

# Overhead Air Ionizer 991A Installation, Operation and Maintenance



Made in the  
United States of America



Figure 1. SCS [991A](#) Overhead Air Ionizer

## Description

The SCS Overhead Air Ionizer 991A is designed for use with sensitive electronic components where electrostatic discharge (ESD) is a problem. The Overhead Air Ionizer 991A provides fast static charge decay efficiency over an entire work surface area. Equipped with task lighting, an ionization indicator light, and an integrated heater, it offers user-friendly operation while helping protect even the most sensitive components from ESD damage. The SCS 991A Overhead Ionizer meets the required limits of ANSI/ESD S20.20 tested per ANSI/ESD STM3.1 or ESD TR53.

- Rapidly neutralizes static charges
- Covers an extended area with ionized air
- Inherently balanced to 6V
- Integrated heater and task lights
- Ionization indicator light
- AC technology for stable performance
- Built-in emitter cleaner for easy maintenance

The Overhead Air Ionizer 991A produces an air flow that is rich in positive and negative ions. Directing the air flow on an object that has a static electricity charge will neutralize the charge. If the object has a positive static charge, it will draw negative ions from the air flow. If the object has a negative static charge, it will draw positive ions from the air flow. The ions are attracted to the oppositely charged object and will neutralize the electrostatic charge on the object.

The SCS Overhead Air Ionizer 991A features both inherent self balance technology and a built-in emitter point cleaner. The Overhead Air Ionizer 991A operates on AC technology to provide stable balance performance over long periods of use. The Overhead Air Ionizer 991A provides fast charge decay directly under the unit for targeted work surface coverage. The Overhead Air Ionizer 991A requires very little maintenance to ensure electrostatic charge is controlled within the work surface area.

SCS offers the following parts and accessories for the Overhead Air Ionizer:

Item	Description
<a href="#">991A</a>	Overhead Air Ionizer with 120V North American Power Cord
<a href="#">991A-U</a>	Overhead Air Ionizer with 230V UK Power Cord
<a href="#">991A-E</a>	Overhead Air Ionizer with 230V European Power Cord
<a href="#">991A-F</a>	Overhead Air Ionizer Replaceable Filters, 6 filters/box
<a href="#">991A AIR FILTER</a>	Overhead Air Ionizer Air Filters Retainer (1 per fan)
<a href="#">991A LIGHT</a>	Overhead Air Ionizer Task Light Fluorescent Lamp (2 per blower)

## Installation

**Unpacking:** Carefully remove the equipment from the carton and inspect contents. Empty the carton to insure that small parts are not discarded.

**Installing:** The Overhead Air Ionizer 991A should be located 18 to 30 inches above the work surface with center fan directly above the critical area. There should be no crossflow of air between unit and the work surface. Drafts from air conditioning and heating air outlets can affect ionization performance.

**Mounting:** The Overhead Air Ionizer 991A may be mounted using adjustable mounting brackets or "S" hooks provided. The mounting brackets are designed for use on a variety of surfaces such as: perforated steel angle, metal framing, and on wire shelving (see diagrams on next page).

Place a lock washer and flat washer on the lock knobs and secure the unit using center holes on mounting tab. Be sure to install a fiber washer as shown in the diagrams. The "S" hooks provide for chain mounting or mounting on wire shelving. Install the overhead ionizer unit as shown below using outer holes on mounting tabs. Chain and additional mounting hardware (not supplied) must have a minimum safe working load rating of 20 pounds.

**Note:** Prior to installing the Overhead Air Ionizer 991A, the compact fluorescent bulbs must be installed. The bulbs are placed inside the packaging material to prevent breakage during shipment. Remove both (2" x 11") lamp access panels on rear of unit with a ¼" nut driver or flat blade screwdriver. Unpack the bulbs and install by inserting the bulb into the socket and press until it "clicks" into place. Replace the lamp access panels.

