

3M™ Benchtop Air Ionizer 963E

Instructions



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Safety Information

Intended Use

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

CAUTION

- The 963E runs off 24VDC power, supplied by a universal power supply capable of converting 100–240 VAC electrical service. Usage of the unit with the incorrect electrical voltage could result in incorrect performance and an unsafe operating condition.
- The 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 963E is NOT designed for usage in hazardous environments where the possibility of explosion or fire exists.
- When cleaning the 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.

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 equal levels of positive and negative ions, and maintains correct balance despite variations in line voltage, fan speed, and emitter point condition. The 963E Ionizer 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 963E Ionizer 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 963E 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.

3.0 Power Requirements

The 963E Ionizer requires 24 VDC power, which is supplied through a Mini DIN connector on the back of the unit. The 963E Ionizer is packaged with a universal power supply, capable of converting 100V–240 VAC, 50/60 Hz into 24 VDC. The universal power supply uses a 3 ft. (0.9 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 European plug. Two versions are available depending on the power cord plug (European or North American). Please note that, due to the multitude of locations worldwide in which the 963E Ionizer can be used, it may 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. The 963E Ionizer should only be used with the included power supply (PowDec Part No. WP10240I).

4.0 Installation

- 4.1 The 963E 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 963E Ionizer 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 universal power supply to the Ionizer 963E using the Mini DIN connector. Then, using the appropriate electrical power cord, connect the universal power supply to an electrical outlet. Both European and North American plugs are available.

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: 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.

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 S3.1. 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 benchtop air ionizer 963 will reduce the charge on the 6 in. x 6 in. square isolated metal plate on the CPM from ± 1000 volts to ± 100 volts in less than 1 second (high fan speed). The 963E ionizer will discharge in less than 2 seconds. 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 711 analyzer. Refer to the owner's manual for the 711 analyzer for complete operating instructions.
- 7.22 Place the 711 analyzer on its side allowing for viewing of the display. Position the 711 analyzer so that the plate is parallel to the ionizer at a distance of one foot. The plate of the 711 analyzer 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 711 analyzer charge plate. If so, use a block of appropriate height to elevate the 711 analyzer. 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. 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 analyzer operating instructions for "Static Decay Time" mode. Observe the discharge time indicated on the 711 analyzer. 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 analyzer. 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 analyzer. 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	24 VDC, 0.42 A, 10W through included universal power transformer
Power Inlets	Mini DIN Socket
Power Transformer	Input: 100V–240 VAC, 0.4A, 50/60 Hz into IEC320 Socket Output: DC24V, 0.5A 3 ft. (0.9 m) cord with Mini DIN plug
Power Outlet Cord	included
Dimensions (with mounting base)	7 in. W x 9 in. H x 4 in. D (18 cm W x 23 cm H x 10 cm D)
Weight	2.5 lb. (1.1 kg)
Air Velocity** low speed high speed	190 ft/min 290 ft/min
Static Discharge Time* @1 ft. (30 cm)	< 1 second
Certifications and Approvals	UL, C-UL, NOM, CE
Warranty	1 year

* When tested according to ANSI/ESD S3.1-1991 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 Electronic Solutions Division

Customer Service: 866-722-3736

Technical Support: (512) 984-6703

Outside of the U.S.:

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

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Electronic Solutions Division
Static Control Products

6801 River Place Blvd.
Austin, TX 78726-9000
866-722-3736
www.3mstatic.com

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Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331