

# Installation / Operation / Maintenance

## Staticmaster<sup>®</sup> Standard Ionizing Fan Model 6210

### Overview

The Staticmaster<sup>®</sup> Standard Ionizer utilizes DC high voltage to generate balanced ionized airflow to eliminate static charges on surfaces. The Ionizer can be placed at one end of the workbench, wall or shelf mounted, and directed at the target or area to be neutralized. The target's neutralization time will be optimal when placed 12" to 48" directly in front of the Ionizer and will increase as the distance increases.

### General Guidelines

- Keep water, oil, contamination and any fluids away from the Ionizer at all times.
- Keep the Ionizer clean inside and out for optimal performance.

**CAUTION: DISCONNECT THE IONIZER FROM POWER BEFORE PERFORMING ANY MAINTENANCE, INSPECTION OR CLEANING TO AVOID AN ELECTRICAL SHOCK HAZARD AND TO PREVENT DAMAGE TO THE IONIZER.**

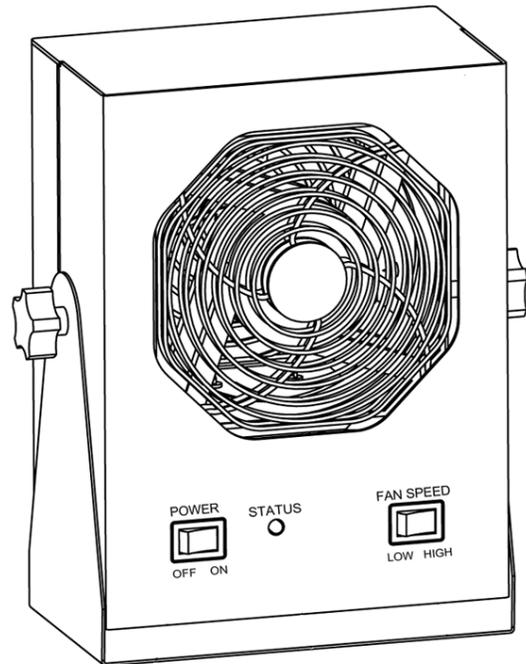
### Contents

Remove the Ionizer from the carton and inspect for damage. Included with the Ionizer should be:

- One (1) Staticmaster<sup>®</sup> Standard Ionizing Fan with Stand and adjustment knobs installed.
- One (1) Detachable IEC Power cord (US 115V or 230V, UK or Euro; must be specified at time of order).
- One (1) Round foam air filter with (1) 3/4" round hook fastener dot.
- This Installation, operation, and maintenance instructions sheet.

### Installation

Locate the Ionizer 12" to 48" from the target to be neutralized for optimal performance, making sure that the airflow will not be restricted. The Ionizer comes with a stand so that it can be positioned on a flat surface, aimed at the target and locked via adjustment knobs. It can also be wall or



shelf mounted to keep valuable bench space free for other purposes and equipment. A working electrical outlet within reach of the 6' long detachable cord that is supplied with the Ionizer will be required. The outlet must be a properly installed and grounded 3-prong outlet with supplied voltage to match the Ionizer being installed. If one is not present, consider relocating the Ionizer to be within reach of an outlet or having an electrical outlet installed near the Ionizer. Be sure the ON/OFF switch, located on the front of the Ionizer, is in the "OFF" position. Plug the power cord into the back of the Ionizer and then into the appropriate AC power source.

**IMPORTANT NOTE:** Before powering up the Ionizer, verify that the AC outlet is properly grounded and that the supplied line voltage matches the electrical specification on the label at the bottom of the Staticmaster<sup>®</sup> Standard Ionizer. Plugging the Ionizer into an outlet with the incorrect voltage may damage the Ionizer and will void any warranty coverage. The Ionizer must have a good ground to maintain proper balance.



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### Operation

Set the fan speed switch on the front of the Ionizer to the LOW or HIGH position depending on the operator comfort or desired decay time. Higher airflow will result in faster static decay rates. Position the Ionizer so that the maximum airflow is directed at the items or area to be neutralized. Turn the Ionizer ON.

When the Ionizer is turned on, the “Status” LED will illuminate and remain GREEN, indicating that the Ionizer is running normally. The audible alarm may chirp and the “Status” LED may illuminate AMBER momentarily at startup but it should return to normal/green mode in one second or less. If the Ionizer self test circuitry detects a fault condition, the LED will illuminate and remain AMBER and an audible alarm will sound.

Refer to the Troubleshooting section of this manual in the case of a fault condition. There are no user serviceable parts in this Ionizer. Routine cleaning is the only maintenance that the user can perform.

