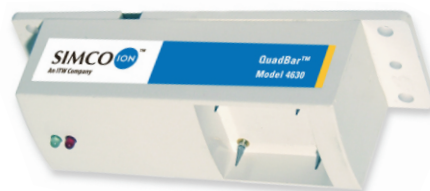
Model 6110A: An internal sensor initiates ionization only when the gun is triggered, ensuring on-demand control of static charge.



QuadBar™ Ionizer 4630

4630

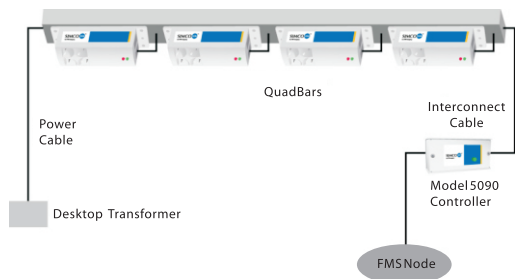
Input Voltage	24 VAC via Simco-Ion transformer, Model 4030 controller, 24 VDC from tool power.
Decay Time	< 30 s @ (1000 V to 100 V, 30 cm, 0.4 - 0.5 m/s airflow)
Balance	± 50 V @ (30 cm, 0.4 - 0.5 m/s airflow)
Technology	Steady-state DC
Emitter	Single crystal silicon, Replaceable, Life : approx. 2 - 3 years
Cleanroom Class	24 VDC : ISO 14644-1 Class 1; 24 VAC or 4030 Controller : ISO 14644-1 Class 2
Operating Env.	15 - 50°C, 20 - 65% RH (non-condensing)
Other Feature	Daisy Chain : Up to 4 units via transformer; up to 16 units via Model 4030 controller
Enclosure	ABS
Dimensions	3.3H x 3.3W x 11.4L cm
Weight	0.1 kg
Certifications	CE cULus



QuadBar™ with Air Assist 4635

4635

Input Voltage	24 VAC via Simco-Ion transformer, Model 4030 controller, 24 VDC from tool power.
Decay Time	(Standard Cartridge < 15 s, Jet Cartridge < 6 s) @ (1000 V to 100 V, 30 cm, 0.015 m³/min airflow)
Balance	± 50 V @ (30 cm, 0.015 m³/min airflow)
Technology	Steady-state DC
Emitter	Single crystal silicon, Replaceable, Life : approx. 2 - 3 years
Cleanroom Class	24 VDC : ISO 14644-1 Class 1; 24 VAC or 4030 Controller : ISO 14644-1 Class 2
Gas Input	Clean Dry Air (CDA) or Nitrogen
Gas Consumption	0 - 0.025 m³/min @ (0 - 0.5 bar)
Operating Env.	15 - 50°C, 20 - 65% RH (non-condensing)
Enclosure	ABS; Polycarbonate air assist cartridge
Dimensions	3.3H x 3.3W x 11.4L cm
Weight	0.108 kg
Certifications	CE cULus



Localized Ionizer fusION™

fusION

Input Voltage	24 VDC, 0.2 A
Decay Time	< 15 s @ (1000 V to 100 V, 15.2 cm, 0.25 m/s airflow); with Fan : < 10 s @ (1000 V to 100 V, 30.5 cm)
Balance	< ± 50 V
Technology	Steady-state DC
Emitter	Tungsten
Cleanroom Class	ISO 14644 - 1 Class 4
Operating Env.	15 - 50°C, 20 - 65% (non-condensing)
Optional	Fan Assembly : 24 VDC; Size : 4 x 4 x 1 cm
Enclosure	White Polycarbonate
Dimensions	3.3H x 3.3W x 11.4L cm
Weight	0.113 kg; with Fan : 0.136 kg
Certifications	CE cUL US

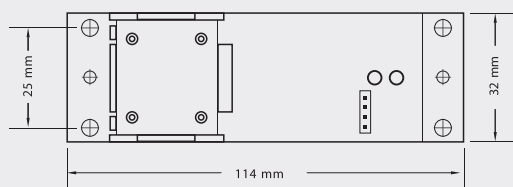


Localized Ionizer with Air Assist fusION™ AA



fusION Air-Assist

Input Voltage	24 VDC, 0.075 A
Decay Time	< 5 s @ (1000 V to 100 V, 15 cm, 0.7 bar)
Balance	< ± 50 V
Technology	Steady-state DC
Emitter	Tungsten
Cleanroom Class	ISO 14644 - 1 Class 4
Gas Input	Clean Dry Air (CDA) or Nitrogen
Gas Consumption	0.014 m³/min @ 0.34 bar to 0.113 m³/min @ 3.4 bar
Operating Env.	15 - 50°C, 20 - 65% (non-condensing)
Enclosure	White Polycarbonate
Dimensions	3.3H x 3.3W x 11.4L cm
Weight	0.113 kg
Certifications	CE cUL US

