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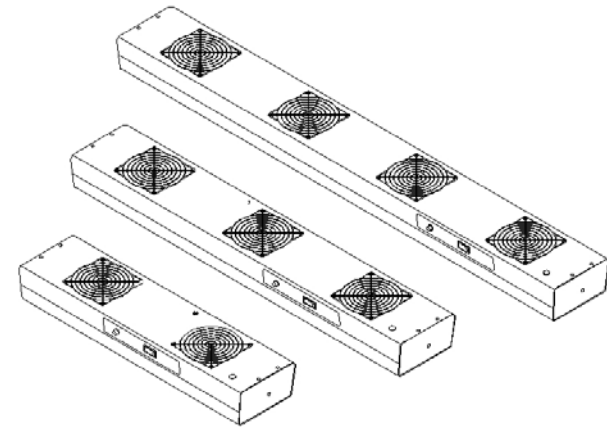
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INSTRUCTIONS

Operation/Maintenance

Aerostat FPD 2-3-4-Fan Ionizing Air Blower



SIMCO's Aerostat FPD ionizing air blower is designed for use in clean-room applications where rapid neutralization of static charges is necessary to prevent particulate contamination. Typical applications include the neutralization of static charges where protective films must be removed. In such an application, the Aerostat FPD rapidly reduces static fields that would otherwise attract and trap debris to surfaces that must be critically clean.

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SECTION 9 Warranty

SIMCO warrants its products to be free of defects in components, workmanship, or materials for a period of one year from date of purchase. This warranty does not apply to any physical or electrical damage caused by misuse, abuse or negligence (such as any modifications made to the unit or service work done by any other than SIMCO authorized technicians). Any unit with altered or removed serial number is ineligible for warranty.

SIMCO will not be liable for loss or damage due directly or indirectly to an occurrence or use for which the product is not designed or intended. In no event shall SIMCO be liable for incidental or consequential damages except where state laws override.

This warranty extends to the original purchaser and is not transferable. No person, agent, distributor, dealer or company is authorized to change, modify, or amend the terms of this warranty in any manner whatsoever.

All products returned must have an "RA" (Return Authorization) number regardless of warranty status. Call SIMCO for an assigned RA number.

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SECTION 1 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 coverage over narrow to wide areas. It 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.

Featuring SIMCO's patented inherent balance and built-in emitter point cleaners, the Aerostat FPD is a low maintenance ionizer. Like SIMCO's other Aerostat series ionizing air blowers, the FPD operates on AC technology to provide stable performance over long periods of use.

The Aerostat FPD features a recessed fan speed control. The fan speed control allows adjustment of the unit's airflow to suit the user's need. Recessing the speed control discourages tampering once the desired airflow is set.

Mounting brackets and hardware included with the Aerostat FPD are stainless steel to eliminate the risk of flaking that can occur with painted or plated brackets. The brackets feature a variety of holes and slots to facilitate mounting. The standard brackets also allow full rotation of the Aerostat FPD for aiming ease.

The Aerostat FPD produces an airflow that is capable of rapidly neutralizing static charges. Directing the ionized airflow at static generating processes reduces static charge levels. Maintaining the ionized airflow on product neutralizes static charges, greatly reducing the tendency to attract airborne dirt and debris. This control of static electricity in production increases product yield and improves product quality.

SECTION 2 Features

- Rapidly neutralizes static charges
- Covers an extended area with ionized air
- Inherently balanced ionization
- Ionization indicator light
- AC technology for stable performance
- Built-in emitter cleaner for easy maintenance
- Stainless steel mounting brackets & hardware

SECTION 3 Specifications

Unit Part Numbers:

Line Voltage (50/60 Hz):	<u>100 VAC</u>	<u>120/220 VAC</u>
2-Fan FPD:	4011004	4011005
3-Fan FPD:	4011006	4011007
4-Fan FPD:	4011008	4011009

Max. Current Draw:	<u>100 VAC</u>	<u>120/220 VAC</u>
2-Fan FPD:	0.3 Amp	0.3/0.2 Amp
3-Fan FPD:	0.4 Amp	0.4/0.2 Amp
4-Fan FPD:	0.5 Amp	0.5/0.3 Amp

Air Volume Output:	<u>Low Fan Speed</u>	<u>High Fan Speed</u>
2-Fan FPD:	150 CFM (4.3 m3/min.)	300 CFM (8.5 m3/min.)
3-Fan FPD:	230 CFM (6.4 m3/min.)	450 CFM (12.8 m3/min.)
4-Fan FPD:	300 CFM (8.5 m3/min.)	600 CFM (17.0 m3/min.)

