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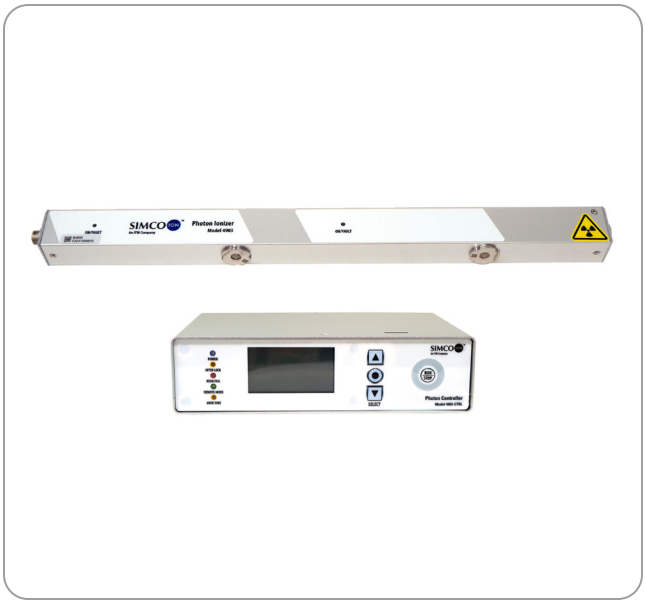


Ionization Solutions

WWW.SIMCO-ION.COM

Photon Bar Ionizer

MODEL 4903

The Model 4903 Photon Bar Ionizer is designed to eliminate static charge in semiconductor and other ultra-clean manufacturing processes requiring fast discharge time, low swing voltages, and precision balance. It utilizes a soft X-ray source, a form of light, and does not require an air supply to deliver ionized molecules.

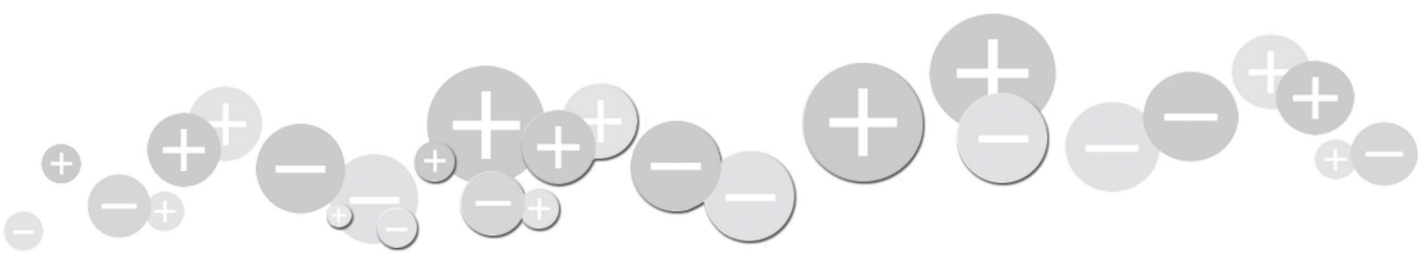
Soft X-rays are easily absorbed within the atmosphere to generate positive and negative ions. Charged objects in the proximity of these positive and negative ions attract the opposite polarity ions, neutralizing the charge on the object. The Model 4903 Photon Bar Ionizer is suitable for distances within 500 mm for the most effective ionization coverage. Photon ionization is an advanced and essential solution for effective ESD, ESA, and contamination control.

Features

- Suitable for critical cleanliness control
- Low voltage tube type
- Maintenance-free
- Alarm output signal

Benefits

- **Perfect ion balance**—Photon ionizers are naturally free from ion balance issues since they produce an equal number of positive and negative ions when molecules are exposed to soft X-ray energy
- **Free from particle attraction**—While CDA and laminar airflow help the decay time performance, Photon Ionizers utilize soft X-ray technology and do not need an air supply for operation, so no contamination particles are generated
- **No maintenance is required**—Unlike conventional ionizers of corona discharge on emitter tips, Photon ionizers do not need any cleaning or ion balance tuning during their lifetime



