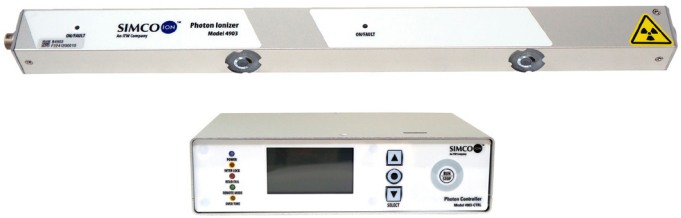
# Photon Bar Ionizer

## MODEL 4903

SIMCO ION™
An ITW Company



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 4903-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<br>Type: Hot filament<br>Voltage: 4.98 kV<br>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<br>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 |
| **Certification** | CE UL pending |

## 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) |
| **25-4910-15M** | Output cable, 49.2ft (15m) |
| **25-4915-5M** | I/O signal cable, 16 ft (5m) |

## Bar Design

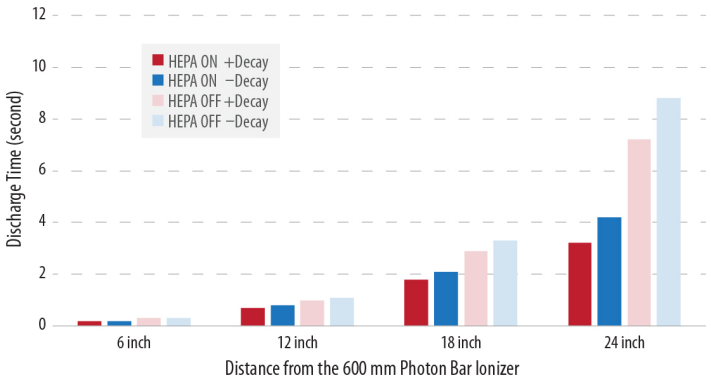



1. **Bar Connector**: Connector which connects the bar ionizer to controller.
2. **Bicolor-LED Status Indicator**:
   - Green light ON when operating
   - Red light ON when the device malfunctions
3. **Photon Generating Tube** can be detached and replaced.

| **Shielding Material**<br>(personal protection may be required by installing proper materials and thickness) | |
|---|---|
| **Shielding** | **Thickness** |
| Stainless Steel | 0.2 mm |
| Aluminum | 0.3 mm |
| Glass | 0.4 mm |
| PVC | 0.8 mm |
| Acrylic | 4.0 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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worldwide leaders in **static control**