963E Benchtop Air Ionizer Installation, Operation and Maintenance

Figure 1. SCS 963E Benchtop Air Ionizer

Description

The SCS 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 balanced levels of positive and negative ions. The 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. The Benchtop Air Ionizer meets the required limits of ANSI/ESD S20.20 tested per ANSI/ESD STM3.1 or ESD TR53.

The Benchtop Air Ionizer reduces a static charge of ± 1000V to ± 100V 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 STM3.1.

The Benchtop Air Ionizer requires 24VDC power, which is supplied through a Mini DIN connector on the back of the unit. The Ionizer 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 should only be used with the included power supply.

The 963E Benchtop Air Ionizer and its accessories are available as the following item numbers:

Item	Description
963E	Benchtop Air Ionizer, North America
963E-NO	Benchtop Air Ionizer, without Power Cord
770047	Boom Arm
963E-X	Power Adapter, 100-240VAC Input, 24VDC 1.5A Output, No Power Cord
770000	Power Cord, North America Plug
770001	Power Cord, UK Plug
770002	Power Cord, Europe Plug
770003	Power Cord, China Plug

Packaging

1 Benchtop Air Ionizer
1 Power Adapter with IEC C14 Inlet, 24 VDC
1 Power Cord with North America Plug (item 963E only)

Installation

The 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. Note that placement of the 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.

Connect the switching power supply to the Ionizer using the Mini DIN connector. Then, using the appropriate electrical power cord, connect the switching power supply to an electrical outlet.

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.

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Figure 2. Using the 963E Benchtop Air Ionizer

Maintenance

Occasional cleaning of the case and of the ionizing electrodes are the only routine maintenance procedures required.

CLEANING THE CASE

Wipe the case with a soft cloth moistened with water. If a stronger cleaning solution is required, mild soap with water may be used. The use of any other cleaning solutions is not recommended.

CLEANING THE EMITTER POINTS

NOTE: Disconnect the power to the ionizer whenever cleaning the emitter points.

When the emitter pionts become dirty, the internal circuitry of the ionizer will be automatically adjusted to emit an equal amount of positive and negative ions. Particulates on the emitter point may, however, 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 dampened with isopropyl alcohol. Access to the points is available through the rear grill. Be careful not to damage the points during cleaning.

Calibration

The SCS Benchtop Air Ionizer 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 specifications. The testing follows the procedure outlined in the standard for Ionization, ANSI/ESD STM3.1. Please refer to this standard for more complete information.

Frequency of recalibration should be based on the critical nature of those ESD sensitive items handled and the risk of failure for the ESD protective equipment and materials. In general, SCS recommends that calibration be performed annually.

Periodically measure the balance and neutralization times of the Bencthop Air Ionizer to verify that it is performing within specifications. These measurements should be taken using a charged plate monitor such as the SCS items 711, 770004 and 770005.

Calibration should be performed in accordance with the ESD Association ionization standard ANSI/ESD STM3.1. With the fan speed set to high and a distance of 12 inches (30 cm), the neutralization (discharge) time of ±1000V to ±100V should be less than 2 seconds, and the balance should be ±15V or better.

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Neutralization (Discharge) Times

All data was taken with the fan speed set to high. All time measurements are in seconds.

NOTE: Discharge times in seconds are representative only and are not a guarantee. Discharge times are actual measurements recorded in a factory ambient environment.

Per ANSI/ESD S20.20, the test method for Product Qualification test is ANSI/ESD STM3.1, and for Compliance Verification is ESD TR53 which advises “Measurements should be made at the location where ESD sensitive items are to be ionized.” A larger area may require additional ionizers. Per S20.20 the required limit for ionizer discharge time is user defined. Use Table to determine the number of ionizers to achieve ionization of area to be neutralized to meet your company’s ESD control plan specified discharge times.

The comparative efficiency of bench top ionizers is determined by a standard test published by the ESD Association: ANSI/ESD STM3.1. Typical positive and negative decay times (±1000V to ±100V) measured using this standard are shown in Figure 3. The performance of the ionizer was measured with the unit positioned as shown, with the fan speed on high and without a filter.

