



AI-004 Ionizing Overhead Air Blower



Installation, operation, and maintenance instructions

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No-STAT Ionizing blower AI-004 provides superior static charge decay rates over a targeted work surface area. It provides optimum protection from the destructive effects of ESD.

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1. Description

No-stat AI-004 is an overhead ionizing air blower designed specifically to protect sensitive electronic components in cleanroom applications where electrostatic discharge (ESD) is a concern. The AI-004 Ionizing Air Blower produces an airflow composed of positive and negative air ions. Directing the airflow on an object that is charged with static electricity will quickly neutralize the charge. If the object has a negative static charge, it will provide positive ions from the airflow. And, if the object has a positive static charge, it will provide negative ions from the airflow. The volume of airflow is controlled by variable speed control of the fans, which provides a wide range of airflow settings. The airflow can also be locked into high speed using the key switch to provide the maximum possible

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performance. Airflow is directed through ionizing elements which produce air ions. The ionizing elements are energized with a low current, high voltage signal. The system contains current limiting resistors which enhances ionization stability and assures safety. The high voltage is supplied to a circular arrangement of ion emitters which results in an alternating polarity ion field. The airflow exiting from the AI-004 carries the ions to the work area to provide static neutralization.

New design features enhance both short-term and long-term ion balance stability. A transparent duct extends from each fan output. These "ion shields" prevent ion loss to the unit's chassis and facilitate the ion output and balance. The AI-004 features a balancing circuit. The output from the monitoring circuit is indicated with two bicolor LEDs on the face of the unit. The AI-004 also offers built-in emitter point cleaners as a standard feature to make it easy to maintain optimum performance. To ensure cleanroom compatibility, the AI-004 uses specially chosen components which minimize the risk of contamination of the cleanroom. All fans feature a top of the line bearing system and use silicone-free lubricants. Fans are tested to Class 10 cleanroom particle limits. Airflow surfaces are free of silicone materials to further minimize the risk of contamination.

2. Safety

Read instruction manual before installing or operating the AI-004.

This unit is equipped with a 3-prong grounding plug and must be plugged into a 3-terminal grounded receptacle. Do not modify the plug or use an ungrounded adapter. If an extension cord is necessary, use only a 3-wire extension cord that provides grounding. Do not insert objects through intake or outlet grilles.

Do not operate unit in flammable or explosive atmospheres.

Internal repairs or servicing must be done by qualified personnel.

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SECTION3 Features

Rapidly neutralizes static charges

Covers an extended area with ionized air

Inherently balanced ion output

Built-in ion emitter point cleaner

Variable speed fans with wide range of airflow

SECTION 4: Specifications

Unit Part Number:	<u>4008631</u>	<u>4008706</u>			
Line Voltage:	120VAC, 50/60Hz	230VAC, 50/60Hz			
Current Draw;	Max 0.8Amp	0.4Amp			
Air Volume Output:	<u>Fan Speed</u>	<u>Flow</u>			
	Low	160CFM			
	High	440CFM			
Air Velocity	Fan Speed	1ft.	2ft	3ft.	4ft.
	Low	250	200	150	125
	High	500	400	300	250

Velocity in FPM measured at center line of air stream

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

Ozone Production: 0.03ppm measured 6' in front of unit, fan low

Audible Noise: Fan Speed
Low 50dB
High 58dB
Measured 2 ft. from. unit.

Enclosure: Aluminum

Finish: Acrylic Enamel

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Weight:	17.2 lbs(7.8kg).120v unit
	17.9 lbs(8.1kg).230v unit
Size:	43- 1/4"Wx4 1/4"Hx7 1/4D (110cm W x 11cm H x 18.4 cm D)
Bench Stand Feet:	Nonconductive, Nonstaining Polymer

SECTION 5: Installation

Location

The AI-004 should be located 20 to 30 inches above the work surface, centered directly above the critical area. Other than the vertical unidirectional airflow, there should be no cross-flow of air between unit and work surface.

