WORLDWIDE LEADERS IN STATIC CONTROL

ELECTRONICS PRODUCT CATALOG

SIMCO®
An Illinois Tool Works Company

www.simco.biz

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Simco Manufacturing Sites

United States

Holland

Japan

ABOUT SIMCO

Simco has been solving electrostatic charge control problems for more than 70 years. You've come to expect the best in ionization products from Simco, the world's largest manufacturer of ionization equipment. Simco's comprehensive product line incorporates years of research, engineering and field experience to deliver effective solutions for semiconductor, electronics assembly, cleanroom, and tool applications. You can be sure of receiving maximum performance and reliability.

Simco capabilities are unique. Our multinational experience allows us to deliver the latest AC and DC corona technology and provide the ability to recommend products best suited to your application needs.

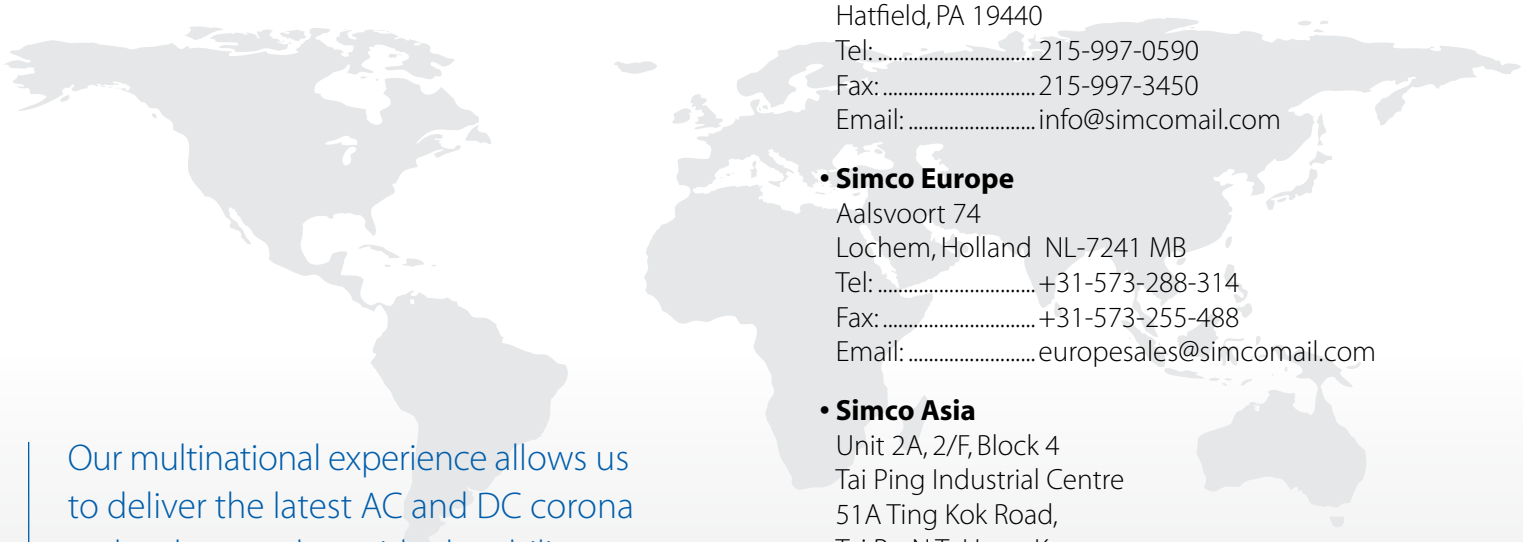
Our experts are equipped to determine the source of your problem and recommend solutions based on industry best practice. Our capability in the design, development and manufacture of electrostatic charge control equipment is second to none. Depend on Simco to enhance the yield and quality of your operations.

Simco customers rely on:

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

Ask about Simco's consulting services:

- Program Assessments – ANSI/ESD S20.20
- Compliance Evaluations – SEMI E-78
- Training Classes
- Trouble Shooting/Problem Solving



> Our multinational experience allows us to deliver the latest AC and DC corona technology and provide the ability to recommend products best suited to your application needs.

Sales Offices

- **Simco Americas**
  2257 North Penn Rd.
  Hatfield, PA 19440
  Tel: 215-997-0590
  Fax: 215-997-3450
  Email: ..... info@simcomail.com

- **Simco Europe**
  Aalsvoort 74
  Lochem, Holland NL-7241 MB
  Tel: ..... +31-573-288-314
  Fax: ..... +31-573-255-488
  Email: ..... europesales@simcomail.com

- **Simco Asia**
  Unit 2A, 2/F, Block 4
  Tai Ping Industrial Centre
  51A Ting Kok Road,
  Tai Po, N.T., Hong Kong
  Tel: 852-27852230
  Fax: 852-29475770
  Email: ..... asiasales@simcomail.com

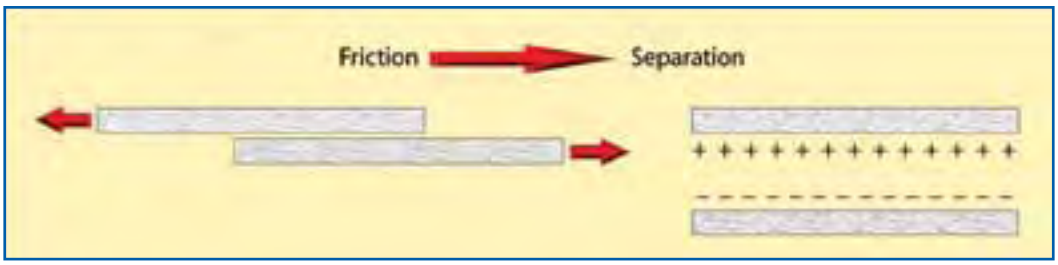
Satellite Offices:

- **Simco Shanghai**
- **Simco Taiwan**

How is static electricity generated?

Charge generation can occur when two materials slide against each other and then separate. As shown below, after the separation has occurred, one side has charged positively and the other side has charged negatively.

