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An ITW Company

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IONIZATION SOLUTIONS



Overhead Ionizing Blower

Aerostat® Guardian™

User's Manual

About Simco-Ion

Simco-Ion develops, manufactures, and markets system solutions to manage electrostatic charge. As the world's largest provider of electrostatics management products and services, Simco-Ion improves its customers' business results by providing a total solution to their electrostatic discharge and electromagnetic interference challenges. Simco-Ion Technology Group is a division of Illinois Tool Works (ITW), located in Alameda, California. For more information about Simco-Ion visit www.simco-ion.com or call 800-367-2452. Simco-Ion is ISO 9001 and ANSI ESD S20.20 certified.

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Important Safety Information



Carefully read the following safety information before installing or operating the equipment. Failure to follow these safety warnings could result in damage to your ionization system and/or voiding the product warranty.

- ☑ This unit is supplied with a 3-prong grounding plug, which must be inserted in an appropriate, properly wired, and grounded receptacle. Do not defeat the electrical ground, grounding and proper wiring are required for proper operation.
- ☑ Keep the unit dry. Do not operate the ionizer in a flammable, volatile or explosive atmosphere.
- ☑ Do not insert objects through the unit's intake or outlet grilles. Damage to the ionizer and/or personal injury may result.
- ☑ Do not ground or make electrical connections of any kind to the unit's metal fan guards located on the intake and output.
- ☑ A factory-qualified service technician must perform component service and repairs. Please contact Simco-Ion Customer Service for information.

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1

Description

1.1 Aerostat Guardian Overhead Ionizing Blower
1.2 Features

1.1 Aerostat Guardian Overhead Ionizing Blower

Simco-Ion's Aerostat Guardian overhead ionizing air blower is designed for use with sensitive electronic components where electrostatic discharge (ESD) is a problem. The Aerostat Guardian provides fast static charge decay efficiency over an entire work surface area. Equipped with task lighting, an ionization indicator light, and an integrated heater, it offers user-friendly operation while effectively protecting even the most sensitive components from ESD damage.

- Rapidly neutralizes static charges
- Covers an extended area with ionized air
- Inherently balanced to 0 ±5 V
- Integrated heater and task lights
- Ionization indicator light
- AC technology for stable performance
- Built-in emitter cleaner for easy maintenance
- Available with airflow diffusers



Figure 1. Aerostat Guardian Overhead Ionizing Air Blower

1.2 Features

The Aerostat Guardian produces an air flow that is rich in positive and negative ions. Directing the air flow on an object that has a static electricity charge will neutralize the charge. If the object has a positive static charge, it will draw negative ions from the air flow. If the object has a negative static charge, it will draw positive ions from the air flow. The ions are attracted to the oppositely charged object and will neutralize the electrostatic charge on the object.

The Aerostat Guardian features both Simco-Ion's inherent self balance technology and a built-in emitter point cleaner. Like Simco-Ion's other Aerostat series ionizing air blowers, the Guardian operates on AC technology to provide stable balance performance over long periods of use. It is available with airflow diffusers for superior static charge decay efficiency over a large work surface area. Without diffusers, the Aerostat Guardian provides fast charge decay directly under the unit for targeted work surface coverage. The Aerostat Guardian requires very little maintenance to ensure electrostatic charge is controlled within the work surface area.

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Installation

2.1 Unpacking
2.2 Installing
2.3 Mounting
2.4 Electrical
2.5 Optional Air Filter

2.1 Unpacking

Note:	Prior to Guardian installation, the compact fluorescent bulbs must be installed. The bulbs are placed inside the packaging material to prevent breakage during shipment. Remove both (2" x 11") lamp access panels on rear of unit with a ¼" nut driver or flat blade screwdriver. Unpack the bulbs and install by inserting the bulb into the socket and press until it "clicks" into place. Replace the lamp access panels.

Carefully remove the equipment from the carton and inspect contents. Empty the carton to insure that small parts are not discarded. If any damage has occurred during shipment, notify the local carrier at once. Contact the Simco-Ion product distributor if replacement or the product is necessary.

2.2 Installing

The Aerostat Guardian should be located 18 to 30 inches above the work surface with center fan directly above the critical area. There should be no crossflow of air between unit and the work surface. Drafts from air conditioning and heating air outlets can affect ionization performance.

2.3 Mounting

The Aerostat Guardian may be mounted using adjustable mounting brackets or "S" hooks provided. The mounting brackets are designed for use on a variety of surfaces such as: perforated steel angle, Unistrut® metal framing, and on Metro® wire shelving (see diagrams on this page).