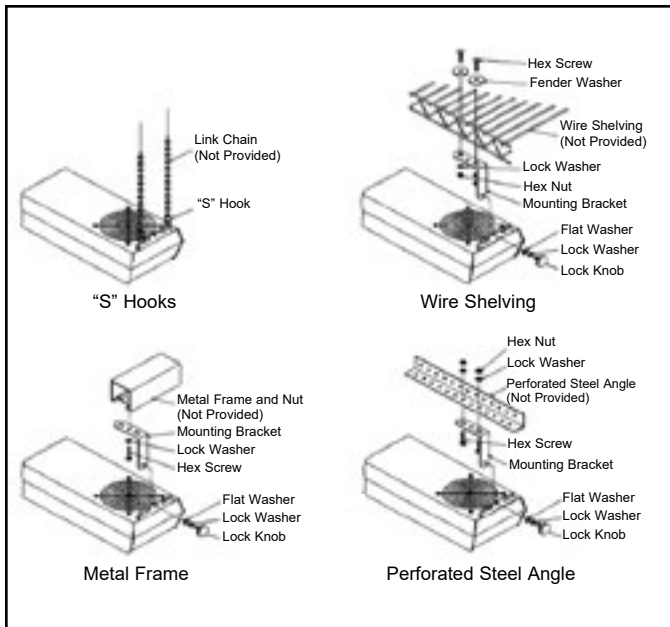


Figure 2. Mounting the SCS Overhead Air Ionizer 991A

**Electrical:** With the SCS Overhead Air Ionizer 991A mounted in place over the intended work surface, plug the male end of the IEC power cord into a properly grounded 120-240 VAC 50/60 Hz receptacle. If an extension cord is necessary, use only a 3 wire properly grounded one that matches the plug type that comes with the blower.

## Operation

### Adjustments

Activate the Overhead Air Ionizer 991A by turning FAN SPEED knob clockwise, out of the OFF position. The IONIZATION INDICATOR will illuminate to indicate the presence of ionized air. Set air flow as desired by rotating the FAN SPEED knob. If warm air is desired for operator comfort, set WARM AIR switch to the ON (I) position. If light is desired, turn on task lights by setting LIGHTS switch to the ON (I) position. To clean ion emitter points, rotate the POINT CLEANER knob at each air outlet clockwise to the OFF position (approximately one turn) and release.

The time required to neutralize a static charge on an item in the air stream depends on fan speed. Setting a higher fan speed reduces time required to neutralize a static charge.

When using the SCS Overhead Air Ionizer 991A unit in an electronics assembly area, the ionized air stream should cover as much of the work area as possible. The constant flow of ionized air will help prevent items such as work surfaces, tools, materials and components from developing a static charge. Charged items introduced into a work area will be neutralized and will remain neutral while in the ionized air stream.

## Performance - Discharge Times Performance

Discharge time in seconds under fan (18") is typically under 6 seconds.

## Troubleshooting

This information provides a quick troubleshooting reference for the Overhead Air Ionizer 991A. Should any of these possible solutions not solve the problem, contact SCS.

Problem	Cause	Solution
Unit fails to operate	Power cord not connected	Plug in to specified voltage source
Unit fails to operate	Faulty AC ground	Replace line cord
Flashing fault light	Power incorrectly supplied to unit	Cycle power to the unit using the unit's key switch
Flashing fault light	Power incorrectly supplied to unit	Ensure that properly grounded receptacle is used
Fault light on steady	Dirty or damaged emitter tips, incorrectly calibrated	Clean tips using integrated brush
Excessively long discharge times	Dirty or damaged emitter tips, incorrectly calibrated	Clean tips using integrated brush
Excessively long discharge times	Slow fan speed or ionizer is located too far from target	Increase the fan speed or move the ionizer closer to the target
Unit fails to hold setpoint	Dirty or damaged emitter tips	Clean tips using integrated brush
Fan is slow	Fan speed is set slow	Adjust fan control clockwise

## Maintenance

### General Maintenance

The SCS Overhead Air Ionizer 991A has been designed with low maintenance in mind. The only regular maintenance suggested is emitter point cleaning, ion balance checking and ion output checking. Emitter point cleaning takes only seconds. The Overhead Air Ionizer 991A contains a balancing circuit that is inherently self balancing. This circuit compensates for dirt build-up on emitters, emitter point wear, line voltage fluctuations and variations in air velocity. Scheduled checking of the ion output and balance should be considered to assure quality audit requirements.

### Emitter Cleaning

To clean the ion emitters, simply rotate the point cleaner knob located at center of each outlet clockwise to the OFF position (approximately one turn) and release. The spring-loaded point cleaning brush will return to its parking spot. Recommended frequency of cleaning is once a week.

### Air Inlet and Outlet Cleaning

The air inlet grill on the top of the unit and the ionized air outlets should remain clean to prevent restriction of air flow. They can be cleaned with a soft brush or vacuum. Clean the air inlet grill and ionized air outlets once every three months or more often if needed. Remove the air filter element from the top of the unit by unsnapping the filter retainer. Rinse the filter in plain water while gently squeezing. If the dirt is stubborn, wash the filter in mild soap and water then rinse. Blot the filter dry with paper towels and allow to dry. Reinstall filter on air inlet and secure by snapping the filter retainer in place.

### Optional Air Filter Cleaning

Remove the air filter element from the top of the unit by unsnapping the filter retainer. Rinse the filter in plain water while gently squeezing. If the dirt is stubborn, wash the filter in mild soap and water then rinse. Blot the filter dry with paper towels and allow to dry. Reinstall filter on air inlet and secure by snapping the filter retainer in place.