Conductive materials can be grounded to remove the charge; however, *insulators* (plastics, glass, ceramics, etc.) need ionized air on their surface to remove the positive and negative charges.



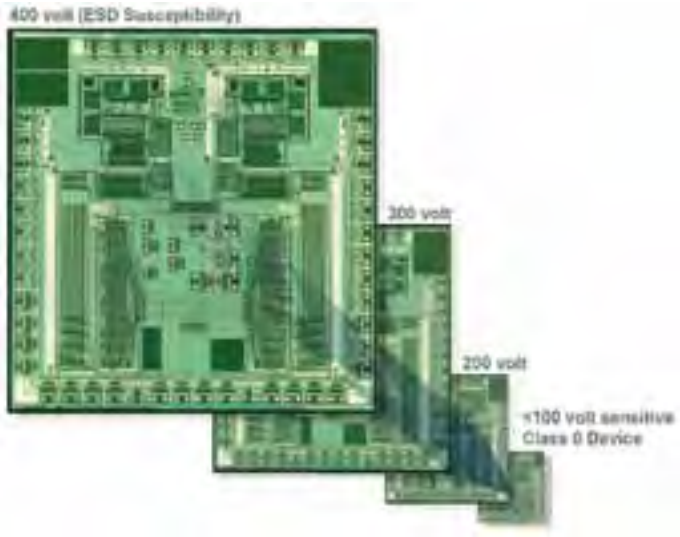
Why is static a problem?

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

Class Zero Devices

Class 0 ESD-sensitive (ESDS) devices (especially those sensitive below 100 volts) are exploding onto the scene in the electronics and semiconductor industries.

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

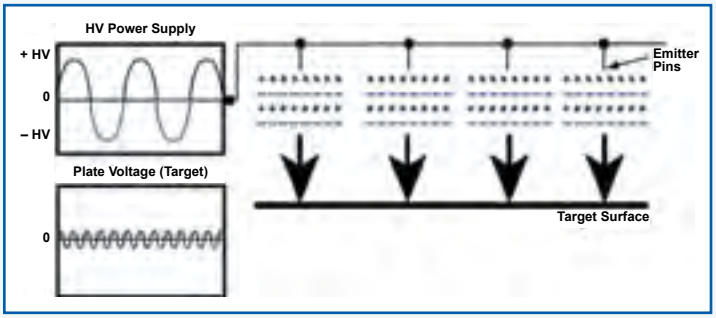


OPERATIONAL METHODS OF IONIZATION

AC

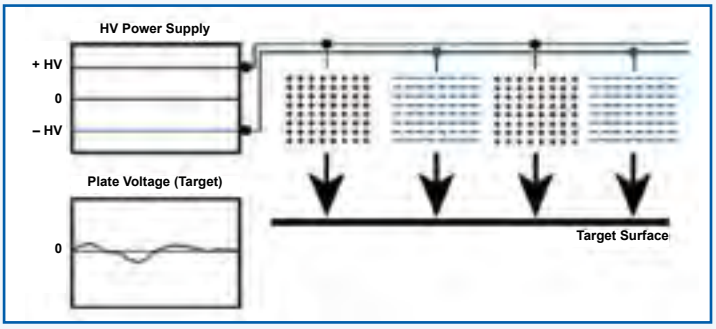
AC ionizers are comprised of an alternating high voltage supply that is connected to emitters. All emitters receive both positive and negative voltage. Air assist is critical with this arrangement because ion-to-ion recombination frequently occurs.

Pulse AC: Pulse AC is similar to AC, but variations of the frequency and signal shape enable faster discharge times. However, high voltage offsets are possible.



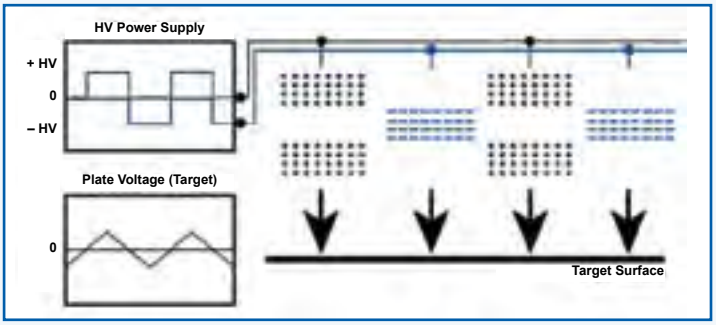
Steady State (DC)

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.



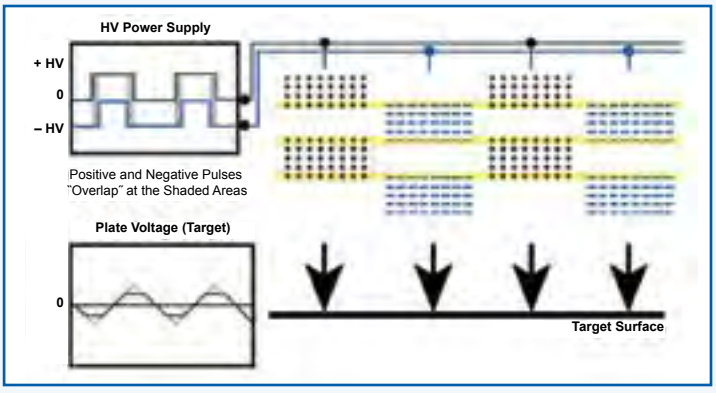
Pulsed DC

Pulsed DC is similar to Steady State (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 ionizers; however voltage offsets can be greater than Steady State DC.