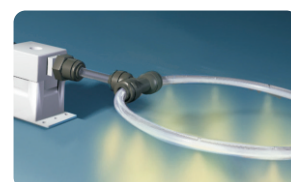


Localized Inline Ionizer

Inline fusION™

Inline fusION

Input Voltage	24 VDC, 0.075 A
Decay Time	< 1 s @ (1000 V to 100 V, 30 cm, 2 bar airflow)
Balance	< ± 50 V @ (30 cm, 2 bar airflow)
Technology	Steady-state DC
Emitter	Tungsten
Cleanroom Class	ISO 14644 -1 Class 4
Gas Input	Clean Dry Air (CDA) or Nitrogen
Gas Consumption	0.023 m³/min @ 0.34 bar to 0.102 m³/min @ 3.4 bar
Operating Env.	15 - 50°C, 20 - 65% (non-condensing)
Enclosure	White Polycarbonate
Dimensions	6.4H x 3.8W x 11.4L cm
Weight	0.136 kg
Certifications	CE cULus



In-line Gas Ionizer

4210

4210

Input Voltage	100/120/230 VAC, 50 - 60 Hz, 2 W
Decay Time	(4210/4210un : 10 s; 4210u : 6 s) @ (1000 V to 100 V, 15.2 cm, 0.057 m³/min airflow)
Balance	± 25 V @ (15.2 cm, 0.057 m³/min airflow)
Technology	Steady-state DC
Emitter	Tungsten or Single-crystal silicon
Cleanroom Class	4210 - ISO 14644-1 Class 5; 4210u / 4210un - ISO 14644-1 Class 3
Gas Input	Clean dry air (CDA) or Nitrogen; 0.7 - 3.45 bar;
Gas Consumption	min 0.034 m³/min airflow
Operating Env.	-20 - 60°C
Enclosure	Powder-coated White Aluminum
Dimensions	6.1D x 12.1L x 8.0W cm
Weight	1.04 kg
Certifications	CE



High Temperature Ionization System

4610TF & 4052E

4610TF

Input Voltage	Model 4052E Controller with HV cable connectors
Decay Time	< 3 s @ (1000 V to 100 V, 15.2 cm, 0.46 m/s airflow)
Emitter	Tungsten alloy or Single-crystal silicon
Operating Env.	-70 - 150°C, < 85% RH (non-condensing), 0.3 - 0.5 m/s airflow
Enclosure	Body Teflon; Fins/rivet PEEK
Dimensions	3.8H x 3.5W x 11.4L cm
Weight	0.117 kg
Certifications	CE, RoHS, REACH, ISO 9001

4052e Controller

Input Voltage	110/200/220/240 VAC, 50/60 Hz, 3.6 W
LED Indicators	Power : Green; Alarm : Red
Operating Env	-29 - 40°C, < 85% RH (non-condensing)
Dimensions	5.7H x 9.5W x 21L cm
Weight	1.6 kg
Certifications	CE, RoHS, REACH, ISO 9001



In-line Ultra-clean Nitrogen Ionizer

4214



Easy Tool Integration :

Model 4214 is a stand-alone unit providing a high voltage power supply, an ultra-clean ionization cell, and I/O connections for remote status and control. Nitrogen is plumbed through where it is ionized and then delivered to the target area.



4214





Input Voltage	+ 24 VDC \pm 5%, 0.25 A, 6 W (typ)
Decay Time	< 10 s @ (1000 V to 100 V, 15.2 cm, N ₂ flow 0.04 m ³ /min @ 0.365 bar)
Balance	< \pm 25 V @ (15.2 cm, N ₂ flow 0.04 m ³ /min @ 0.365 bar)
Technology	High Frequency AC Ionization
Cleanroom Class	ISO 14644-1 Class 1 (0.1 μ m particles); ISO 14644-12 (0.01 μ m particles)
Gas Input	Nitrogen, minimum purity 99.999%
Gas Consumption	(0.040 m ³ /min @ 0.365 bar) to (100 m ³ /min @ 1.97 bar)
Operating Env.	15 - 60°C
Filter Cartridge	Disposable, 99.999% for 0.01 micron
Enclosure	Stainless Steel
Dimensions	15.2L x 7.3W x 3.2H cm
Weight	0.64 kg
Certifications	CE, RoHS