Place a lock washer and flat washer on the lock knobs and secure the unit using center holes on mounting tab. Be sure to install a fiber washer as shown in the diagrams. The "S" hooks provide for chain mounting or mounting on wire shelving. Install the overhead blower unit as shown below using outer holes on mounting tabs. Chain and additional mounting hardware (not supplied) must have a minimum safe working load rating of 20 lbs.

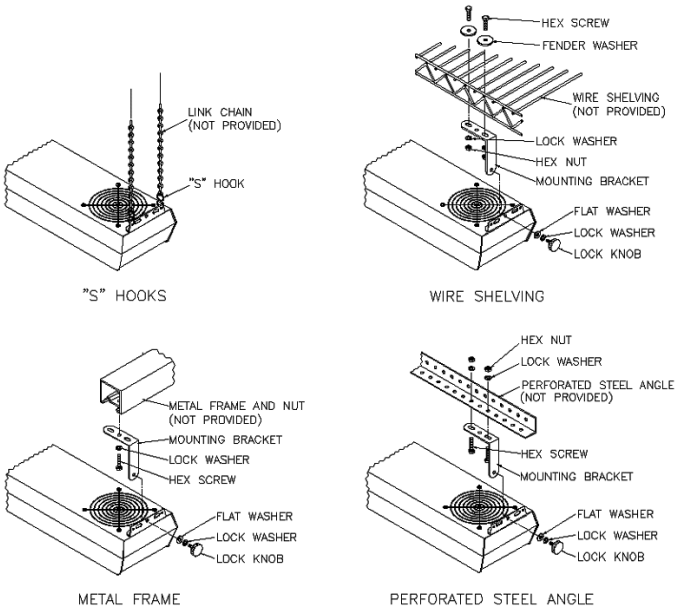


Figure 2. Mounting Options

2.4 Electrical

With the Aerostat Guardian mounted in place over the intended work surface, plug the male end of the IEC power cord into a properly grounded 120-240 VAC 50/60 Hz receptacle. If an extension cord is necessary, use only a 3 wire properly grounded one that matches the plug type that comes with the blower.

2.5 Optional Air Filter

If desired, optional air filters may be installed. The air filter consists of a filter retainer (part number 4710017) and an air filter element (part number 4100810, pack of 6).

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Operation

3.1 Adjustments
3.2 Performance
3.3 Troubleshooting

3.1 Adjustments

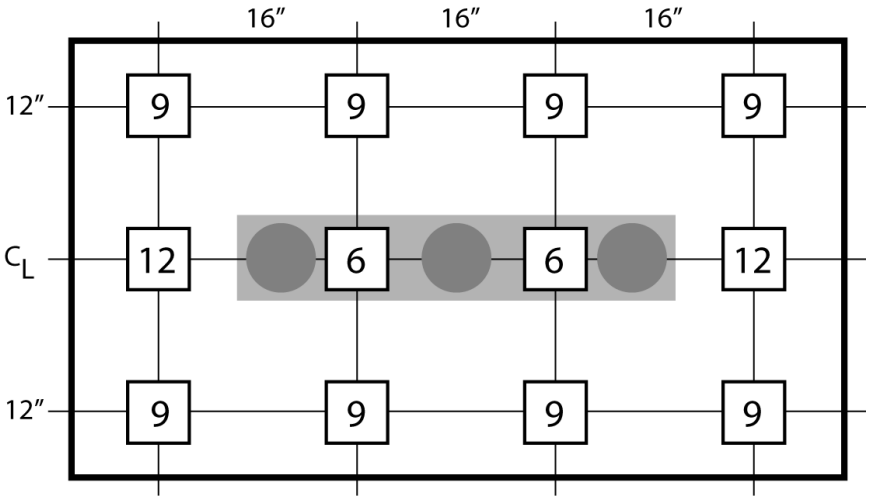
Activate the Guardian Overhead Ionizing Air Blower by turning FAN SPEED knob clockwise, out of the OFF position. The IONIZATION INDICATOR will illuminate to indicate the presence of ionized air. Set air flow as desired by rotating the FAN SPEED knob. If warm air is desired for operator comfort, set WARM AIR switch to the ON (|) position.. If light is desired, turn on task lights by setting LIGHTS switch to the on (|) position. To clean ion emitter points, rotate the POINT CLEANER knob at each air outlet clockwise to the stop (approximately one turn) and release.

The time required to neutralize a static charge on an item in the air stream depends on fan speed. Setting a higher fan speed reduces time required to neutralize a static charge.

