

3M™ Benchtop Air Ionizer 963E

User's Guide



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SAFETY INFORMATION

The 3M™ Benchtop Air Ionizer 963E is designed to generate and deliver a stream of ionized air. Its intended use is to neutralize excess static electricity buildup on electronic devices and work surfaces. It is meant to function as a stand alone device. The Ionizer 963E is not intended to take the place of proper grounding of personnel as the preferred method of controlling electrostatic buildup and preventing hazardous discharge.

Explanation of Signal Word Consequences



WARNING: Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury and/or property damage.



CAUTION: Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury and/or property damage.

NOTICE: Indicates a potentially hazardous situation, which, if not avoided, may result in property damage.



CAUTION

- The Ionizer 963E runs off 24VDC power, supplied by a universal power supply capable of converting 100–240VAC electrical service. Usage of the unit with the incorrect electrical voltage could result in incorrect performance and an unsafe operating condition.
- The Ionizer 963E has no user-serviceable parts. Do not remove the grill or disassemble the unit in any way. If service other than that recommended in this manual is needed, please contact 3M for information. **UNAUTHORIZED SERVICE WILL VOID THE WARRANTY.**
- The Ionizer 963E is **NOT** designed for usage in hazardous environments where the possibility of explosion or fire exists.
- When cleaning the Ionizer 963E housing or emitter points, verify that the unit is off and disconnected from electrical power. Collected dirt on this unit should be removed regularly to prevent accumulation that may result in fire.

1.0 Description

The 3M™ Benchtop Air Ionizer 963E is a self-contained ionizing air blower designed to remove static charges from non-conductive objects. The proprietary circuitry contained in the blower generates balanced levels of positive and negative ions. The Ionizer 963E is equipped with a two speed fan which allows the user to select the amount of ionized air to be delivered to the target object. In addition, the housing of the Ionizer 963E is constructed of a static-dissipative plastic, which minimizes the amount of static charge that can build up on the outside surface of the unit.

2.0 Performance

The Ionizer 963E reduces a static charge of $\pm 1000\text{V}$ to $\pm 100\text{V}$ in less than two seconds (the discharge time) at a distance of one foot (30 cm) using the high fan speed. Testing is performed in accordance with the ionization standard ANSI/ESD S3.1.

3.0 Power Requirements

The Ionizer 963E requires 24VDC power, which is supplied through a Mini DIN connector on the back of the unit. The Ionizer 963E is packaged with a switching power supply, capable of converting 100V–240VAC, 50/60 Hz into 24VDC. The switching power supply uses a 6 ft. (1.8 m) cord to connect to the ionizer, and has an IEC 320 input socket for incoming power. It comes with a North American-style three-prong plug or Continental Europe (EURO) plug. Two versions are available depending on the power cord plug (European or North American). The Ionizer 963E should only be used with the included power supply.

4.0 Installation

- 4.1 The Ionizer 963E mounts easily in a variety of positions using the provided tilting bracket/stand. Place the unit on the work surface and point it at the area or object to be neutralized. Alternatively, the mounting bracket may be attached directly to or above the workstation, or on another supporting structure. Please note that placement of the Ionizer 963E is important in determining its effectiveness. The distance from the target object, and fan speed affect the ionizer's performance. As distance increases or fan speed is reduced, the discharge time will increase.
- 4.2 Connect the switching power supply to the Ionizer 963E using the Mini DIN connector. Then, using the appropriate electrical power cord, connect the switching power supply to an electrical outlet.

5.0 Operation

The three position rocker switch on the front of the unit is the POWER switch. The center switch position (marked O) is the OFF position. The upper and lower switch positions (marked II and I) turn the unit on to HIGH and LOW fan speeds. Use this switch to turn the unit on and to select the desired fan speed. A green monitor light is also illuminated respectively on the front of the unit, which indicates that the power switch is in one of the ON positions, and that the ionizer is now in use.

6.0 Maintenance

Occasional cleaning of the case and of the emitter points are the only routine maintenance procedures required.

- 6.1 Cleaning the case: Wipe the case with a soft cloth moistened with water. If a stronger cleaning solution is required, mild detergent or alcohol may be used. Do not use solvents that will attack the plastic case.
- 6.2 Cleaning the emitter points: The emitter points are located between the fan blades and the rear grill. A jet of clean, compressed air can be used to remove dirt on emitter points. If a more rigorous cleaning method is needed to remove particulate, clean the points with a cotton swab. Access to the points is available through the rear grill. Be careful not to damage the points during cleaning.

7.0 Performance Verification

The 3M™ Benchtop Air Ionizer 963E is factory adjusted to provide optimum performance. Further adjustment in the field is not possible. However, the following instructions can be followed to determine whether the Ionizer is performing to specification. The testing follows the procedure outlined in the standard for Ionization, ANSI/ESD STM3.1. Please refer to this standard for more complete information.