Pulsed DC with *Peak Reduction ("Overlap")* Technology

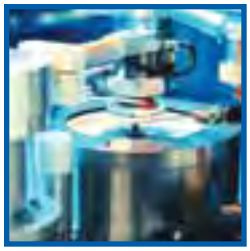
This Simco-patented ionizer configuration is comprised similarly to Pulsed DC, but the opposite-polarity supply ***stays on*** past each transition in the bipolar pulsing — as seen in the power supply waveforms to the right. This results in the *target surface receiving both positive and negative ions concurrently during the transitions*, reducing the offset peaks substantially. Depending upon the percentage of "pulse overlap" applied, discharge times can be very close to standard Pulsed DC operation — but ***offset voltages are reduced dramatically!***



Symbol	Application	Key product categories
	Disk Drive	Blowers (pages 8–15) Bars (pages 17–20)
	Electronics Assembly	Blowers (pages 8–15) Guns (pages 16–17) Bars (pages 17–20)
	Flat Panel Displays	Bars (pages 17–20) FPD Blower (page 12)
	Medical Device Manufacturing	Blowers (pages 8–15) Room Systems (page 21) Bars (pages 17–20)
	Semi-Conductor	Room Systems (page 21) Bars (pages 17–20) Blowers (pages 8–15)
	Solar Energy Devices	Bars (pages 17–20) Blowers (pages 8–15)

Control of electrostatic discharge in cleanroom manufacturing processes is critical because it can have a significant impact on productivity and device yields.






EMITTER PIN MATERIAL DIFFERENCES

NON-METALLIC

Silicon Carbide (CVD-SiC)

Simco-patented CVD-SiC emitter pins have been specifically engineered for ionization applications to minimize particulates and eliminate particle bursts associated with other competing emitter materials. Cleanliness levels have been characterized to sub-ISO Class 1. The superior material properties of CVD-SiC make it the best choice for ionizer applications.

Denser and heavier materials, and materials with a higher heat of sublimation, have a lower rate of sputtering. Low sputtering rate corresponds to lower material loss/ejection. Particle shedding and bursts are associated with the sputtering rate. CVD-SiC is a denser and heavier target material than single-crystal silicon and has a much higher heat of sublimation than single-crystal silicon.

Additionally, CVD-SiC has a 43 percent stronger covalent bond (C-Si) versus the single-crystal silicon bond (Si-Si), making the material ejection much harder to achieve. The higher bond strength also enhances the CVD-SiC material aversion to degradation and increases the lifetime of the emitter pin.

(Note: U.S. patent # 7,501,765 B2)

METALLIC

Tungsten (TG)

Tungsten is remarkable for its robust physical properties, specifically, strength. Commonly used for non-critical environmental ionization applications, it is good for clean environments allowing metal. Tungsten offers long emitter point life and will not erode as quickly as tungsten wire.

Machined Titanium (Ti)

Titanium emitters are easily maintained. The two most useful properties of the metal form are corrosion resistance and the highest strength-to-weight ratio of any metal.

> Simco-patented CVD-SiC emitter pins have been specifically engineered for ionization applications to minimize particulates and eliminate particle bursts associated with other competing emitter materials.

Material	Class*	Estimated Life	Maintenance Period**	Replacement Period
Silicon Carbide	ISO Class 1+	3-5 years	3-6 months	4 years
Tungsten	Class 10/ISO Class 4	3-5 years	3 months	4 years
Titanium	Class 10/ISO Class 4	2-4 years	3 months	3 years

**Class information is denoted as it relates to catalog products.*
***Note: Maintenance periods are dependant upon environmental conditions.*

"Automatic Point Cleaning"

Many products can be ordered with the built in "automatic point cleaning" feature that can be operator-set to automatically perform emitter point cleaning daily, weekly, or monthly, for both the PC2 and CenturION, at the time you choose. The auto-point cleaner can be set to operate on power up on the XC2 model.

Products that include automatic point cleaning are:

- PC2
- CenturION
- XC2

Aerostat® PC

Features

- Inherent balance to ±10 V
- Built–in emitter point cleaner
- Variable speed fan
- Emitter points never need replacement
- Heater for comfort

Description

Small, quiet, and lightweight, yet uncompromising in performance, Simco's Aerostat PC provides superior static discharge over a targeted work surface area. It provides protection from the destructive effects of ESD using AC technology. No calibration is necessary; its inherent balance circuitry maintains a balance to ±10 V. A built-in emitter point cleaner provides low maintenance. A variable speed fan produces an air volume of from 35 to 70 CFM. The PC covers a 305 mm (1') x 1525 mm (5') area.

Measurements

Width	Height	Depth	Weight
140 mm (5.5")	220 mm (8.62")	83 mm (3.25")	2.4 kg (5.3 lbs.)

Part Number

120 V, 60 Hz	4003367
230 V, 50 Hz CE-EU	4003368
230 V, 50 Hz CE-UK	4008087

PC2

Features

- Self-balancing to ±3 V
- Integrated emitter point cleaner
- LED status/Alarm Lights
- 24 VDC input

Description

The PC2 is a state-of-the-art benchtop ionizer, incorporating the latest technology to produce superior performance in protecting the most sensitive ESD components.

Using SSDC corona technology, the microprocessor controls ion balance via an internal sensor to ±3 V and offers the option of connecting to a remote sensor to achieve an ion balance to ±1 V at the target location.

The standard unit includes an integrated manual emitter point cleaner. Additionally, this unit can be ordered with a built-in automatic point cleaning feature. This feature allows the user to set a schedule to automatically clean the emitter points either on power up, daily, weekly, or monthly.

Measurements

Width	Height	Depth	Weight
152.4 mm (6.0")	198.12 mm (7.8")	88.9 mm (3.5")	1.3 kg (3 lbs.)

Part Number

120 V, 60 Hz	4012014
120 V with Auto Point Cleaning	4012245
230 V, 50 Hz CE-EU	4012015
230 V, 50 Hz CE-UK	4012016
Remote Sensor	4012223
Air Filter Retainer	4530525
Air Filter Replacement	4470415

EndStat 2020

Features

- Inherent balance to ±15 V
- Compact and portable design
- Two-speed fan control
- Built-in emitter cleaner

Description

The Endstat 2020 AC benchtop blower produces consistent ionized airflow over a targeted work surface area. With a two-speed fan that produces an air volume of 50 to 100 CFM and covers an area of 1' by 5', the Endstat 2020 AC ionization technology provides for economical and reliable static control. It is designed for electronics and manufacturing environments.