When using the Guardian unit in an electronics assembly area, the ionized air stream should cover as much of the work area as possible. The constant flow of ionized air will prevent items such as work surfaces, tools, materials and components from developing a static charge. Charged items introduced into a work area will be neutralized and will remain neutral while in the ionized air stream.

3.2 Performance

Discharge Times Performance



Discharge time in seconds (1000-100V) as shown are typical, fan speed set to high. Guardian blower 18" from CPM measuring plate. CPM test plate 1" from table. Discharge times slightly longer for 230 VAC, 50 Hz unit.

3.3 Troubleshooting

This information provides a quick troubleshooting reference for the Guardian overhead ionizer. Should any of these possible solutions not solve the problem, contact Simco-Ion.

PROBLEM	CAUSE	SOLUTION
Unit fails to operate	Power cord not connected	Plug in to specified voltage source
Unit fails to operate	Faulty ac ground	Replace line cord
Flashing fault light	Power incorrectly supplied to unit	Cycle power to the unit using the unit's key switch
Flashing fault light	Power incorrectly supplied to unit	Ensure that properly grounded recepticle is used
Fault light on steady	Dirty or damaged emitter tips, incorrectly calibrated	Clean tips using integrated brush, replace as necessary, recalibrate
Excessively long discharge times	Dirty or damaged emitter tips, incorrectly calibrated	Clean tips using integrated brush, replace as necessary, recalibrate
Excessively long discharge times	Slow fan speed, or long working distance	Increase the fan speed , or move the unit closer to the work surface
Unit fails to hold setpoint	Dirty or damaged emitter tips	Clean tips using integrated brush, replace as necessary, recalibrate
Fan is slow	Fan speed is set slow	Adjust fan control clockwise

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Maintenance

4.1 General Maintenance
4.2 Emitter Cleaning
4.3 Air Inlet & Outlet Cleaning
4.4 Optional Air Filter Cleaning
4.5 Ion Output Check
4.6 Ion Balance Check
4.7 Calibration
4.8 Task Light Replacement

4.1 General Maintenance

The Aerostat Guardian has been designed with low maintenance in mind. The only regular maintenance suggested is emitter point cleaning, ion balance checking and ion output checking. Emitter point cleaning takes only seconds with Simco-Ion's point cleaner. The Aerostat Guardian contains a balancing circuit that is inherently self balancing. This circuit compensates for dirt build-up on emitters, emitter point wear, line voltage fluctuations and variations in air velocity. Scheduled checking of the ion output and balance should be considered to assure quality audit requirements.

Caution:	**ELECTRICAL SHOCK HAZARD!** Do not insert objects through intake or outlet grille.

4.2 Emitter Cleaning

To clean the ion emitters, simply rotate the point cleaner knob located at center of each outlet clockwise to the stop (approximately one turn) and release. The spring-loaded point cleaning brush will return to its parking spot. Recommended frequency of cleaning is once a week.

4.3 Air Inlet & Outlet Cleaning

The air inlet grille on the top of the unit and the ionized air outlets should remain clean to prevent restriction of air flow. They can be cleaned with a soft brush or vacuum. Clean the air inlet grille and ionized air outlets once every three months or more often if needed.

4.4 Optional Air Filter Cleaning

Remove the air filter element from the top of the unit by unsnapping the filter retainer. Rinse the filter in plain water while gently squeezing. If the dirt is stubborn, wash the filter in mild soap and water then rinse. Blot the filter dry with paper towels and allow to dry. Reinstall filter on air inlet and secure by snapping the filter retainer in place.

Important:	If an air filter is used, clean the air filter once every three months or more frequently if needed.

4.5 Ion Output Check

To test the unit for ion output, the use of a charge plate monitor such as the Simco-Ion Model 280A is recommended. Discharge times can be measured and checked against the Ion Output tables in **Section 5, Specifications**. If a charge plate monitor is not available, but a static meter such as a Simco-Ion handheld electrostatic fieldmeter is available, ion output may be checked with the following procedure. Take a piece of plastic and rub it with cloth until a static charge can be read with the static meter. Turn on the Aerostat Guardian. Hold the plastic one foot away from the ionized air outlet for five seconds. Remove the plastic from the ionized air stream and measure the static charge. The plastic should be neutralized.

If no instrumentation is available, the Aerostat Guardian's operation can be verified with the following procedure. Tear off about a 10-inch length of Scotch® brand (or equivalent) transparent tape. Approach the non-adhesive side of the tape with your free hand and note the electrostatic attraction of the tape to your hand. Pass the tape through the ionized air stream approximately 1 foot from the unit and again approach the non-adhesive side of the tape with your free hand. If the tape has been neutralized, it will not attract.