7.1 Equipment Needed

3M™ Charge Analyzer 711 or equivalent charge plate monitor (CPM). If an alternate CPM is used, please refer to its Operating Manual for details on how to perform the following instructions.

7.2 Static Discharge Time

The Ionizer 963E will reduce the charge on the 6 in. x 6 in. square isolated metal plate on the CPM from $\pm 1000V$ to $\pm 100V$ in less than 2 seconds (high fan speed). The metal plate for the CPM must be located at a distance of one foot (30 cm) from the ionizer and centered in the air stream.

- 7.21 Attach the flat plate electrode to the 3M™ Charge Analyzer 711. Refer to the owner's manual for the Analyzer 711 for complete operating instructions.
- 7.22 Place the Analyzer 711 on its side allowing for viewing of the display. Position the Analyzer 711 so that the plate is parallel to the ionizer at a distance of one foot. The plate of the Analyzer 711 should be centered (up & down, left & right) in the air stream. It may be necessary to raise the ionizer from the surface to allow for centering on the Analyzer 711 charge plate. If so, use a block of appropriate height to elevate the Analyzer 711. Please note that the plate must be kept totally isolated from ground and that the edge of the plate should be raised up a minimum distance of 3 in. from the work surface. Reference ANSI/ESD-STM3.1.
- 7.23 Turn on the ionizer at high speed and allow it to run for five minutes.
- 7.24 Charge the plate positive as described in the Analyzer 711 operating instructions for "Static Decay Time" mode. Observe the discharge time indicated on the Analyzer 711. Repeat this step for negative polarity.

7.3 Ion Balance

The ionized air blower will stay within an offset voltage of +/-30 volts (max. deviation from zero) at a distance of one foot, when measured using the following procedure.

- 7.31 Position the ionizer and CPM as stated above in Section 7.22.
- 7.32 Turn on the ionizer at high speed and allow it to run for five minutes.
- 7.33 Use a ground wire to ground the charge plate of the Analyzer 711. This will remove any/all residual charge present on the charge plate. If the CPM does not zero, adjust the zero control.
- 7.34 Remove the ground wire and observe the display on the Analyzer 711. The voltage (either \pm) observed during this time is the "offset voltage" and is a measure of instantaneous ion imbalances produced by the ionizer.

8.0 3M™ Benchtop Air Ionizer 963E Physical Characteristics

Item	Typical Property
Power Ratings	24VDC, 0.42A through included universal power transformer
Power Inlets	Mini DIN Socket
Power Transformer	Input: 100V–240VAC, 0.8A, 50/60 Hz into IEC320 Socket Output: 24VDC, 1.0A 6 ft. (1.8m) cord with Mini DIN plug
Dimensions (with mounting base)	8.5 in. W x 9 in. H x 4.5 in. D (21.6 cm W x 22.9 cm H x 11.4 cm D)
Air Velocity**	low speed - 100 fpm (0.5 m/s) high speed - 300 fpm (1.5 m/s)
Static Discharge Time* @1 ft. (30 cm)	≤ 2 seconds
Offset/Balance	± 30V
Certifications and Approvals	CE, UL
Warranty	1-year

* When tested according to ANSI/ESD STM3.1 at high fan speed

** Air Velocity tested at 1 ft. distance from center of fan to Anemometer

Customer and Technical Service

Within the U.S.:

Customer service and technical support can be obtained by calling the 3M Electronics Materials Solutions Division

Customer Service: 866-722-3736

Outside of the U.S.:

For customer service and technical support, please contact your local representative of the 3M Electronics Materials Solutions Division.

Regulatory Information

FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

NOTE: Modifications to this device shall not be made without the written consent of 3M. Unauthorized modifications may void the authority granted under Federal Communication Rules and Industry Canada Rules permitting the operation of this device.

ICES Statement

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

WEEE Statement

The following information is only for EU-members States: The mark shown to the right is in compliance with Waste Electrical and Electronic Equipment Directive 2002/96/EC (WEEE). The mark indicates the requirement NOT to dispose the equipment as unsorted municipal waste, but use the return and collection systems according to local law.

CE Statement

Meets EU safety, health and environmental protection requirements.

UL Statement

Meets UL requirements.

RoHS 2011/65/EU” means that the product or part does not contain any of the substances in excess of the maximum concentration values (“MCVs”) in EU RoHS Directive 2011/65/EU. The MCVs are by weight in homogeneous materials. This information represents 3M’s knowledge and belief, which may be based in whole or in part on information provided by third party suppliers to 3M.

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