Flow amount equal to sum of all fans.

Air Velocity:	<u>Fan Speed</u>	<u>1 ft.</u>	<u>2 ft.</u>	<u>3 ft.</u>	<u>4 ft.</u>	<u>5 ft.</u>
	Low	500	350	250	200	150
	High	1000	700	500	400	300

Velocity in FPM measured at center of air stream.

<u>Fan Speed</u>	<u>0.3m</u>	<u>0.6m</u>	<u>0.9m</u>	<u>1.2m</u>	<u>1.5m</u>
Low	2.5	1.8	1.3	1.0	0.8
High	5.0	3.5	2.5	2.0	1.5

Velocity in m/s measured at center of air stream.

Air Flow Coverage:	2-Fan FPD	3-Fan FPD	4-Fan FPD
(Area Coverage)	2' x 5'	3' x 5'	4' x 5'
	(0.6m x 1.5m)	(0.9m x 1.5m)	(1.2m x 1.5m)

Operating Temperature: 32°F (0°C) to 122°F (50°C)

Ozone: Unit run in closed, 1000 cubic-ft. chamber.
Ozone equilibrium concentration due to unit: 0.02 ppm

Audible Noise	<u>Fan Speed</u>	<u>Noise</u>
	Low	59 dB(A)
	High	69 dB(A)

Audible noise measured 2 ft. (0.6m) from unit.

Enclosure: Aluminum

Finish: White Enamel / Powder Coat

Mounting Brackets: Stainless Steel

Optional Air Filter: 30 PPI Open Cell Polyurethane Foam

Weight / Size:

2-Fan FPD:	10 Lbs. / 23-1/4" W x 4" H x 6-1/4" D (4.5 kg / 590 mm W x 102 mm H x 159 mm D)
3-Fan FPD:	13 Lbs. / 35-1/2" W x 4" H x 6-1/4" D (5.9 kg / 902 mm W x 102 mm H x 159 mm D)
4-Fan FPD:	16 Lbs. / 47-3/4" W x 4" H x 6-1/4" D (7.3 kg / 1213 mm W x 102 mm H x 159 mm D)

Ion Balance (offset voltage): 0 ±10V

7.6 Calibration

The Aerostat FPD ion output is inherently balanced by design, so there are no calibration adjustments. If, after checking ion balance as outlined above, an unbalance or offset voltage exists in excess of the specification, clean the emitters. If the problem persists, contact SIMCO Customer Service at 800-538-0750 (USA) or 215-997-0590.

SECTION 8 Replacement Parts

<u>PART NUMBER</u>	<u>DESCRIPTION</u>
4630226	HV Transformer, 100 VAC
4630229	HV Transformer, 120/230 VAC
4630201	LV Power Supply (2-fan / 4-fan)
4630230	LV Power Supply (3-fan)
4104515	Outlet Grille (includes point cleaner)
4530384	Ion Shield (clear ring at ionized air outlet)
4108491	Fan-Ionizer Assembly, 6" Lead
4108492	Fan-Ionizer Assembly, 24" Lead
4108493	Fan-Ionizer Assembly, 36" Lead
4108494	Fan-Ionizer Assembly, 48" Lead
4610782	Ionization Indicator Lamp Lens
4710018	Inlet Grille (accepts air filter)
4641087	Push-in Rivet (4 required per fan)
5051202	Lock Knob Kit (includes 2 knobs & hardware)
5051203	Mounting Bracket Kit (includes 2 brackets)
5050774*	Hanger Bracket Kit (includes 2 brackets & hardware)
5050543*	Hanging Chain Kit (includes 2 1-ft. chains & 6 "S" hooks)
5050767	Line Cord Kit, 120 VAC, North American Plug (5-15P)
5050964*	Line Cord Kit, 230 VAC, North American Plug (6-15P)
5050768*	Line Cord Kit, 230 VAC, Continental European Plug (CEE7)
5050784*	Line Cord Kit, 230 VAC, British Standard Plug (BS1363)
4710017*	Air Filter Retainer
4100810*	Air Filter Element (package of 6)