### Balance Adjustment

The Ionizer is an auto-balancing unit. However, tuning or manual adjustment can be accomplished by inserting a small flat screwdriver or trimmer adjustment tool into the tiny hole for the balance adjustment potentiometer located at the bottom left corner on the back of the Ionizer. To increase the output of positive ions, turn the potentiometer in a clockwise direction. Conversely, to increase the output of negative ions, turn the potentiometer in a counterclockwise direction. Ideally the Ionizer will produce equal numbers of positive and negative ions. Use a calibrated Charge Plate Monitor to verify balanced operation of the Ionizer. Do not attempt balance adjustment without a Charge Plate Monitor.

### Maintenance / Alarms

Under normal conditions, the Ionizer will attract dirt and dust (especially on the emitter pin electrodes). To maintain optimum neutralization efficiency and operation, cleaning should be performed on a regular basis, once a month is recommended. In addition to improving decay time, cleaning also keeps the Ionizer balanced without the need for adjustment.

**NOTE:** The AC power cord MUST be disconnected before the Ionizer can be disassembled for maintenance. First, turn the Ionizer OFF and unplug the power cord. Remove the back cover by disengaging the four (4) screws on the back. The emitter pin electrodes should be cleaned using a Q-Tip type cotton swab or a soft nylon toothbrush dampened with isopropyl alcohol. Clean the blades of the fan and the back of the balance-sensing grill in front of the fan as much as is accessible from the back of the Ionizer.

**Use caution when cleaning inside the Ionizer. The emitter pin electrodes are sharp.**

After cleaning the emitter pin electrodes, reattach the back cover using the four (4) screws. Plug in the power cord and turn the Ionizer back ON.

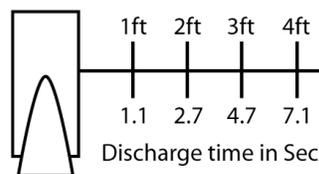
A filter has been provided for applications and/or environments outside of the Cleanroom and Medical Industries. It is strongly recommended that industrial manufacturing type users install the filter onto the back grill using the 3/4” round hook fastener dot (included with the Ionizer) to keep the inside of the Ionizer clean. This filter should be changed every 2 – 4 weeks, or as needed per a visual inspection.

Replacement emitter pin electrodes can be ordered from the factory. Eight (8) emitter pins are required per Ionizer.

### Neutralization (Decay) Times

The comparative efficiency of benchtop ionizers is determined by a standard test published by the ESD Association: Standard S3.1. Positive and negative decay times (from 1000 volts to 100 volts) are measured in tenths of a second using this standard. This test was performed with the Ionizer positioned as shown, with the fan speed on high, and without a filter. Decay times are as shown.

**NOTE:** Unauthorized servicing or modifications to your Ionizer will void the product warranty and may create dangerous conditions. Servicing should be performed only at the factory, or by a factory approved technician.



Testing was performed with fan on high using a charge plate monitor in accordance with Ionization Standard ANSI/ESD STM3.1



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### Troubleshooting

The internal state-of-the-art circuitry of the Staticmaster Standard Fan monitors the ion balance of the air exiting the fan, maintaining optimal offset voltage (balance) to protect ESD sensitive components and products. If the circuit detects an offset in the ion balance due to dirty emitter pins or other conditions, it manipulates the output of the internal DC high voltage power supplies to compensate for the offset and correct the condition. When the Ionizer status light is green, the system is functioning properly and sensing balanced ionization. When the status light turns amber an audible alarm sounds warning of a “fault” condition, which can usually be resolved easily by the end user.

To troubleshoot a fault condition, follow these steps:

- Turn the switch to “OFF”.
- Remove the power cord from the back of the Ionizer.
- Using a small, soft nylon (or similar) bristle brush, lightly dampened in isopropyl alcohol (not more than 70% solution), clean the eight (8) stainless steel emitter electrode pins, the fan blades and the internal sensing grill from the back side of the Ionizer to remove any dirt or dust. A toothbrush can be used if the back cover is removed from the Ionizer but power must be disconnected from the Ionizer before opening up the chassis to prevent an electrical shock hazard. If available, blow out the Ionizer with compressed air to clean it out and to dry the alcohol before powering back up.
- Reconnect to power and turn the Ionizer on.

If the alarm condition persists, adjust the balance of the Ionizer using the small potentiometer screw accessed through the tiny hole at the bottom left corner at the back of the Ionizer. This should only be done by an experienced technician using proper equipment and procedures as specified in the EOS/ESD-S3.1-1991 Standard. NRD LLC can calibrate and certify the Ionizer performance for a nominal fee. If unable to correct a fault condition, the Ionizer must be returned pre-paid to the factory for evaluation, repair and/or calibration. Contact NRD for a Return Authorization number and shipping address.

**IMPORTANT NOTE:** In some cases, if the balance-sensing grill inside the fan becomes contaminated, the Ionizer may not be able to detect an out-of-balance condition and may continue to run in a “green light” status.