Mounting

The AI-004 may be mounted using adjustable mounting brackets or "S" hooks (not provided). The mounting brackets are designed to secure to a variety of surfaces such as: perforated steel angle, Unistrut® metal framing and provide permanent mounting on Metro® wire shelving. First, install hanger brackets to top of AI-004 chassis using a Philips head screwdriver. Then, mount brackets as shown in illustration. When using lock knobs, place a lock washer and flat washer on the lock knobs and secure unit using center holes on mounting tabs.

Standard Installation

The "S" hooks provide for chain mounting or mounting on wire shelving. Install the AI-004 using outer holes on hanger brackets. Chain and mounting hardware (not supplied) must have a minimum safe working load rating of 20 lbs. (10 kg.). Close "S" hooks to secure unit.

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Electrical

The AI-004 is equipped with an IEC320 power inlet and outlet. An appropriate line cord is included in the packaging. The unit must be grounded for safe operation. Plug unit into a standard 3-terminal grounded receptacle with line voltage and frequency as listed on serial label of unit. If an extension cord is necessary, use only a properly rated 3-wire extension cord that provides grounding.

SECTION 6: Operation

Activate the AI-004 by turning the power switch out of the OFF position. In the ADJUSTABLE FAN SPEED position, the airflow can be adjusted by using a flat-blade screwdriver to turn the recessed FAN SPEED control. In the HIGH FAN SPEED position, the airflow is fixed at maximum. The key can be removed with the power switch in any position. During operation, the ION OUTPUT and ION BALANCE indicators will illuminate green to verify the presence of balanced, ionized air. The time required to neutralize a static charge on an item in the air stream depends upon fan speed. Setting a higher fan speed reduces time required for neutralization.

When locating the AI-004, the ionized air stream should cover as much of the work area as possible. The constant flow of ionized air will maintain items such as work surfaces, tools, materials and components at very low charge potentials. Charged items introduced into work area will be neutralized.

Control Panel:



SECTION 7: Maintenance

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The AI-004 has been designed for minimal maintenance. The only regular maintenance suggested is emitter point cleaning. Emitter point cleaning takes only moments with the built-in point cleaners. The AI-004 contains a balancing circuit that is inherently self-balancing. This circuit compensates for changes that would otherwise affect ion balance. Scheduled checking of ion output and balance should be considered to assure quality audit requirements.

Emitter Cleaning

To clean ion emitter points: simply rotate 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. Remove or protect particulate-sensitive product during point

Recommended frequency of cleaning is once a week.

cleaning.

Ion Output Check

A charge plate monitor (CPM) such as ME268A is required to test ion output. A convenience ground is located near the power outlet for instrument grounding; it accepts a standard banana plug. If a CPM is not available, a periodic verification instrument may be used to verify ion output.

CAUTION ! ELECTRICAL SHOCK HAZARD !

Do not insert objects through intake or outlet grille.

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

Ion Balance Check

A charged plate monitor (CPM) such as ME268A is required to test the unit for ion balance. A convenience ground is located near the power outlet for instrument grounding; it accepts a

standard banana plug. Allow the unit to warm up for one hour to ensure the most accurate offset voltage measurement. Offset voltage should be measured and checked against the specified ion balance of 0+/-10 volts.

Calibration

The AI-004 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 0+/-10 volts, clean the emitters. If the problem persists, contact NO-STAT Customer Service.

SECTION 8: Replacement Parts

Part Number	Description
1	H.V. Transformer, 100 VAC
2	H.V. Transformer, 120 VAC
3	H.V. Transformer, 230 VAC
4	LV Power Supply
5	Outlet Grille (includes point cleaner)
6	Fan, Center
7	Fan, Power In End (3-fan model only)
8	Ionizer Assembly
9	Inlet Grill
10	Hanging Chain Kit

SECTION 9: Warranty

NO-STAT warrants its products to be free of defects in components, workmanship, or materials for a period of two years 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

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unit or service work done by any other than NO-STAT authorized technicians). Any unit with altered or removed serial number is ineligible for warranty.

NO-STAT 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 NO-STAT be liable for incidental or consequential damages except where state or regional 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 NO-STAT for an assigned RA number.

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