963/963E Benchtop Air Ionizer Instructions

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Section Page

Safety Information

Intended Use

The 3M™ 963/963E Benchtop Air Ionizer 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 963/963E Benchtop Air Ionizer is not intended to supplant proper grounding of personnel as the preferred method of controlling electrostatic buildup and preventing hazardous discharge.

⚠ CAUTION

- The 963 is designed for use in those areas using AC 120V electrical service, while the 963E runs off of DC24V power, supplied by a universal power supply capable of converting AC 100-240V electrical service. Usage of either unit with the incorrect electrical voltage could result in incorrect performance and an unsafe operating condition.
- The 963/963E 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 963/963E is NOT designed for usage in hazardous environments where the possibility of explosion or fire exists.
- When cleaning the 963/963E 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.
- Class 1 equipment.

Explanation of Symbols

 – Caution: refer to user instruction manual.

 – High voltage present inside unit.

Read and understand all safety information before installing and operating this equipment.

Section 1. Description

The 3M 963/963E Benchtop Air Ionizer is a self-contained ionizing air blower designed to remove static charges from non-conductive objects. The proprietary circuitry contained in the blower generates equal levels of positive and negative ions, and maintains correct balance despite variations in line voltage, fan speed, and emitter point condition. The 963/963E 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 963/963E is constructed of a static-dissipative plastic, which minimizes the amount of static charge that can buildup on the outside surface of the unit.

Section 2. Performance

The 963/963E Benchtop Air Ionizer reduces a static charge of ± 1000 V to ± 100 V in less than one second (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 and IEC standard 61340-5-1.

Section 3. Power Requirements

The 963 requires AC 120V power and is supplied with a 6 ft. (1.8 m) power cord with North American style three-prong plug. The 963E requires DC 24V power, which is supplied through a Mini DIN connector on the back of the unit. The 963E is packaged with a universal power supply, capable of converting AC 100V-240V, 50/60 Hz into DC 24V. The universal power supply uses a 3' (0.9 m) cord to connect to the ionizer, and has an IEC 320 input socket for incoming power. Please note that, due to the multitude of locations worldwide in which the 963E can be used, it does NOT come supplied with a power cord to connect the universal power supply to local electrical service. The customer is asked to please provide an appropriate power cord that is capable of connecting local electrical service to the universal power supply.

Section 4. Installation

4.1 The 3M 963/963E Benchtop Air Ionizer 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 963/963E 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 Determine the location of an appropriate electrical outlet. For the 963, connect the power cord to the ionizer, and insert the other end of power cable into the appropriate electrical outlet. For the 963E, connect the universal power supply to the ionizer, using the Mini DIN connector. Then, using the appropriate electrical power cord, connect the universal power supply to an electrical outlet.

Section 5. 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 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.

Section 6. 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: when the emitter points become dirty, the internal circuitry of the ionizer will be automatically adjusted to emit an equal amount of positive and negative ions. Contamination on the needlepoint, however, may inhibit ionization to a limited degree. 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.

Section 7.
Performance Verification

The 963/963E Benchtop Air Ionizers are 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 S3.1. Please refer to this standard for more complete information.

7.1 **Equipment Needed**
3M 711 Charge Analyzer 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 963/963E Benchtop Air Ionizer will reduce the charge on the 6" x 6" square isolated metal plate on the CPM from ± 1000 volts to ± 100 volts in less than 1 second (High fan speed). The metal plate for the CPM must be located at a distance of one foot (30cm) from the ionizer and centered in the air stream.

7.21 Attach the flat plate electrode to the 711. Refer to the owner's manual for the 711 for complete operating instructions.

7.22 Place the 711 on its side allowing for viewing of the display. Position the 711 so that the plate is parallel to the ionizer at a distance of one foot. The plate of the 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 711charge plate. If so, use a block of appropriate height to elevate the 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 inches from the work surface. This is illustrated in Fig. 11 of ANSI/ESD-S3.1.

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 711 operating instructions for "Static Decay Time" mode. Observe the discharge time indicated on the 711. Repeat this step for negative polarity.

7.3 **Ion Balance**
The ionized air blower will stay within an offset voltage of +/-15 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 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 711. The voltage (either ±) observed during this time is the "offset voltage" and is a measure of instantaneous ion imbalances produced by the ionizer.

Section 8.
963 Benchtop Air Ionizer Physical Characteristics

Item	Typical Properties	
	963	**963E**
Power Ratings	AC 120V 60 Hz 0.20 A 20 W	DC 24V 0.42 A 10 W through included universal power transformer
Power inlet	IEC 320 Socket	Mini DIN Socket
Power Transformer	-	Input: AC 100V-240V, 0.4A, 50/60 Hz Into IEC320 Socket Output: DC24V, 0.5A 3' (0.9M) cord with Mini DIN plug
Power Outlet Cord	6' (1.8m) cord with IEC 320 and NEMA 5-15 plugs	**Not Included**
Dimensions (w/ mounting base)	7.0" W x 9" H x 4" D 18 cm W x 23 cm H x 10 cm D	7.0" W x 9" H x 4" D 18 cm W x 23 cm H x 10 cm D
Weight	2.5 lb. (1.1 kg)	2.5 lb. (1.1 kg)
Air Volume low speed high speed	 68 SCFM (1.92 m3/min.) 105 SCFM (2.97 m3/min.)	 76 SCFM (2.15 m3/min) 112 SCFM (3.17 m3/min.)
Static discharge time * @ 1 ft. (30 cm)	 < 1 second	 < 1 second
Certifications and approvals	UL, C-UL, NOM	UL, C-UL, NOM, CE
Warranty	1-year	1-year

* When tested according to ANSI/ESD S3.1-1991 at high fan speed

Customer and Technical Service

Within the U.S. : Customer service and technical support can be obtained by calling the 3M Electronic Handling & Protection Division

Customer Service: (800) 328-1368
Technical Support: (512) 984-3200

Outside of the U.S. : For customer service and technical support, please contact your local representative of the 3M Electronic Handling & Protection Division.

Warranty

Limited Warranty - 3M expressly warrants that for a period of one year from the date of purchase, 3M static control products will be free of defects in materials (parts) and workmanship (labor).

Defects occurring during the warranty period will be repaired or products will be replaced at 3M's option and expense, if 3M receives notice during the warranty period. Defective products must be returned to 3M with proof of purchase date.

Warranty Exclusions - THE FOREGOING EXPRESS WARRANTY IS MADE IN LIEU OF ALL OTHER PRODUCT WARRANTIES, EXPRESS AND IMPLIED, INCLUDING FITNESS AND MERCHANT ABILITY.

The express warranty will not apply to defects of damage due to accidents, neglect, misuse, alterations, operator error, or failure to properly maintain, clean, or repair products.

Limit of Liability - In no event will 3M or Seller be responsible or liable for special, incidental, or consequential losses or damages, whether based in tort or contract. Fulfillment of 3M's warranty obligations will be Customer's exclusive remedy and 3M's and Seller's limit of liability for any breach of warranty or otherwise.

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