The presence of contamination on the backside (the side nearest the fan) of the balance-sensing grill can cause the Ionizer to overcompensate due to a false reading of the balance. Keeping the Ionizer clean as recommended in the Maintenance section of this manual will help insure optimal performance from your Staticmaster Standard Fan. A filter has been provided for applications and/or environments outside of the Cleanroom and Medical Industries. It is strongly recommended that industrial manufacturing type users install the filter onto the back grill using the 3/4” round hook fastener dot (included with the Ionizer) to keep the inside of the Ionizer clean. This filter should be changed every 2 – 4 weeks, or as needed per visual inspection.

Contact NRD for service, replacement filters, parts information and pricing.

### Limited Warranty

NRD expressly warrants that for a period of one (1) year from the time of purchase, the Ionizer will be free of defects in material (parts) and workmanship (labor). Within the warranty period, the Ionizer will be tested, repaired, or replaced at discretion of NRD, free of charge. Any Ionizer under warranty should be shipped prepaid to the NRD factory. Call Customer Service at (716) 773-7634 for a Return Authorization number and shipping instructions. Include a copy of your original packing slip, invoice, or other proof of purchase date.

If the Ionizer is out of warranty, NRD LLC will quote repair charges necessary to bring your Ionizer up to factory standards.

### Warranty Exclusions

The forgoing express warranty is made in lieu of all other product warranties, expressed and implied, including merchantability and fitness for a particular purpose that is specifically disclaimed. The express warranty will not apply to defects or damage due to accidents, neglect, misuse, alterations, operator error, or failure to properly maintain, clean or repair products.

### Limit of Liability

The user shall determine the suitability of the product for their intended use, and the user assumes all risk and liability whatsoever in connection therein.



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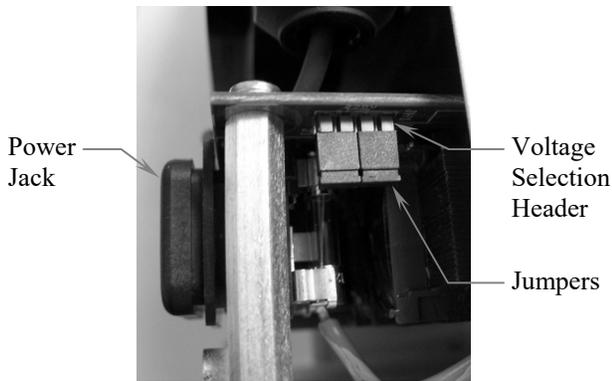
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### Changing Voltage

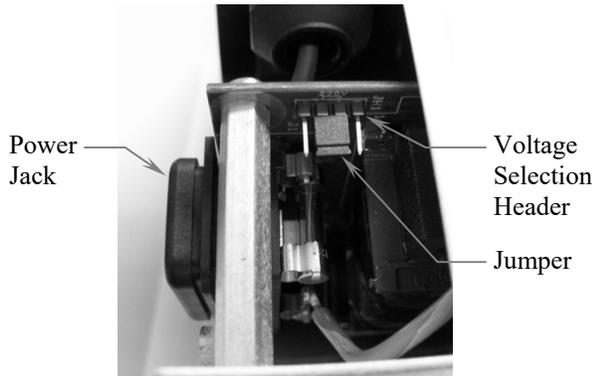
The input power voltage should be set to your specification as ordered and prior to shipping. It is marked on the box label and the specification label affixed to the bottom of the Ionizer. The voltage can be reset to a different AC voltage by removing the back of the case. NOTE: The AC power cord MUST always be disconnected before the Ionizer is disassembled. Reconfigure the voltage jumpers as shown in the diagram(s) below to match your AC line voltage supply.

Input voltage is selected with the two internal jumpers as shown below:

115 volt Jumper Settings



230 volt Jumper Settings



### Specifications

**Air Velocity:** Two speed fan (250 lfpm with fan on high speed).

**Balance:**  $\pm 3$  volt typical  
(Temperature range: 65°F to 80°F,  
Relative humidity: 15% to 65%)

**Ion Emission:** Steady state DC with sensor feedback.

**Emitter Pin Electrodes:** .050" diameter 316 stainless steel;  
8 required.

**High Voltage Power Supply:** 5.5 kV DC nominal;  
(1) positive HVDC and (1) negative HVDC

**Input Power:** AC line power, internally selectable for  
100/120 VAC, 50/60 Hz, 1 phase or  
200/240 VAC, 50/60 Hz, 1 phase

**Fuse:** 250 mA slow blow; located at AC inlet inside  
rear cover; 2 required

**Chassis:** Powder coated aluminum or steel housing

**Weight:** 7.0 lbs. With cord; 7.4 lbs. Shipping weight with  
Packaging

**Dimensions:** Width: 6.76" (8.08" with knobs)  
Height: 9.82" (with stand)  
Deep: 3.77"

**Mounting:** Bench top tilt adjust frame with locking knobs;  
can also be wall or shelf mounted.

**Ozone:** Less than 0.005 ppm



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