



# Modulated Pulse AeroBar® with Feedback Control

## MODEL 5645

Simco-Ion's latest Modulated Pulse (MP) Technology ionization bar is now available with active feedback/control through the Novx monitoring and feedback system. The AeroBar Model 5645 is designed to provide industry-leading balanced ionization performance for semiconductor, especially for back-end advanced packaging, including latest 3D technology, where fast discharge time, low swing voltages and precise balance are required. Our patented MP technology enables AeroBar placement to within 150 mm of the wafer, where proximity control is critical for smaller technology nodes.

While the standalone AeroBar 5645 offers  $\pm 20V$  or better balance, the 5645 is also available with the Novx monitoring and feedback system to maintain precise balance better than  $\pm 5V$ . They can easily adjust and fine-tune voltage, frequency and balance to meet environmental and product sensitivity requirements. For processes under weak laminar flow, the optional air-assist can help to accelerate ion delivery, providing faster discharge times and performance over longer distances.

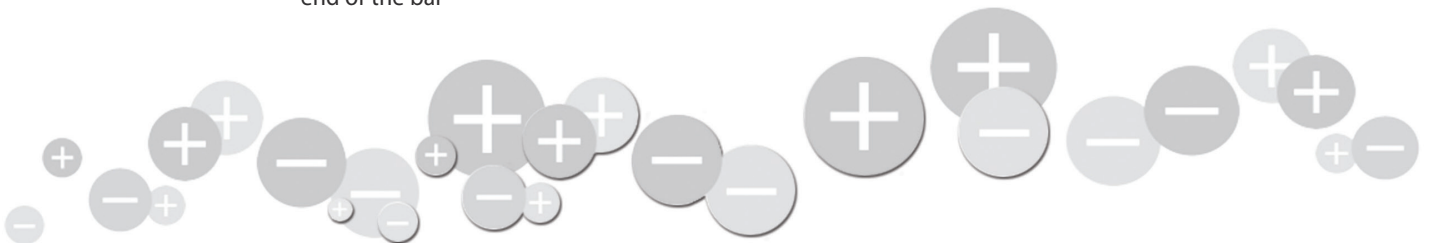
Available in 14 lengths, from 350-2350 mm, the AeroBar 5645 is the ideal in-tool ionizer for today's stringent cleanroom environment manufacturing process.



### Features

- $\pm 20V$  or better balance as standalone, or  $\pm 5V$  with Novx monitoring and feedback system
- Compatible with ISO 14644-1 class 3 or better
- Centralize power and control with widely adjustable software
- Sensor input, FMS connection, alarms, power and communications are located on the same end of the bar

### Benefits

- Provides the active feedback/control on ESD protection with precise and stable balance
- Compatible with all wafer technology nodes.
- Eliminating manual adjustment at the installed location
- Designed for overall ease of use and long maintenance cycles



Specifications	
<b>Input Voltage</b>	24 VDC $\pm 10\%$ , 0.7A (max)
<b>Discharge</b>	15 sec (typ) with no air-assist measured @ 24" below AeroBar center
<b>Balance</b>	$< \pm 20V$ over time and across the bar length; $< \pm 5V$ for Novx versions
<b>Ion Emission</b>	Modulated Pulse (MP) technology
<b>Emitters</b>	<b>Points:</b> Titanium <b>Pitch:</b> 50 mm spacing (450/600 mm lengths only); 75 mm spacing between nozzles on all other lengths <b>Voltage:</b> 9.5-13.5 kV peak-to-peak
<b>Frequency</b>	Low -0.3 to 1.5 Hz; High -1 to 33 Hz
<b>Air Connection</b>	8 mm tubing (OD) bulkhead, one-touch fitting; no daisy-chain capability
<b>Air Supply</b>	Clean Dry Air (CDA) or Nitrogen (N2)
<b>Airflow</b>	Open Jet: 45 psi max gas pressure; 1-3.5 lpm/nozzle thru 8 mm OD one-touch fitting (optional)
<b>Cleanliness</b>	Compatible with ISO 14644-1 Class 3 or better
<b>Ozone</b>	$< 0.05$ ppm
<b>EMI</b>	Below background level
<b>Operating Env.</b>	Temperature 15-35°C (59-95°F); humidity 30-60% RH, non-condensing
<b>Bar Settings</b>	Adjustment made remotely via software controlled; no manual adjustment on the bar
<b>LED Indicators</b>	Green steady NORMAL OPERATION, green flashing STANDBY, red ALARM
<b>Enclosure</b>	ABS chassis, stainless steel rails on the outside of the bar
<b>Dimensions</b>	3.1"H x 1.3"W x 18/24/34/39/45/51/57/63/69/75/81/87/93"L (78 x 34 x 450/600/850/1000/1150/1300/1450/1600/1750/1900/2050/2200/2350 mm)
<b>Certifications</b>	pending
Model 5601 Power Distribution Box	
<b>Input Voltage</b>	24 VDC for each bank of 4 bars; 5.6A total (0.7A max/port)
<b>Communication</b>	Ethernet (RJ-45) to/from PC; individual bar standby inputs
<b>Alarm Output</b>	Relay closure to ground
<b>Output</b>	8 RJ-45 ports (1 for each 5635 bar)
<b>LED Indicators</b>	Green PWR, Yellow COM, Red ALM, Blue USB
<b>Weight</b>	15 oz (420g)
<b>Dimensions</b>	1.2"H x 6.3"L x 3.6"W (3.1 x 16.0 x 9.2 cm)
<b>Certifications</b>	 