Measurements

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

Part Number

120 V, 60 Hz	4012304
230 V, 50 Hz CE-EU	4012305
230 V, 50 Hz CE-UK	4012306

MinION2™

Articulating Arm

Features

- Inherent balance to ±10 V
- Compact size
- 24 VDC input
- Variable speed control fan

Description

A combination of unique, patented features makes it possible to deliver superior performance in a small package size. Simco's Steady State DC corona technology, using patented balance control and Simco's radial emitter design, delivers a user friendly operation while providing industry-leading performance.

MinION2 provides user adjustable variable speed fan control, modular wiring daisy-chain capability, and fault condition signal. An optional articulating arm allows you to focus ionization on the targeted area as well as provide more benchtop usable space.

Measurements

Width	Height	Depth	Weight
98 mm (3.85")	136 mm (5.35")	60 mm (2.36")	0.5 kg (1.1 lbs.)

Part Number

100/120 VAC	4011425
230 VAC CE-EU	4011426
230 VAC CE-UK	4011247
MinION2 (no Power Supply)	4011424
Articulating Arm	5051141

CenturION™

Features

- Class 10/ISO Class 4
- Self-balancing to ±3 V
- Built-in emitter point cleaner
- LED remote alarm indicator
- Optional automatic point cleaner

Description

The CenturION 9E DC Ionizer is designed specifically for use in critical cleanroom applications [Class 10 (ISO Class 4) rated]. It offers self-balancing to ±3 V, with an adjustable airflow velocity of 50 to 90 CFM. The standard unit includes an integrated manual emitter point cleaner. Additionally, this unit can be ordered with a built-in automatic point cleaning feature. This feature allows the user to set a schedule to automatically clean the emitter points either on power up, daily, weekly, or monthly. It may also be set to operate on power up or on demand by simply pushing a button. Universal power input enables the CenturION to be plugged into any outlet from 100 V to 240 V.

Measurements

Area	Width	Depth	Weight
305 mm (1') x 1220 mm (4')	240 mm (9.37")	85 mm (3.37")	1.61 kg (3.55 lbs.)

Part Number	Standard	Optional Auto-Point Cleaner
120 V	4009408	4012250
230 V CE-EU	4009409	4012251
230 V CE-UK	4009410	4012252

CE

CenturION™ DDI

Features

- Class 10/ISO Class 4
- Self-balancing to ±3 V
- Built-in emitter point cleaner
- Stainless steel enclosure

Description

The CenturION DDI is designed specifically for use by the disk drive industry in critical cleanroom applications. This single-fan DC ionizer offers superior balance performance with its novel emitter array design and high-gain dual feedback circuitry. The CenturION DDI eliminates static charges cleanly, quickly and reliably. It provides true next generation performance, meeting the demands of the disk drive industry with corona ion technology.

Measurements

Width	Height	Depth	Weight
150 mm (5.9")	236.22 mm (9.30")	90 mm (3.58")	2.0 kg (4.5 lbs.)

Part Number

100/115 VAC, Tungsten, N.A.	4010997
100/115 VAC, Titanium, N.A.	4010118
230 VAC, Tungsten, CE-EU	4011214
230 VAC, Tungsten, CE-UK	4011215

CE

Aerostat® XC

Features

- Inherent balance to ±5 V
- Built-in emitter point cleaner
- Integrated heater and three-speed fan
- Emitter points never need replacement

Description

The Extended Coverage Benchtop AC Air Blower provides excellent coverage, stability of balance, and rapid static discharge. The XC neutralizes static across an entire 915 mm (3') x 1830 mm (6') benchtop area. No calibration is necessary; its inherent balance circuitry maintains a balance of ±5 V. A built-in emitter point cleaner provides low maintenance. A three-speed fan delivers a controlled air volume of 70, 90, or 120 CFM.

Measurements

Width	Height	Depth	Weight
390 mm (15.37")	115 mm (4.5")	205 mm (8.12")	7.9 kg (17.5 lbs.)

Part Number

120 V, 60 Hz	4002612
230 V, 50 Hz EU	4002667
230 V, 50 Hz UK	4009044

Aerostat® XC2 and XC2 L

Features

- Inherent balance to ±5 V
- Updated styling
- Built-in emitter point cleaner
- Adjustable locking stand
- Energy efficient

Description

Both the XC2 and XC2 L benchtop AC blowers provide extended coverage, superior performance and stylish design. They are great for assembly, inspection and testing environments. They are equipped with a variable fan speed control to rapidly neutralize static charges covering a 0.9 m (3') x 1.8 m (6') area. The tilt bench stand features locking points. The XC2 L unit includes an integrated manual emitter point cleaner.

In addition, the **XC2 premium model** comes equipped with an automatic point cleaning feature to automatically clean the emitter points on power up. In addition, the XC2 offers a line voltage auto-adjust mechanism as well as ionization monitoring indictors and output, which are auto-calibrated.

Measurements

Width	Height	Depth	Weight
360 mm (14.17")	130 mm (5.11")	160 mm (6.29")	4.5 kg (10 lbs.)

Part Number: XC2

120 V, 60 Hz	4012336
230 V, 50 Hz EU	4012491
230 V, 50 Hz UK	4012492

Part Number: XC2 L

120 V, 60 Hz	4012493
230 V, 50 Hz EU	4012495
230 V, 50 Hz UK	4012496

Aerostat® FPD

Features

- Inherent balance to ±5 V
- Built-in emitter point cleaner
- Recessed fan speed control
- High velocity fans provide fast discharge times

Description

Simco's Aerostat FPD Ionizing Air Blower provides superior static neutralization over an extended surface area. Available in two-, three- and four-fan models, it provides superior coverage up to 5'. The Aerostat FPD utilizes AC ionization technology and high flow fans to provide this enhanced performance. The airflow from the unit contains both positive and negative ions, enabling the neutralization of static charges wherever the airflow is directed.