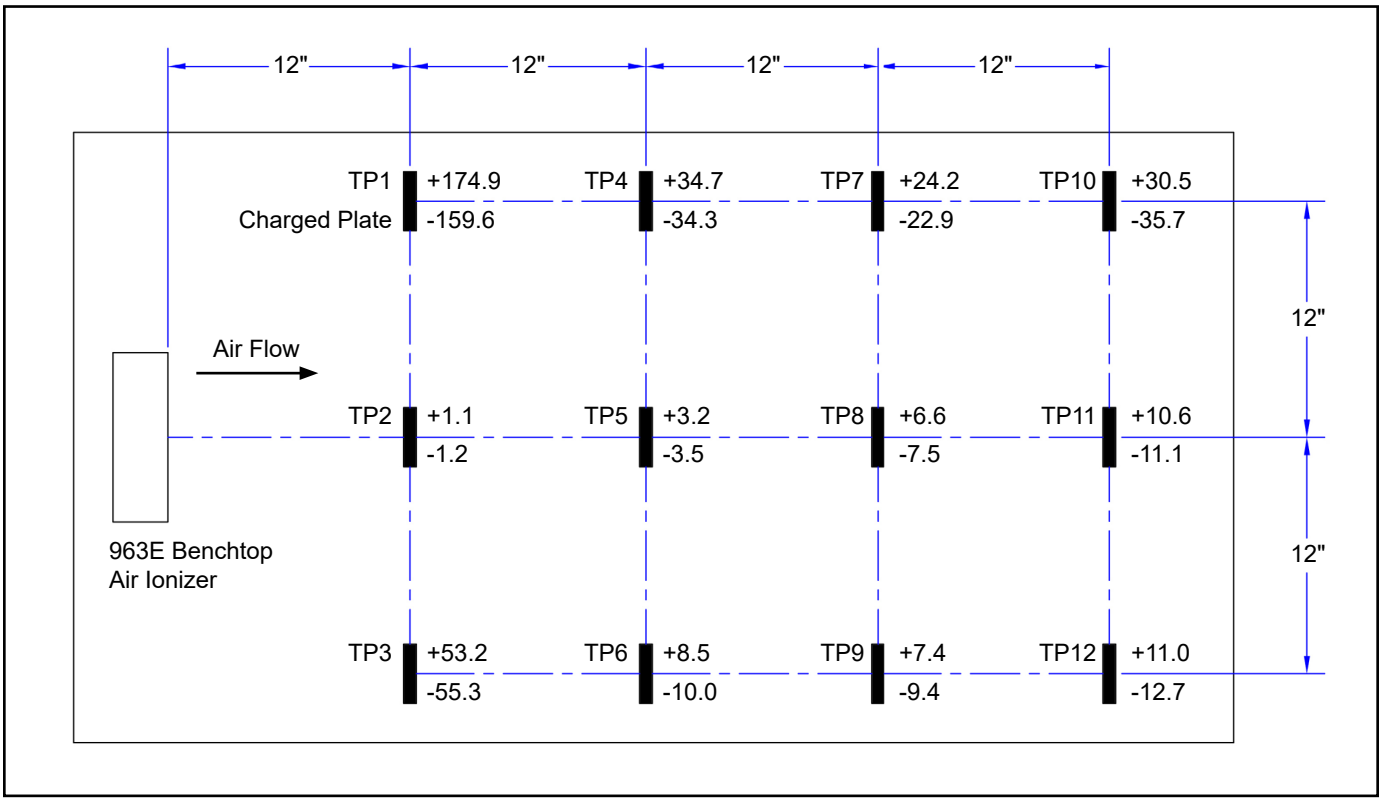

Figure 3. Neutralization (Discharge) Times

Specifications

Input Voltage and Frequency	AC Power Adapter Power Input: 100-240VAC, 50/60 Hz Power Output: 24VDC, 1.0-1.5A
Power Consumption	10 W
Dimensions (including stand)	9" H x 8.5" W x 4.5" D (23 cm x 22 cm x 11 cm)
Weight	2.5 lbs (1.1 kg)
Balance (Offset Voltage) at 12"	±15V
Neutralization (Discharge) Time at 12"	< 2 seconds
Maximum Airflow	112 CFM
Emitter Points	Tungsten
Ozone	<0.005 ppm
Certifications	cULus, CE
Country of Origin	China

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 SCS. 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-member 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.

Limited Warranty, Warranty Exclusions, Limit of Liability and RMA Request Instructions

See the SCS Warranty -

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