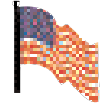


# Overhead Ionizer Installation, Operation, and Maintenance



Made in America



Figure 1. SPI Overhead Ionizer

## Description

The SPI 94030 (120V) / 94031 (220V) is a three fan, dual steady state DC auto-balancing overhead ionizer. The unit is normally hung from the ceiling above the area to be neutralized. The ionizer's neutralization time will be best approximately 24" to 48" directly above the work surface and will increase as the distance from the unit increases.

## Installation

Remove the ionizer from the carton and inspect for damage. Included with the unit should be:

1. Hanging kit
2. Power cord
3. Emitter point cleaner

The input voltage should be set to your specification prior to shipping. It can be verified or reset by removing the top of the case by disengaging the 4 screws. NOTE: The AC power cord MUST always be disconnected before the unit is disassembled.

Input voltage is selected with the two internal jumpers on JH1. For 110 volt jumper setting, a jumper must be in place shorting pin 1 to 2 and another shorting pin 3 to 4. For 220 volt jumper setting, a single jumper must be in place shorting pin 2 to 3 only.

Before installing the unit, verify that the AC outlet is properly connected to earth ground. The unit must have a good earth ground to maintain proper balance. Install the unit in the desired location, making sure that the airflow will not be restricted. Be sure the ON/OFF switch, located on the rear of the unit, is in the "OFF" position. Plug the power cord into the unit and then into the appropriate AC power source.

Status of the unit can be monitored remotely via the RS485 data ports. Please contact the factory for the necessary polling utility.

## Operation

Set the fan speed switch on the rear of the unit to the LOW, MED, or HI position. Higher airflow will result in faster neutralization rates. Position the unit so that the maximum airflow is directed at the items or area to be neutralized. Turn the unit ON.

When the unit is first turned on, it conducts a self-test. The audible alarm will sound and then the LED will cycle through RED, YELLOW, and then GREEN. The LED will remain GREEN during normal operation.

## Balance Adjustment

The Overhead Ionizer is an auto-balancing unit. However, tuning or manual adjustment can be accomplished by inserting a small screwdriver or trimmer adjustment tool into the balance adjustment hole located on the front of the unit. To increase the output in a positive direction, turn the potentiometer in a clockwise direction. Conversely, to increase the output in a negative direction, turn the potentiometer in a counter clockwise direction. Once the desired balance point has been achieved, the alarm reset button must be pressed to set the balance point.

## Maintenance / Alarms

If the supply voltage drops from 110 Volts to below 85 Volts or from 220 Volts to below 170 Volts, the unit will shut down, the audible alarm will beep, and the LED will blink RED. The unit will automatically reset when the minimum voltage is restored.

Under normal conditions, the ionizer will attract dirt and dust (especially on the emitter electrodes). To maintain optimum neutralization efficiency and operation, cleaning should be performed on a regular basis.

When the unit enters shutdown mode, ionization will be stopped, the LED on the front of the unit will change to a steady RED, and the audible alarm will sound continuously. If the ionizer enters shutdown mode, it must be turned OFF and then back ON to reset the unit.

NOTE: The AC power cord MUST be disconnected before the unit is disassembled for maintenance. The emitter electrodes should be cleaned using the alcohol cleaners included or a swab wet with Isopropyl alcohol. First, turn the unit OFF and unplug the power cord. Then remove the back cover by disengaging the 4 screws on back. After cleaning the emitter electrodes, reattach the back cover using the 4 screws. Plug in the power cord and turn the unit back ON.

The emitter electrodes should not require replacement during the life of the unit with normal handling. Replacement emitter electrodes can be ordered if necessary.

Best practice would be to verify the balance of the unit with a charge plate monitor after cleaning.

### Neutralization (Decay) Times

The comparative efficiency of benchtop ionizers is determined by a standard test published by the ESD Association: Standard S3.1. Typical positive and negative decay times (from 1000 volts to 100 volts) measured using this standard are shown below. The performance of the ionizer was measured with the unit positioned as shown, with the fan speed on high, and without a filter.

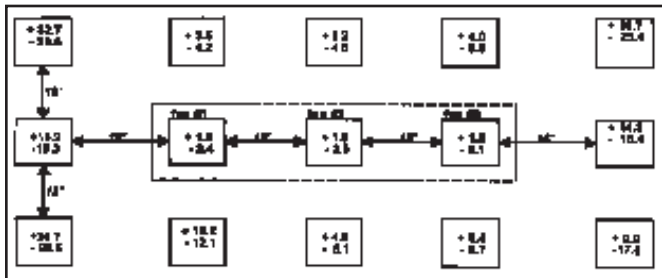


Figure 2. Neutralization (Decay) Times

Note: Reference ESD STM 3.1-2000. The distance from the Overhead Ionizer to the charge plate is 18". (Readings are typical and taken at maximum fan speed.)

### Specifications

#### Air Flow

Three speed fans (125fpm -250fpm; 50-100cfm).

#### Balance

±10 volt, typical; ±20 volts maximum.

(Temperature range: 65°F to 80°F, R.H.: 15% to 65%)

#### Chassis

White powder coated steel housing.

#### Dimensions

3.5" H x 6.5" W x 37" L (8.9cm H x 16.5cm W x 94.0cm L)

#### Emitter Points

.050" diameter pure tungsten for improved mechanical strength and ionization stability.

#### Fuse

400mA slow blow.

#### High Voltage Power Supply

5.5 KV DC nominal.

#### Input Power

AC line power, internally selectable for 110/115 VAC-50/60Hz or 220/230 VAC-50/60Hz.

#### Ion Emission

Steady state DC with sense feedback.

### Mounting

Hanging apparatus attached to ceiling.

### Ozone

Less than 0.05ppm

### Weight

10 pounds

NOTE: Unauthorized servicing or modifications to your ionizer will void the product warranty and may create dangerous conditions. Servicing should be performed only at the factory, or by a SPI approved technician.

### Limited Warranty

SPI expressly warrants that for a period of one (1) year from the date of purchase, SPI Overhead Ionizers will be free of defects in material (parts) and workmanship (labor). Within the warranty period, the product will be tested, repaired, or replaced at our option, free of charge. Call our Customer Service Department at 909-664-9986 for a Return Material Authorization (RMA) and proper shipping instructions and address. Include a copy of your original packing slip, invoice, or other proof of purchase date. Any unit under warranty should be shipped prepaid to the SPI factory. Warranty repairs will take approximately two weeks.

If your unit is out of warranty, call Customer Service at 909-664-9986 for a Return Material Authorization (RMA) and proper shipping instructions and address. SPI will quote repair charges necessary to bring your unit up to factory standards.

### Warranty Exclusions

THE FOREGOING EXPRESS WARRANTY IS MADE IN LIEU OF ALL OTHER PRODUCT WARRANTIES, EXPRESSED AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE SPECIFICALLY DISCLAIMED. The express warranty will not apply to defects or 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 SPI or any seller be responsible or liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, users shall determine the suitability of the product for their intended use, and users assume all risk and liability whatsoever in connection therewith.