Do not try to verify operation of the unit by drawing a spark from an ion emitter point. The design of the balancing circuit makes the "spark test" inconclusive. Sustained grounding of the ion emitters may damage the balancing circuit.

4.6 Ion Balance Check

To test the unit for ion balance, the use of a charge plate monitor such as the Simco-Ion Model 280A is recommended. Offset voltage should be measured and checked against the Ion Balance in **Section 5, Specifications**.

Do not try to determine ion balance by holding a static meter in the ionized air stream. This will result in a meaningless reading.

4.7 Calibration

The Aerostat Guardian's ion output is inherently balanced by design, so there are no calibration adjustments. If, after checking the ion balance as outlined above, an unbalance or offset voltage exists in excess of 0 +/-5 volts, contact Simco-IonTechnical Support: techsupport@simco-ion.com or (510)-217-0470.

Never open the case of the unit. This exposes hazardous voltages. If repairs are necessary, contact Simco-Ion Sales Services: salesservices@simco-ion.com or (510) 217-0460 for a Return Authorization Number prior to returning the unit to the factory.

4.8 Task Light Replacement

If either task light does not light, dims appreciably, or flickers, the compact fluorescent lamp should be replaced as soon as possible. Access to the lamp is provided by a removable panel on the rear of the unit. Disconnect the unit by unplugging the line cord. Remove the appropriate lamp access panel with a ¼" nut driver and remove the lamp. Install a new lamp, replace lamp access panel, and plug the unit back in.

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Specifications

5.1 Specifications
5.2 Parts & Accessories

5.1 Specifications

Input Voltage	120 VAC, 60 Hz, 0.5A (fan low, heater/light off); 2.5A (fan high, heater/light on) 230 VAC, 50 Hz, 0.2A (fan low, heater/light off); 1.5A (fan high, heater/ light on)
Discharge	3.0 sec @ 18" center blower position; fan high-no diffusers (1000-100V)1
Balance	0 ±5V @ 18" from blower face
Ion Emission	AC Ionization
Coverage	2' x 4' area
Cleanroom Class	Meets ISO 14644-1 Class 5; Fed std. 209E Class 100
Emitter Points	Stainless Steel
Controls	Fan speed control knob BLOWER ON; on/off switch HEATER & TASK LIGHT
Indicator Lights	Orange IONIZATION STATUS; orange within on/off switches HEATER & TASK LIGHT
Air Volume	150-300 cfm (low to high), combined 3-fan output
Heated Air Temp	25°F (14°C) fan low; 11°F (6°C) fan high measured @ 6" in front of center fan above ambient;
Audible Noise	50 dBA fan low; 60 dBA fan high
Operating Env.	Temperature 32-122°F (0-50°C); humidity 30-70% RH, non-condensing
Ozone	0.02 ppm, measured @ 12" in front of unit2
Lamp	13W twin tube, compact fluorescent, 1650 lumen total task light output
Air Filter	30 ppi open cell polyurethane foam (optional)
Mounting	Adjustable brackets and S-hooks provided
Enclosure	Powder-coated white enamel aluminum
Weight	16 lb (7.3 kg)
Dimensions	42.75W x 4H x 6.75D in. (108.6 x 10.2 x 17.1 cm)
Warranty	Two year limited warranty
Certifications	RoHS Complian CE 230V, 50 Hz c UL us 120V, 60 Hz

5.2 Parts & Accessories

Part No.	Description
4004063	Aerostat Guardian, 120V, 60 Hz
4005306	Aerostat Guardian (no diffusers), 120V, 60 Hz
4004261	Aerostat Guardian, 230V, 50 Hz, (EU)
4009890	Aerostat Guardian, 230V 50 Hz, (UK)
4104515	Outlet Grille (includes point cleaner)
4105089	Outlet Diffuser (includes point cleaner)
4610811	Fluorescent Lamp, 13 W
4610782	Ionization Indicator Lamp Lens
4710018	Inlet Grille
4670900	Lock Knob (2 required)
5050360	Mounting Kit
4710017	Air Filter Retainer
4100810	Air Filter Element (package of 6)

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Warranty & Service

Simco-Ion provides a limited warranty for the Aerostat Guardian Ionizing Blower. 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 shall Simco-Ion be liable for collateral or consequential damages. Consumable items such as, but not exclusive to, emitter points, emitter wires, batteries, filters, fuses or light bulbs are only covered under this warranty if found defective as received with the new product.

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

Notes

Notes

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