Flat Panel Displays

Does your application require wide coverage? Ask about our new XC2 wide coverage blowers built to address even the largest areas. *See page 11 for XC2 information.*

Measurements

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

Part Number

4-fan, 120/220 V, 50/60 Hz N.A.	4011009
4-fan, 120/220 V, 50/60 Hz CE-EU	4011283
4-fan, 120/220 V, 50/60 Hz CE-UK	4011284
3-fan, 120/220 V, 50/60 Hz N.A.	4011007
3-fan, 120/220 V, 50/60 Hz CE-EU	4011281
3-fan, 120/220 V, 50/60 Hz CE-UK	4011282
2-fan, 120/220 V, 50/60 Hz N.A.	4011005
2-fan, 120/220 V, 50/60 Hz CE-EU	4011279
2-fan, 120/220 V, 50/60 Hz CE-UK	4011280

CE

Aerostat® Guardian™

Features

- Inherent balance to ±5 V
- Built-in emitter point cleaner
- Integrated heater and task lights
- Emitter points never need replacement

Description

Installed above the work area, the Guardian provides fast static discharge over an entire work surface. It has adjustable air volume from 150 to 300 CFM. Equipped with task lighting, an ionization indicator light, and an integrated heater, Guardian offers user friendly operation while effectively protecting even the most sensitive components from ESD damage using AC technology.

The Guardian features inherent balance technology and a built-in emitter point cleaner.

Overhead Ionization

Measurements

Length	Height	Depth	Weight
1090 mm (42.75")	100 mm (4")	170 mm (6.75")	7.3 kg (16 lbs.)

Part Number

120 V, 60 Hz	4004063
230 V, 50 Hz CE-EU	4004261
230 V, 50 Hz CE-UK	4009890

Aerostat® Guardian™ CR2000

Features

- Class 10/ISO Class 4
- Inherent balance to ±5 V
- Built-in emitter point cleaner
- Lockout switch and daisy-chain capability

Description

The Aerostat Guardian CR2000 is designed for use above critical cleanroom applications and is Class 10 compatible. The three-fan unit has an adjustable air flow velocity of 135 to 270 CFM, and the two-fan unit from 90 to 180 CFM.

Measurements

Unit	Length	Height	Width	Weight
3-fan	1090 mm (42.75")	100 mm (4")	170 mm (6.75")	6.80 kg (15 lbs.)
2-fan	805 mm (31.75")	100 mm (4")	170 mm (6.75")	5.5 kg (12 lbs.)

Part Number

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

CenturION™

Features

- Class 10/ISO Class 4
- Self-balancing to ±3 V
- Built-in emitter point cleaner
- LED remote alarm indicator
- "Optional" automatic point cleaner

Description

The CenturION 9E DC Ionizer is designed specifically for use in critical cleanroom applications [Class 10 (ISO Class 4) rated], and also where even low levels of static charge can damage sensitive components. It features superior balance to ±3 V, adjustable airflow velocity, and LED alarm indicators with a remote alarm signal contact. The standard unit includes an integrated manual emitter point cleaner. Additionally, this unit can be ordered with a built-in automatic point cleaning feature. This feature allows the user to set a schedule to automatically clean the emitter points either on power up, daily, weekly, or monthly.

Measurements

Unit	Length	Height	Depth	Weight
3-fan *(covers a 2' x 5' area)*	1015 mm (40")	75 mm (3")	150 mm (6")	4.9 kg. (11 lbs.)
2-fan *(covers a 2' x 3' area)*	660 mm (26")	75 mm (3")	150 mm (6")	3.6 kg. (8 lbs.)

Part Number	Standard	Optional Auto Point Cleaner
3-fan 120 V	4009423	4012256
3-fan 230 V CE-EU	4009424	4012257
3-fan 230 V CE-UK	4009425	4012258
2-fan 120 V	4009430	4012253
2-fan 230 V CE-EU	4009431	4012254
2-fan 230 V CE-UK	4009432	4012255

CenturION™ DDI

Features

- Class 10/ISO Class 4
- Self-balancing to ±3 V
- Built-in emitter point cleaner
- Stainless steel enclosure

Description

The CenturION DDI three-fan and two-fan ionizers are designed specifically for use by the disk drive industry in ultra critical cleanroom applications. Each model offers superior balance performance with its patented emitter array design with tungsten material and high-gain dual feedback circuitry. The CenturION DDI eliminates charges cleanly, quickly and reliably, providing true next generation performance with corona ion technology.

Measurements

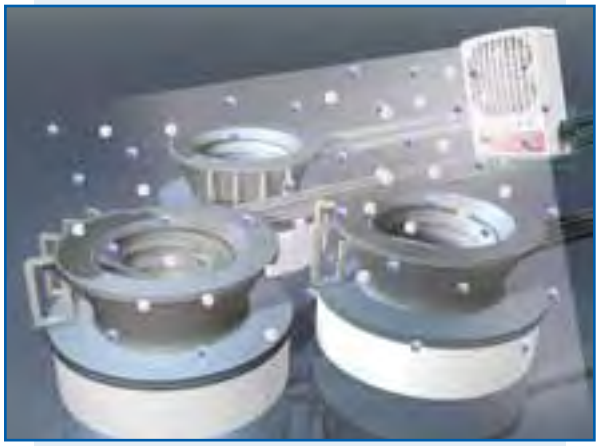
Unit	Length	Height	Width	Weight
3-fan	1016 mm (40")	70 mm (2.75")	152 mm (6")	6.3 kg. (14 lbs.)
2-fan	660 (26")	70 mm (2.75")	152 mm (6")	4.9 kg. (11 lbs.)

Part Number

3-fan, 100/115 VAC, N.A.	4011091
3-fan, 230 VAC, CE-EU	4011093
3-fan, 230 VAC, CE-UK	4011095
2-fan, 100/115 VAC, N.A.	4011085
2-fan, 230 VAC, CE-EU	4011087
2-fan, 230 VAC, CE-UK	4011089

CE

Common Blower Applications



Feeder Bowl Ionization

Benchtop Ionization

Conveyor Ionization

Top Gun™ and Sidekick

Features

- Inherent balance to ± 15 V
- Static dissipative lightweight handle
- Operates on either compressed air or nitrogen
- Adjustable airflow control (5 – 100 PSI)
- Optional Optical Sensor
- Hands-free operation and flexible positioning

Description

Simco's **Top Gun** is a high-reliability ionizing air gun for electronics manufacturing applications. Balanced to ± 15 V, the Top Gun features high blow-off force to provide efficient cleaning and rapid static discharge. The gun body is static dissipative, lightweight (less than 7 oz.) but durable, and features a light-touch trigger. All control functions are built into the gun for easy operator use: airflow control, ion balance adjustment, and a two-level LED to indicate both power on and ionization. The Top Gun features inherent balance, reliable performance and low maintenance. It operates on an air input of 5 – 100 PSI.