Model 4903	
Power Input	Model 4093-CTRL Controller
Discharge	<1.5 sec @ 12" (30.5 cm); ±1,000V to ±100V
Balance	Inherently balanced 0V
Ion Emission	Soft X-ray Technology
Emitter	Photon generating tube with beam angle 150° in tube type Type: Hot filament Voltage: 4.98 kV Current: 400 µA (max), on-site receptacle
Cleanroom Class	Zero particle generation
LED Indicator	Normal, Alarm
Alarm	Head fail, System fail
Operating Env	32-122°F (0 to +50°C), 35-85% RH, non-condensing
Enclosure	Aluminum and 304 Stainless Steel
Dimension	Front Bar: 1.4"W x 1.1"H x 11.8, 17.7, 23.6, 35.4, 47.2"L (3.6 x 2.7 x 30, 45, 60, 90, 120 cm)
Weight	Length (cm) 30 45 60 90 120 Front Bar (lb/kg) 0.93/0.42 1.32/0.60 1.72/0.78 2.58/1.17 3.48/1.58
Warranty	One year limited warranty
Certification	CE, UL pending
Model 4903-CTRL	
Input Voltage	120-240 VAC, 50/60Hz, 80W with 8 tubes, max
Fuse	250V, 3A, 1Ø, glass type
Communication	I/O, RS-485
Function	Interlock ON/OFF, Remote ON/OFF, RS-485 ON/OFF, Power ON status, Interlock ON status, Run status, Tube status (fail)
LED Indicator	Power On/Off, Interlock, Head fail, Remote, Alarm (end of tube life)
Operating Env	32-122°F (0-50°C); 35-85% RH, non-condensing
Dimension	8.46"W x 2.20"H x 5.35"L (21.5 x 5.60 x 13.6 cm)
Weight	2 lb (0.91 kg)
Warranty	One year limited warranty

Ordering Information

91-4903-300-01	Front bar 300 mm length with finished bar end cover, 1 tube
91-4903-450-01	Front bar 450 mm length with finished bar end cover, 2 tubes
91-4903-600-01	Front bar 600 mm length with finished bar end cover, 2 tubes
91-4903-900-01	Front bar 900 mm length with finished bar end cover, 3 tubes
91-4903-1200-01	Front bar 1200 mm length with finished bar end cover, 4 tubes
91-4903-CTRL-01	Controller without cables (IEC power cord required, contact Sales Service for detail)
32-4903ST-01	Replacement Photon Generating Tube
25-4910-10M	Output cable, 32.8 ft (10m)
25-4915-5M	I/O signal cable, 16 ft (5m)

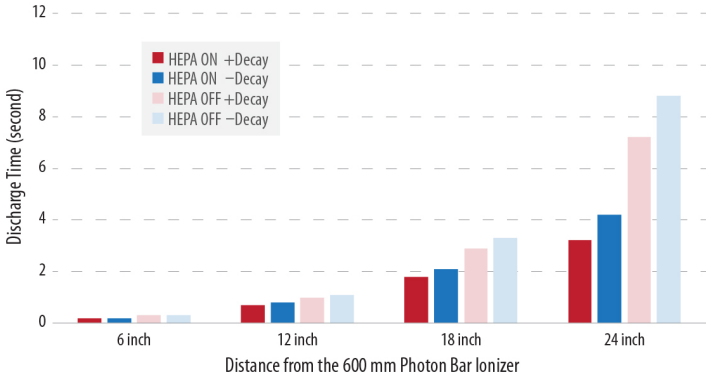
Bar Design

1. **Bar Connector**: Connector which connects the bar ionizer to controller.
2. **Bicolor-LED Status Indicator**:
   - Green light ON when operating
   - Red light ON when the device malfunctions
3. **Photon Generating Tube** can be detached and replaced.

Shielding Material (personal protection may be required by installing proper materials and thickness)	
Shielding	**Thickness**
Stainless Steel	0.008" (0.2 mm)
Aluminum	0.012" (0.3 mm)
PVC	0.031" (0.8 mm)
Glass	0.016" (0.4 mm)
Acrylic	0.157" (4 mm)

Required thickness is subjected to the distance from the soft X-ray window.(* d=10 cm).

Discharge Time Performance



Tested by centering CPM below the ionizer. HEPA ON is with 100 fpm laminar airflow above the ionizer.

The electrostatic removal performance is measured by the time discharging of the metal plate charged from ±1000V to ±100V by the photon ionizer.

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