Multi-channel Field Voltage Detection

NOVX 3352 / 3362

NOVX 3352 / 3362

Input Voltage	24 VDC via Simco-Ion transformer.
Capacity	1, 2, or 3 fans
Reporting Range	3352 : 0 - ± 5000 V; 3362 : 0 - ± 150 V
Accuracy	3352 : 0.5 V @ < 20 V, $\pm 5\%$ @ > 20 V 3362 : 1.0 V @ < 20 V, $\pm 5\%$ @ > 20 V
Antennas	up to 3 channels
LED/Channel	Red, Green, Alarm
Display/Channel	4-digits
Aux Out	Open collector
Decay Testing	(3362 only) up to 3 channels
Communication	Novx Com RS-485/Modbus, Ethernet
Enclosure	Stainless Steel
Dimensions	5.1W x 17.3D x 16.5H cm
Weight	1 kg
Certifications	CE    



Critical Process Electrostatic Monitoring

NOVX 7000



Novx 7000	Passive
Power Supply	100-240 VAC, 50/60 Hz
Input Range	$\pm 15 - \pm 5000$ V
Accuracy	± 1 V for ≤ 20 V; $\pm 5\%$ for > 20 V
Peak Hold	OFF, ON
Antennas	± 1 V - ± 5000 V max
LED Display Scale	1 - 5000 V
Digital Display	4 - digits
Audible Alarms	Off, High, Low
Novx Com	RS-485 or Ethernet
Enclosure	Stainless Steel
Dimensions	6.9W x 17.8H x 14D cm
Weight	1.4 kg
Other features	ESD event detection-CDM, Particle Counter Interface, Body Voltage Detection, Ground Monitoring

Handheld Electrostatic Fieldmeter 775

775

Input	9 VDC, 6F22Y Alkaline battery
Range	± 0 to 19.99 kV @ 25.4 mm
Response	5 Hz at analog output; Digital display updates 3 times per second
Accuracy	$\pm 5\%$; least significant digit of display indicates tens of volts
Display	3.5 digits
Operating Env.	0 - 40°C
Enclosure	Conductive Case
Dimensions	10.7L x 6.1W x 2.3D cm
Weight	0.142 kg (with battery)
Certifications	CE



Periodic Verification System 775PVS



775 Fieldmeter

Dimensions 10.7L x 6.1W x 2.3D cm (0.142kg with battery)

775 Plate Assembly

Plate capacity	15 ± 2 pF
Calibration	Adjusting screw provided
Range	0 - 2 kV for either polarity
Ground	Ground plate attaches to conductive case of 775 Fieldmeter
Dimensions	2.5L x 7.6W x 3.3D cm with Teflon™ standoffs
Weight	0.071 kg
Certifications	CE

775C Charger

Input	9VDC, 6F22Y Alkaline battery
Output	Each polarity: 1300VDC $\pm 20\%$, limited to $< 1 \mu\text{A}$
Power Indicator	Red LED
Output	Two stainless steel contact plates, output polarity depends on which plate is grounded
Dimensions	10.7L x 6.1W x 2.3D cm
Weight	0.113 kg (with battery)
Certifications	CE



Handheld Electrostatic Fieldmeter

FMX-004

FMX-004

Input	9 VDC, 6F22Y Alkaline battery
Range	(Low Range : 0 to ± 1.49 kV; High Range : ± 1.0 to ± 30 kV) @ 2.54 cm
Ion Balance	0 to ± 300 V
Response	< 1 s, display refresh 5 times per second
Accuracy	$\pm 10\%$
Display	Auto-ranging : Bar graph (Positive : Red, Negative : Blue); Digit display - 3 digits
Features	Power turns off automatically after 5 min
Operating Env.	10 - 40°C, 0 - 60% RH (non-condensing)
Enclosure	Conductive Resin (ABS)
Dimensions	12.3L x 7.3W x 2.5D cm
Weight	0.17 kg



Charged Plate Monitor

280A



280A

Input Voltage	90 - 250 VAC, 50/60 Hz, 12 W
Battery Operation	Up to 6 hrs with 12 V internal rechargeable battery
Plate Capacitance	20 pF, $\pm 5\%$ (not including strays)
Charging Voltage	± 10 to ± 1000 V differential, adjust 10 - 100 V in 1 V increments
Zero Stability	< 100 mV/sec
Timer	0.1 - 999.9 s in 0.1 s increments; 1000 - 9999 s in 1 s increments
Graphical Display	240 X 64 pixel, backlight LCD
Voltage Display	3.5 digits; ± 1.0 V resolution
Timer Display	4 digits
Accuracy	Electrometer $\pm 0.1\%$ reading, ± 1.0 V referred to input
Interface	RS-232
Operating Env.	5 - 35°C
Dimensions	27.9W x 22.9L x 12.7H cm
Weight	5.7 kg
Certifications	CE

Group A
Location 2
06/22/08
03:32:56P
30C 62%RH

	3	+Decay EndV	-Decay EndV
1	6.5 s	6.5 s	6.5 s
2	6.5 s	6.5 s	6.5 s
3	6.4 s	6.4 s	6.4 s
Av	6.5 s	6.5 s	6.5 s
+Vp	+22.6	-Vp	-12.3
Vav	+04.5		
	MAIN	AUTO	

NxtCyc

WARRANTY AND 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 China : sales@simco-ion.cn or +86 (755) 2309-6600; or Simco-Ion Technology Group : techsupport@simco-ion.com or +1 (510) 217-0470.