For automated assembly, all versions of the Top Gun are available with an optional Optical Sensor, which automatically activates the gun when an object is in range. The Optical Sensor has an "adjustable range" from 1" – 30".

The **Sidekick** flexible neck frees the operator's hands during assembly and manufacturing processes. A foot pedal controls both ionization and airflow, and the flexible gun mount allows the operator to focus the ionization airflow where it is needed. It includes a steel bracket for easy benchtop mounting. Contact Simco for complete product availability.

Part Number: Top Gun

7 ft. cable/hose assembly 120 V, 50/60 Hz	4005105
7 ft. cable/hose assembly 230 V, 50/60 Hz CE-EU	4005106
7 ft. cable/hose assembly 230 V, 50/60 Hz CE-UK	4009894
14 ft. cable/hose assembly 120 V, 50/60 Hz	4006599
14 ft. cable/hose assembly 230 V, 50/60 Hz CE-EU	4006600
14 ft. cable/hose assembly 230 V, 50/60 Hz CE-EU	4009895

Part numbers are without sensor

Part Number: Sidekick

Sidekick (hands-free stand) 120 V, 50/60 Hz	4006992
Sidekick (hands-free stand) 230 V, 50/60 Hz CE-EU	4007005

Ionizing Thermoformed Trays

PulseGun 8

Features

- Class 10/ISO Class 4
- 0.02 micron filter
- Requires AFC-2 Controller

Description

The PulseGun 8 (PG8) is a cleanroom ionizing gun with replaceable Class 1 electrodes designed for ultra-clean. An internal 0.02-micron filter eliminates particles in the gas supply line. The PG8 features a high blow-off force with a compressed air input range of 5-100 PSI. Additional features include a 1/4" air input and a 7' long cable. The AFC-2 Controller powers the PG8 gun and must be ordered separately.

Measurements

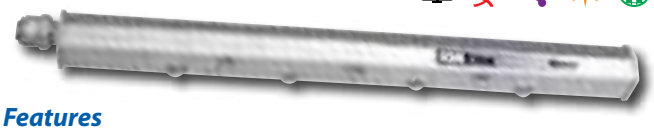
Area	Weight
32 mm (1.25") Dia. x 146 mm (5.75") L	0.40 kg (0.88 lbs.)

Air flow specifications for the PulseGun are as follows:

Part Number

PG8 Ionizing Gun	4005150
AFC-2 120 V	4005186
AFC-2 230 V EU	4005187
AFC-2 230 V UK	4009733

IONForce™



Features

- Class 10/ISO Class 4
- Compact design
- Low profile
- Available with Air Assist
- Requires a remote power supply

Description

IONForce is a high performance ion bar designed to improve yield in semiconductor, nano-technology, medical device, aerospace, communication, and electronics assembly industry applications. It features a low profile with a height less than three centimeters and can be easily mounted on many types of equipment and in areas such as those using robotics with low clearance. IONForce is available with extreme clean CVD SiC emitters and requires a DC controller sold separately. IONForce bars are supplied with a detachable 2.34 M HV cable assembly (part #4108681).

IONForce is also available in air assist models. Contact Simco for complete product availability.

Measurements

Height	Depth	Length
28.7 mm (1.13")	25 mm (0.98")	Varies; see below

Part Number

356 mm (14")	4011442
508 mm (20")	4011444
813 mm (32")	4011446
1118 mm (44")	4011448
1422 mm (56")	4011450
1702 mm (67")	4011452

Standard product with tungsten emitters

Power Supplies

PCM 100-120 VAC, N.A.	4011959
PCM 230 VAC, EU	4011960
PCM 230 VAC, UK	4011961
PFC-20 115 V, 60 Hz, N.A.	4005184
PFC-20 230 V, 50 Hz, CE-EU	4005185
PFC-20 230 V, 50 Hz, CE-UK	4009734

FusION™ Family

FusION

Fan Assembly

FusION In-Line

FusION Air Assist

Features

- Emitter Pin: Class 1 (TG)/ISO Class 1 (SiC)
- Compact design
- No calibration needed
- Quick installation and operation

Description

The **FusION** is a bipolar air ionizer capable of controlling electrostatic charges in a local area. This incredibly compact unit can be installed in places where typical ionizers do not fit. Simple to install and operate, mount the FusION adjacent to the static problem, connect the power supply and it begins to eliminate the charge. Multiple units can be linked together from one 24 V power source allowing five units to be daisy-chained. An optional fan assembly can be ordered for applications that may benefit from improved airflow.

Input power (24 VDC) is supplied by a universal 100 – 240 V input (IEC320), which must be ordered separately.

The **Air Assist FusION** delivers powerful electrostatic charge control independent of ambient airflow conditions. Using CDA (clean dry air) at low flow rates, the FusION will enjoy extended maintenance intervals.

The **In-Line FusION** ionizer enables stunning performance in long-length delivery lines by overcoming traditional ion recombination limitations. This enables focused ionized air to be delivered to previously inaccessible locations. The device can drive single or multiple output lines — servicing a number of locations from a single ionization source. The unit comes equipped for use with clean dry air (CDA); however, a Nitrogen Kit is available.