* Optional Equipment

7.2 Air Inlet and Outlet Cleaning

The air inlet grille on the top of the unit and the ionized air outlets should remain clean to prevent restriction of airflow. They can be cleaned with a soft brush or vacuum. While cleaning the air inlet grille and ionized air outlet is not regularly required in cleanroom installations, units installed in general assembly areas may require regular cleaning. Clean the air inlet grille and ionized air outlets once every three months or more often if needed.

7.3 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 excess water off the filter with paper towels and allow to dry. Reinstall filter on air inlet and secure by snapping the filter retainer in place.

IMPORTANT: If air filters are used, clean the air filters once every three months or more frequently if needed.

7.4 Ion Balance Check

A charged plate monitor (CPM) is required to test the unit for ion balance. Proper electrical grounding of the charged plate monitor and ionized air blower is essential for accurate offset voltage measurement. Allow the Aerostat FPD to warm up for one hour to ensure the most accurate offset voltage measurement. Offset voltage should be measured and checked against the Ion Balance in Section 3, 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.

7.5 Ion Output Check

A charge plate monitor (CPM) is required to test ion output. Discharge times can be measured and checked against the Ion Output tables in Section 3, Specifications.

If a CPM is not available, a periodic verification instrument may be used to verify ion output. Periodic verification equipment may not correlate with the Ion Output tables in Section 3, Specifications. Refer to manufacturer of periodic verification equipment for more information.

CAUTION: ELECTRICAL SHOCK HAZARD!

Do not insert objects through intake or outlet grille.

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.

Ion Output (discharge time):

<u>Distance from Unit</u>	<u>1 ft.</u>	<u>2 ft.</u>	<u>3 ft.</u>	<u>4 ft.</u>	<u>5 ft.</u>	
Fan 2						Discharge Time
Speed 2	1.0	2.0	3.0	4.5	6.0	Across Face of Unit
High 2						in Seconds

<u>Distance from Unit</u>	<u>1 ft.</u>	<u>2 ft.</u>	<u>3 ft.</u>	<u>4 ft.</u>	<u>5 ft.</u>	
Fan 2						Discharge Time
Speed 2	2.0	4.0	6.0	8.0	10	Across Face of Unit
Low 2						in Seconds

Offset voltage and discharge time determined as per ESD Association ionization standard ANSI ESD STM3.1 using 6" x 6", 20 pF plate (Charge Plate Monitor). Discharge times are in seconds from 1000 volts to 100 volts.

SECTION 4 Safety

1. Read all instructions before proceeding with installation or operation. Failure to follow instructions may result in damage to the ionizer and/or personal injury.
2. This unit is equipped with a 3-prong grounding plug and must be plugged into a 3-terminal grounded receptacle. Do not defeat the electrical ground by modifying plug or using an ungrounded 3-prong adapter. If an extension cord is necessary, use only a 3-wire extension cord that provides grounding.
3. Keep the unit dry. Moisture can affect the ion balance. Excessive moisture may damage the ionizer.
4. Do not operate the ionizer in a flammable, volatile or explosive atmosphere.
5. Do not insert objects through the unit's intake or outlet grilles. Damage to the ionizer and/or personal injury may result.
6. Internal repairs or servicing must be done by a factory-qualified service technician. Please contact SIMCO Customer Service for information.