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

CERTIFICATE DEFINITION



Registered trademarks of Underwriters Laboratories, Inc.



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



Products are determined compliant with applicable directives for Europe, through self-declaration or third-party examination.



KC Certification, a mandatory certification scheme which ensures that only products certified by accepted certification bodies can enter the Korean market.

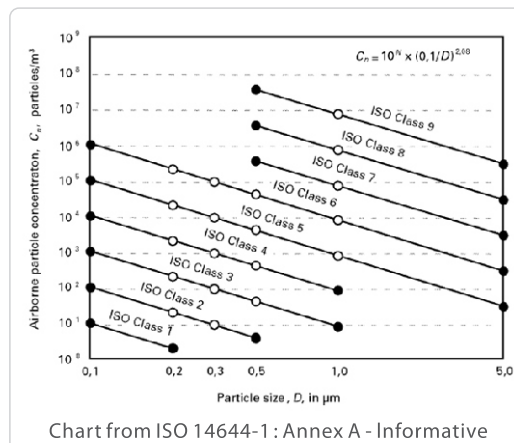


Compliant with European Union restriction of hazardous substances directive 2002/95/EC regarding "the Restriction Of The Use Of Certain Hazardous Substances In Electrical And Electronic Equipment".

ISO CLASS 1 for 0.1 and 0.01 Micron Particles

ISO 14644-1 (1999) establishes 9 particulate class limits. A class is met when airborne particles-per-cubic-meter (or particles-per-cubic-foot) do not exceed the class limit. The following graph summarizes the class limit lines for particles between 0.1 micron and 5 micron.

Model 5635 is designed to operate in and maintain ISO 14644-1 Class 1 cleanliness (10 particles or less per m³ for particles of 0.1 micron and larger). Model 5635 will also perform to ISO 14644-12 cleanliness (1200 particles or less per m³ for particles of 0.01 micron and larger) when operated at 45 - 50% output voltage setting and OpenJet nozzles with single crystal silicon emitters.



APPENDIX 1: ESDS DEVICE CLASSIFICATION

ANSI / ESDA / JEDEC JS-001-2017 Human Body Model (HBM)		ANSI / ESDA S5.2-2009 Machine Model (MM)		ANSI / ESDA STM 5.3.1-2009 Charged Device Model (CDM)	
Class	Voltage Range (V)	Class	Voltage Range (V)	Class	Voltage Range (V)
0Z	< 50	M1A	< 25	C1	< 125
0A	50 to < 125	M1B	25 to < 50	C2	125 to < 250
0B	125 to < 250	M1C	50 to < 100	C3	250 to < 500
1A	250 to < 500	M2	100 to < 200	C4	500 to < 1,000
1B	500 to < 1000	M3	200 to < 400	C5	1,000 to < 1,500
1C	1000 to < 2000	M4	≥ 400	C6	1,500 to < 2,000
2	2000 to < 4000			C7	≥ 2,000
3A	4000 to < 8000				
3B	≥ 8000				

APPENDIX 2 : CLEANROOM CLASS

ISO 14644-1 Cleanroom Standards (Maximum Particles/m³)

Class	≥ 0.1 μm	≥ 0.2 μm	≥ 0.3 μm	≥ 0.5 μm	≥ 1 μm	≥ 5 μm	FED STD 209E equivalent
ISO 1	10	2					
ISO 2	100	24	10	4			
ISO 3	1,000	237	102	35	8		Class 1
ISO 4	10,000	2,370	1,020	352	83		Class 10
ISO 5	100,000	23,700	10,200	3,520	832	29	Class 100
ISO 6	1,000,000	237,000	102,000	35,200	8,320	293	Class 1000
ISO 7				352,000	83,200	2,930	Class 10,000
ISO 8				3,520,000	832,000	29,300	Class 100,000
ISO 9				35,200,000	8,320,000	293,000	Room air

US FED STD 209E Cleanroom Standards (Maximum Particles/ft³)

Class	≥ 0.1 μm	≥ 0.2 μm	≥ 0.3 μm	≥ 0.5 μm	≥ 1 μm	≥ 5 μm	ISO equivalent
1	35	7	3	1			ISO 3
10	350	75	30	10			ISO 4
100		750	300	100			ISO 5
1000				1,000		7	ISO 6
10,000				10,000		70	ISO 7
100,000				100,000		700	ISO 8

US FED STD 209E was officially canceled by the General Services Administration of the US Department of Commerce November 29, 2001, but is still widely used.



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