Measurements

Length	Height	Depth
96.52 mm (3.8")	76.2 mm (3")	48.26 mm (1.9")

Part Number: Fusion

FusION TG	4010577
FusION SiC	4010446
Fan Assembly	4010447
Power Supply Kit (North American)	4010448

Part Number: Fusion Air Assist

FusION AA SiC	4010830
FusION AA TG	4010831
High Purity Gas Kit x 120	5051309

Part Number: Fusion In-Line

In-Line FusION SiC	4012228
In-Line FusION TG	4012229
Nitrogen Kit	5051513
KIT, 6" AIR KNIFE	5051530
KIT, 12" AIR KNIFE	5051538
KIT, 6" RING	5051535
KIT, 10" RING	5051539

Power Supplies

120 V, 60 Hz	4010448
230 V, 50 Hz, CE-EU	4010449
230 V, 50 Hz, CE-UK	4010450

FusION In-Line Kits

Ring

Air Knife

ScorpION3 and ScorpION3S

Features

- Emitter Pin: Class 1 (TG)/ISO Class 1 (SiC)
- 24 VDC input
- LED and remote alarm indication
- IR remote — for easy calibration
- Daisy-chain capability

Description

The **ScorpION3** is a high performance ion bar designed to meet the stringent requirement of semiconductor, medical device and other critical environments requiring static and contamination control. Its patented features offer the industry's lowest decay times while sustaining a limited offset voltage swing.

The ScorpION3 is excellent for both laminar and turbulent airflow environments. The air assist models allow for faster decay times and protection over greater distances in turbulent environments.

The optional IR remote allows complete adjustment of all bar settings and offers full metering and diagnostic feedback. Our optional computer interface program allows for remote access to the bar and its settings over your system network.

The **ScorpION3S** extends the ScorpION's capabilities by adding closed-loop feedback capability for applications requiring tight balance control at the source. The optional remote sensor can be located directly below the ionizer. However, our adaptive sensor balance logic allows for indirect placement away from work area obstruction.

Measurements

Height	Depth	Length
70 mm (2.8")	43 mm (2.8")	Varies; see right

It is also available in longer lengths and other pin materials. Contact Simco for complete product availability.

Part Number: ScorpION3

	Standard Emitters		Air-Assist Emitters	
Pin Material	SiC	TG	SiC	TG
457 mm (18")	4011553	4011546	4011567	4011560
610 mm (24")	4011554	4011547	4011568	4011561
914 mm (36")	4011555	4011548	4011569	4011562
1118 mm (44")	4011556	4011549	4011570	4011563
1626 mm (64")	4011557	4011550	4011571	4011564
Remote	4011574			
Computer Interface	5051414			
Power converter 115 V, 60 Hz	5051328			
Power converter 230 V, 50 Hz EU	5051329			
Power converter 230 V, 50 Hz UK	5051330			

Part Number: ScorpION3S

	Standard Emitters		Air-Assist Emitters	
Pin Material	SiC	TG	SiC	TG
457 mm (18")	4012436	4012429	4012457	4012450
610 mm (24")	4012437	4012430	4012458	4012451
914 mm (36")	4012438	4012431	4012459	4012452
1118 mm (44")	4012439	4012432	4012460	4012453
1626 mm (64")	4012440	4012433	4012461	4012454
1880 mm (74")	4012441	4012434	4012462	4012455
2134 mm (84")	4012442	4012435	4012463	4012456
Sensor	4012505			
Remote	4012506			

Power Supplies

120 V, 60 Hz, N.A.	5051328
230 V, 50 Hz, CE-EU	5051329
230 V, 50 Hz, CE-UK	5051330

Pulse-Stat AC and Pulse-Stat AC L

Features

- Closed-loop feedback control of ionization
- Self-monitoring and automatic system correction
- Nozzle design provides equal air pressure
- Multiple emitter materials available
- Easy mounting

Description

Both the Pulse-Stat AC and the Pulse-Stat AC L bars feature microprocessor controlled AC air assisted ionization for rapid static discharge, stable ion balance and uniform ion homogeneity. Quick disconnect emitter pins allow for easy replacement. The Pulse-Stat AC premium model offers adjustable calibration via two remote controls; one is pocket size for bar calibration and adjustment, the other features two-way communication and an LCD display providing detailed bar operation parameters and useful diagnostics. Both remote controls use IR communication with the bar.

Measurements

Height	Depth	Length
70 mm (2.8")	43 mm (1.7")	Varies; see right

It is also available in shorter lengths and other pin materials. Contact Simco for complete product availability.

Wafer Transfer Ionization

LCD Ionization

Part Number: Pulse-Stat AC

Bars	Tungsten	SiC
1200 mm (47.2")	4012261	4012288
1500 mm (59.1")	4012262	4012289
1800 mm (70.9")	4012263	4012290
2100 mm (82.7")	4012264	4012291
2400 mm (94.5")	4012265	4012292
2650 mm (104.3")	4012266	4012293
3000 mm (118.1")	4012267	4012294

Power Supplies: Pulse-Stat AC

120 V, 60 Hz, N.A.	5051515
230 V, 50 Hz, CE-EU	5051516
230 V, 50 Hz CE-UK	5051517
Pulse-Stat Remote, 10 Key	4012297
Pulse-Stat Remote, LCD Display	4012298

Part Number: Pulse-Stat AC L

Bars	Titanium	TG Wire
1200 mm (47.2")	4012417	4012521
1500 mm (59.1")	4012418	4012522
1800 mm (70.9")	4012419	4012523
2100 mm (82.7")	4012420	4012524
2400 mm (94.5")	4012421	4012525
2650 mm (104.3")	4012422	4012526
3000 mm (118.1")	4012423	4012527

Power Supplies: Pulse-Stat AC L

120 V, 60 Hz, N.A.	5051532
230 V, 50 Hz, CE-EU	5051533
230 V, 50 Hz, CE-UK	5051534

CE

Gemini™ G3

Features

- Emitter Pin: Class 1 (TG)/ISO Class 1 (SiC)
- The G3PM management software provides real-time metering, data logging of all events, and graphing of all metered values
- Real time e-mail notification of up-to 15 monitored alarm conditions allows for immediate response
- Patented Pulse Overlap Technology to maximize ion balance to achieve superior discharge times

Description

The Gemini G3 CleanRoom Ceiling Ionization System is Simco's most advanced and intelligent member of the Room Ionization and ceiling emitter system family. The G3 extends the bar of protection in turbulent open room environments. Offset voltage is reduced along with shorter discharge times via Simco's patented Pulse Overlap Technology. Designed to integrate with Simco's next generation ionization management software, G3PM, the G3 is the most advanced system on the market. With the added intelligence to monitor and preemptively adjust to the changing condition of the environment, the G3 self-corrects to maintain optimized performance throughout the life of the product. The G3 operates in Steady State DC, Pulsed DC or patented Pulsed DC with Peak Reduction Technology.