## Ordering Information

<b>91-5645-xxxx-yy-zzzz</b>	xxxx = bar lengths: 450*/600*/850/1000/1150/1300/1450/1600/1750/1900/2050/2200/2350 mm yy = nozzle spacing: 50 (50 mm), 75 (75 mm) zzzz = nozzle type
<b>91-5645-SW-VX.X</b>	MP AeroBar Software
<b>92-5635-001</b>	AeroBar MP Remote Serial Adapter Kit (includes RJ-45 splitter, USB to serial adapter, RJ-45 to DB9 adapter)
<b>71-25380</b>	Titanium emitter point (OpenJet emitter nozzle)
<b>33-5601-03</b>	Model 5601 Power Distribution Box, 24 VDC; powers up to 8 MP AeroBars
<b>33-25625</b>	24 VDC Power Converter with Power/Signal Junction Box Kit
<b>33-21491</b>	Signal and Power Junction Box
<b>25-0540-xx</b>	CAT-5 with RJ-45 Ethernet Cable in 6, 10, 15 ft lengths (x=ft)
<b>14-21241</b>	24 VDC Power Supply for Model 5601 Power Distribution Box (power cord ordered separately)

## $\pm 5V$ Balance Performance

Model 5645 AeroBar is available as a standalone unit with a  $\pm 20V$  balance performance; with Novx Closed-loop Feedback or Novx Inside Antenna Assembly both versions provide precise  $\pm 5V$  balance performance. By placing the antenna at the target, feedback transmitted to the bar's internal control which will auto-correct the balance to ensure a  $\pm 5V$  or better balance at all times.

## Design Features

**Simplified Interface:** 100% remote controlled allows ease of adjustments via centralized software control.

**Enhanced Cable Management:** locating the power/communication, 24 VDC, and NOVX connection all on the same side allows for better control of the cables and planning.

**Flexibility:** Optional use of CDA with push-to-connect coupling accommodates generic fittings such as quick disconnects, barbed, elbows and much more are all features to facilitate ease of use.

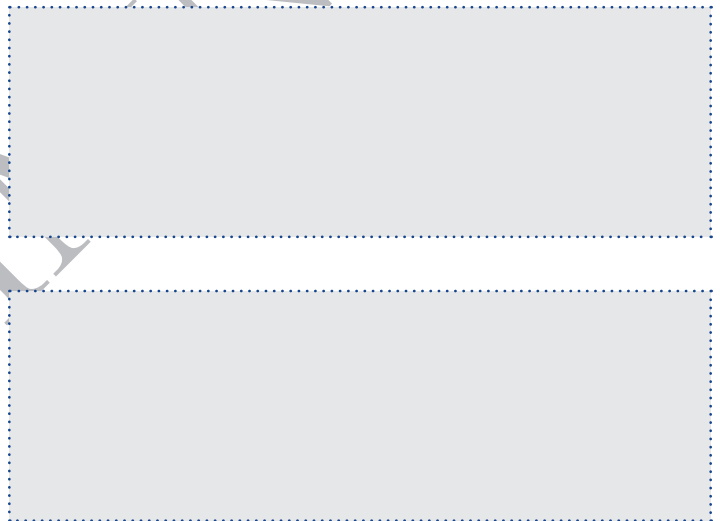
## Simple Installation

Model 5645 AeroBar is quickly installed by simply plugging into a 24 VDC source. Users can fine-tune the control parameters through the easy-to-use MP Control software for installations where optimized balance, swing voltage and discharge times are desired. An alarm connection in the Signal and Power Junction Box enables a signal output for FMS monitoring.

## Power Distribution Box & MP Control Software

The optional Model 5601 Power Distribution Box and MP Control Software can communicate, centralize powers with software control up to eight 5645 AeroBars.

## Performance



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