SECTION 5 Installation

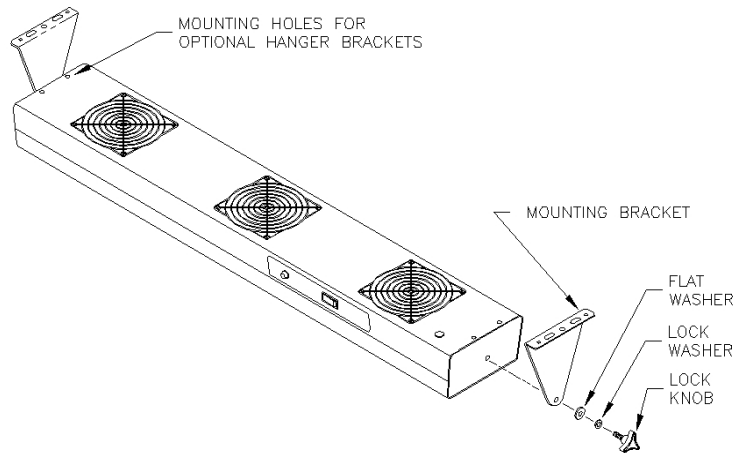
5.1 Unpacking

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. A report should also be forwarded SIMCO, 2257 North Penn Road, Hatfield PA 19440, Phone 215-822-2171. See Section 9, Warranty, for Return Shipment information.

5.2 Location

The Aerostat FPD should be located approximately 12 to 24 inches (0.3 m to 0.6 m) from the critical work area or objects to be neutralized. It should be positioned to cover as much of the area as possible with the ionized air stream.

5.3 Mounting



The Aerostat FPD is supplied with stainless steel brackets that allow the unit to pivot. To install them, place a lock washer, then a flat washer on the threaded shaft of the lock knobs. Hold the mounting bracket in place over the threaded insert on the end of the unit and secure the bracket with the lock knob.

The mounting bracket has a variety of holes and slots to enable mounting on a variety of surfaces. Mounting hardware to secure the bracket (not supplied) must have a minimum safe working load rating of 20 lbs (10 kg).

Optional hanger brackets are available that allow suspending the Aerostat FPD by chains. When using the optional hanger brackets, mounting hardware must have a minimum safe working load rating of 20 lbs (10 kg). If "S" hooks are used to suspend the Aerostat FPD, close them after installation to secure unit.

5.4 Electrical

The nominal line voltage for the Aerostat FPD is listed on the serial label near the power-input connector. Units that operate on multiple line voltages have a voltage selection switch adjacent to the power-input connector. The voltage selection switch must be set for the applied line voltage. The unit must be grounded for safe operation. If an extension cord is necessary, use only a 3-wire extension cord that provides grounding.

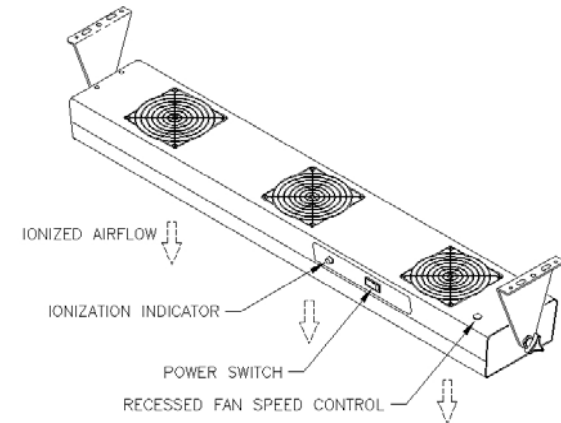
5.5 Optional Air Filter

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).

5.6 Fan Speed

The Aerostat FPD has a recessed fan speed control on the top of the unit, located beneath a white plastic pop-out plug. The fan speed is controlled by a recessed potentiometer that can be adjusted with a flat blade screwdriver. Access to the adjustment requires removal of the plastic hole plug.

SECTION 6 Operation



Activate the Aerostat FPD ionizing air blower by turning the "Power" switch on ("I"). The "Ionization" indicator will illuminate to indicate the presence of ionized air. For efficient neutralization of static charges, the ionized airflow must be aimed at the source of static charges. The time required to neutralize a static charge on an item in the air stream depends on fan speed and distance to the target item. Setting a higher fan speed reduces time required to neutralize a static charge.

The ionized air stream of the Aerostat FPD should cover as much of the work area as possible. The constant flow of ionized air will prevent items such as tools, materials and fixtures 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.

SECTION 7 Maintenance

The Aerostat FPD 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 the built-in point cleaners. The Aerostat FPD contains a patented 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.

7.1 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 emitter point cleaning is every 160 hours of operation. (weekly for 24 hr/day operation, monthly for 8 hr/day operation).