Part Number

		Emitter Kits	
		SiC	TG
5" Emitter Kits		5051464	5051458
14" Emitter Kits		5051467	5051461
24" Emitter Kits		5051468	5051462
G3 Controller – 30	4012485		
G3 Controller – 100	4012486		
Remote	4011706		

CE

PCM Controller

Features

- Programmable: Output Mode, Ion Output, Pulse Time, Ion Balance, and Pulse Overlap
- Hand-held remote for programming, storing, and real time monitoring of settings
- Patented “Peak Reduction” Technology
- 24 VDC input power with universal input adapter (100 – 240 V)

Description

The PCM Controller provides the most advanced microprocessor control for the Simco Ion Force Bar where superior static discharge and ion balance are required. The controller can be set for Steady State or Pulse DC mode of operation and allows for operator adjustment of the Ion Output, Pulse Time, Ion Balance, and Pulse Overlap settings to achieve superior performance. Set up and adjustment are made via the hand-held PCM Remote Control. Settings can be stored/saved in the remote for future calibration of the system. The PCM controller monitors and maintains the critical operating parameters through active self monitoring and system self-correction. Status lights visually indicate a fault condition and an alarm output provides for remote monitoring and alarm indication.

Measurements

Width	Height	Depth	Weight
196 mm (7.70")	32 mm (1.25")	110 mm (4.40")	0.9 kg (2.0 lbs.)

Part Number

No AC Adapter	4011958
100-120 VAC, N.A.	4011959
230 VAC, EU	4011960
230 VAC, UK	4011961
Remote Control	4011964

PFC-20 PulseFlow® Controller

Features

- Operates in Steady State or Pulse DC
- Compact design
- Polarity indicator lights
- Powers up to 20 emitter pairs

Description

The PFC-20 PulseFlow Controller provides power and ion balance control for the Simco Ion Force Bar, or Pulse Bar. The PFC-20 has independent bipolar power level controls and pulse or Steady State DC operating modes with polarity indicator lights. All controls are located on the front panel to accommodate mounting above or below any work area.

Measurements

Width	Height	Depth	Weight
145 mm (5.75")	40 mm (1.65")	125 mm (5.0")	0.63 kg (1.4 lbs.)

Part Number

115 V, 60 Hz, N.A.	4005184
230 V, 50 Hz, CE-EU	4005185
230 V, 50 Hz, CE-UK	4009734

AFC2 Airflow Controller

Features

- Polarity indicator lights
- Integrated solenoid switch activates ionizer with airflow

Description

The AirFlow Controller provides power and control of ion balance to the PulseGun, AirSnake, and PulsePoint Nozzles. It has independent voltage level controls and Pulse or Steady State DC indicator lights. A silent switch incorporated into the controller allows voltage to be applied to the ionizer only when there is air flow. All controls are located on the front panel to accommodate mounting above or below any work area.

Measurements

Width	Height	Depth	Weight
145 mm (5.75")	40 mm (1.65")	125 mm (5.0")	0.63 kg (1.4 lbs.)

Part Number

115 V, 60 Hz	4005186
230 V, 50 Hz EU	4005187
230 V, 50 Hz UK	4009733

VisIONi™ Bipolar

Features

- Bipolar Steady State DC
- Powers up to 20 emitter pairs
- LED and remote alarm indicator

Description

Simco's VisIONi Controller is a bipolar Steady State DC power supply designed to control and power emitter systems for electrostatic charge control. The output to the ionizer is adjustable and current regulated. VisIONi features an alarm indicator light and provides a remote alarm output. The universal input voltage range is 85-265 VAC, 47-440 Hz.

Measurements

Width	Height	Depth	Weight
211 mm (8.31")	65 mm (2.56")	121 mm (4.75")	1.73 kg (3.8 lbs.)

Part Number

115 V, 60 Hz, N.A.	4011154
230 V, 50 Hz, CE-EU	4011155
230 V, 50 Hz, CE-UK	4011156

METER

FMX-003 Electrostatic Fieldmeter

Features

- Auto-ranging digital and bar graph display
- Self-storing plate for ionizer measurement
- HOLD function – to retain charge reading

Description

Simco's Model FMX-003 Electrostatic Fieldmeter is a compact, portable instrument for measuring electrostatic charge. The FMX-003 measures positive and negative polarity electrostatic charges to 20 kV (20,000 V) at a distance of one inch.

Measurements

Width	Height	Depth
75 mm (2.8")	120 mm (4.8")	25 mm (1")

Part Number

FMX-003 Compact Hand-held Fieldmeter with charge plate	4010723

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Warranty

SIMCO equipment has been carefully tested and inspected at the factory and is warranted to be free from any defects in material or workmanship.

SIMCO will, under this warranty, repair or replace any equipment which proves, upon our examination, to have become defective within the Warranty period from the date of purchase. A two-year warranty applies to all SIMCO equipment. Equipment is to be returned by the purchaser to SIMCO, 2257 North Penn Road, Hatfield, Pennsylvania, 19440, transportation prepaid and insured for its full purchase price. Prior to returning goods for any reason, contact SIMCO for a Return Authorization Number. This number must accompany all returns.

The Warranty does not apply when the equipment has been tampered with, misused, improperly installed, altered, has received damage through abuse, carelessness, accident, connected to improper line voltage, or has been serviced by anyone other than an authorized factory representative. The Warranty does not apply when SIMCO parts and equipment have been energized by other than the appropriate SIMCO power supply or generator, or when SIMCO power supplies or generators have been used to energize other than SIMCO parts and equipment.

SIMCO makes no warranty, expressed or implied, nor accepts any obligation, liabilities, or responsibility in connection with the use of these products other than the repair or replacement of parts as stated herein.