**Note:** If an air filter is used, clean the air filter once every three months or more frequently if needed.

### Ion Output Check

To test the unit for ion output, the use of a charge plate monitor such as SCS Charge Analyzer/Charge Plate Monitor 711 is recommended. If a charge plate monitor is not available, use a static meter, such as a SCS Static Sensor 718 and a SCS Air Ionizer Test Kit 718A to check ion output with the following procedure in accordance with ANSI/ ESDSP 3.3-2006.

**ELECTRICAL SHOCK HAZARD!** Do not insert objects through intake or outlet grill.

It is recommended that the user be familiar with ionizer test standards ANSI/ESD S3.1 if the SCS Air Ionizer Test Kit 718A is used to perform verification testing on ionizer performance.

**Assembly:** slide the charge plate over the SCS Static Sensor 718 until it stops. The charge plate slides onto the lower groove, on the sides of the Static Sensor 718.

**Charging the plate:** holding the Static Sensor 718 (with charge plate attached) in one hand, use the other hand to touch the probe of the SCS Air Ionizer Test Kit 718A charger to the charge plate. Press either the + button (for a positive voltage) or the - button (for a negative voltage), then remove the probe from the charge plate.



Be sure to keep the button pressed while removing the probe from the charge plate. The display on the Static Sensor 718 will indicate a positive or negative charging voltage (1.1kV minimum). If a voltage of less than  $\pm 1.1$ kV is displayed, check to see if the low battery indicator on the Air Ionizer Test Kit 718A Charger is illuminated. If illuminated, replace the battery in the charger. If the unit continues to supply an incorrect voltage to the charge plate, please contact SCS for additional instructions.



**Testing ionizer discharge time:** after charging the plate, hold the Static Sensor 718 approximately one foot (30.5 cm) away from the ionizer. Monitor the display to see how quickly the 1.1 kV charge is dissipated to 0.1 kV. The speed at which this occurs (the discharge time) indicates how well the ionizer is operating. Repeat this procedure for both a positively and a negatively charged plate.

**Testing ionizer offset balance:** zero the charge plate by touching it with a grounded object. This can either be the finger of a grounded person or some other item which is connected to electrical ground. In either case, zeroing the charge plate should make the display on the Static Sensor 718 read zero. Hold the Static Sensor 718 approximately one foot (30.5 cm) in front of the ionizer.

**Monitor the display:** The value displayed is the offset balance of the SCS Overhead Air Ionizer, which is the difference between the number of positive and negative ions being emitted.

### Ion Balance Check

To test the unit for ion balance, the use of a charge plate monitor such as the SCS Charge Analyzer/Charge Plate Monitor 711 is recommended.

### Calibration

The SCS Overhead Air Ionizer 991A ion output is inherently balanced by design, so there are no calibration adjustments. If, after checking the ion balance as outlined above, an unbalance or offset voltage exists in excess of  $\pm 6$  volts, contact SCS Technical Support: 1-919-718-0000.

Never open the case of the unit. This exposes the operator to hazardous voltages. If repairs are necessary, contact 1-919-718-0000 for a Return Authorization Number prior to returning the unit to the factory.

### Task Light Replacement

If either task light does not light, dims appreciably, or flickers, the compact fluorescent lamp should be replaced as soon as possible. Access to the lamp is provided by a removable panel on the rear of the unit. Disconnect the unit by unplugging the line cord. Remove the appropriate lamp access panel with a 1/4" nut driver and remove the lamp. Install a new lamp, replace lamp access panel, and plug the unit back in.

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

See the SCS Warranty -

<http://staticcontrol.descoindustries.com/warranty.aspx>

### Specifications

Input Voltage	120VAC, 60Hz, 0.5A (fan low, heater/light off) 2.5A (fan high, heater/light on); 230VAC, 50Hz, 0.2A (fan low, heater/light off) 1.5A (fan high, heater/light on)
Power Consumption	200W (heater)
Emitter Points	Stainless Steel
Ion Emission	AC Ionization
Balance Voltage	±6V @ 18" from blower face
Decay Time	<4.0 sec @ 18" center blower position; fan high-no diffusers
Air Speed	200-240 ft./min. (low to high), combined 3 fan output
Audible Noise	50 dBA fan low; 60 dBA fan high
Indicator	Orange light for Ionization status
Ozone Level	0.02 ppm, measured @ 12" in front of unit 2
Operating Env	Temperature 32-122°F (0-50°C): humidity 30-70% RH non-condensing
Lamp	13W twin tube, compact fluorescent
Air Filter	30 ppi open cell polyurethane foam (optional)
Dimensions	42.75" W x 4" H x 6.75" D (108.6 x 10.2 x 17.1 cm)
AC Power Cable Length	56 inches
Weight	16 lbs (7.3 kg)
Enclosure	Powder-coated white enamel aluminum
Mounting	Adjustable brackets and S-hooks provided