



## AI-003

# Ionizing Overhead Air Blower



## Installation, operation, and maintenance instructions

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No-STAT Ionizing blower AI-003 provides superior static charge decay rates over a targeted work surface area. It provides optimum protection from the destructive effects of ESD.

Table of contents:

1. Description
2. Safety
3. Features
4. Specifications
5. Installation
6. Operation
7. Maintenance
8. Replacement Parts
9. Warranty

### 1. Description

No-stat AI-003 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-003 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 performance. Airflow is directed through ionizing elements which produce air ions.

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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-003 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-003 features a balancing circuit. The output from the monitoring circuit is indicated with two bicolor LEDs on the face of the unit. The AI-003 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-003 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-003.

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.

## 3. Features

\* Rapidly neutralizes static charges

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- \* Covers an extended area (entire bench) with ionized air
- \* Has inherently balanced ion output
- \* Has Built-in ion emitter point cleaner
- \* Has variable, wide range airflow control
- \* Illuminates the ESD protected area (Has built-in lights)

## 4. Specifications

<b>Part Number:</b>	<b><u>AI-003/120V</u></b>	<b><u>AI-003/230V</u></b>			
Line Voltage:	120VAC, 50/60Hz	230VAC, 50/60Hz			
Current Draw:	Max 0.8Amp	0.4Amp			
Air Volume Output:	<u>Fan Speed</u>	<u>Ionized AirFlow</u>			
	Low	130 SCFM			
	High	330 SCFM			
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 the air stream					
Operating Temperature:	32°F (0 °C) - 122°F (50 °C)				
Ozone Production:	0.03 ppm measured 6' in front of unit, fan low				
Audible Noise:	Fan Speed				
	Low	50dB			
	High	58dB			
Measured 2 ft. from the unit.					
Enclosure:	Aluminum				
Finish:	Acrylic Enamel				
Weight:	15 lbs (6.8kg). 120v unit				
	15.4 lbs (7.0kg).230v unit				

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Size: 42- 3/4"W x 4 1/4"H x 7 1/4D  
(110cm W x 11cm H x 18.4 cm D)

## 5. Installation

The AI-003 should be located 20 to 30 inches above the work surface, centered directly above the area to be neutralized. Other than the vertical unidirectional downstream airflow, there should be no cross-flow of air between the unit and the work surface.

### How to mount the Ai-003:

The AI-003 can be mounted using adjustable mounting brackets or "S" hooks. The mounting brackets are designed to secure the unit to a variety of surfaces

### Standard Installation:

The "S" hooks provide for chain mounting or mounting on wire shelving. Install the AI-003 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 the unit.

How to connect to the power outlet:

The AI-003 is equipped with an IEC320 power cord. 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 the unit label. If an extension cord is necessary, use only a properly rated 3-wire extension cord which provides the grounding.

## 6. Operation

Turn ON the AI-003 by turning clockwise the round power knob. When the unit is

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operating the airflow can be adjusted by further rotating the round ON-OFF and Air Flow Adjustment round knob. 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 static charge on an item in the air stream depends upon the distance from the neutralized object and the fan speed. Setting a higher fan speed reduces time required for neutralization.

When installing the AI-003, 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 rapidly neutralized .

Ionizer AI-003 is equip in two light bulb 15W , turn on by longitudinal switch ON-OFF.

Control Panel:



## 7. Maintenance

The AI-003 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 emitter point cleaners. The AI-003 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 using a STAT-Check or similar meter should be considered to assure quality audit requirements.

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### Emitter Cleaning:

To clean ion emitter points rotate clockwise to the stop (approximately one turn) and release point cleaner knob located at center of each blower outlet. The spring-loaded point cleaning brush will return to its parking position.

Recommended frequency of cleaning is once a week.

Remove or protect sensitive products during point 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 like a field meter may be used to verify ion output.

### CAUTION! ELECTRICAL SHOCK HAZARD!

Do not insert objects through the intake or outlet grilles.

Do not try to verify operation of the unit by trying to force 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 grounding point 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-003 ion output is inherently balanced by design, so there are no calibration

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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 Bokar International or Bokar's Distributor Customer Service

## **8. Replacement Parts**

<b>Part Number</b>	<b>Description</b>
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 emitters cleaner)
6	Fan, Center
7	Fan, Power In End (3-fan model only)
8	Ionizer Assembly
9	Inlet Grill
10	Hanging Chain Kit
11	Light Bulb 15W

## **9. Warranty**

Bokar International warrants the products of the NO-STAT Brand to be free of defects in components, workmanship, or materials for a period of one year from the 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 Bokar Int. authorized service). The unit with was altered or has a missing (removed) serial number is

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not eligible for warranty repair.

Bokar Int. will not be liable for loss or damage directly or indirectly if the product was use in a manner for which it was not designed or intended. In no event shall Bokar International 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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