

Precision Ionizing System

MODEL 4604

SIMCO ION™
An ITW Company



Designed to meet the stringent demands of advanced manufacturing environments, the Model 4604 delivers precise electrostatic charge control in space-constrained applications. Its compact form factor makes it ideal for installation inside process equipment and mini-environments across semiconductor, flat panel display, pharmaceutical, and medical device industries.

Engineered for effectiveness in critical settings with limited clearance, low ambient airflow, and restricted space, the 4604 ensures reliable ionization where conventional solutions fall short. When paired with the Model 4062e Controller, it provides consistent, closed-loop ionization that enhances process yield and reduces contamination risk.

The 4604 integrates a two-element sensor positioned directly in front of four emitter electrodes, enabling accurate monitoring and real-time adjustment of key parameters. Its output control circuitry, combined with the 4062e Controller's feedback system, maintains operating set points automatically—minimizing manual intervention and maximizing operational efficiency.







FEATURES

- ✓ Compact design
- ✓ ISO 14644-1 Class 4 with replaceable Tungsten emitters
- ✓ Integrated sensor
- ✓ Alarm output thru 4062e FMS connection

BENEFITS

- ✓ Suited for small test chambers with space constraint process
- ✓ Designed for use in an environment with a controlled level of contamination
- ✓ Ensures that balance is maintained at the target
- ✓ Ensures immediate notification of catastrophic system failure

invisible problems
visible results™
Tackling Static & Particulate Contamination

Model 4604	
Input Voltage	Supplied by Model 4062e Controller (sold separately)
Discharge¹	<5 sec (typ) @ 6" (150 mm), 30 psig (207 kPa), ±1,000V to ±100V
Balance	<±10V (typ) @ 6" (150 mm)
Ion Emission	Steady-state DC Technology
Emitter	Four (4) replaceable Tungsten
Cleanroom Class	ISO 14644-1 Class 4
Coverage	12" x 12" (300 x 300 mm), typ @ 6" (150 mm) spacing
Air Supply	Input: Clean Dry Air (CDA) or Nitrogen Flow: 0.5 scfm (0.8 Nm ³ /h) @ 5 psig (34 kPa) to 3 scfm (5.1 Nm ³ /h) @ 30 psi (207 kPa) Pressure: 30 psig (207 kPa), max Connection: 1/8" (3 mm) ID tubing
Operating Env	32-122° F (0-50° C), non-condensing
Mounting	Four #4 (3 mm) or #6 (4 mm) screws
Enclosure	PET, UL94V-2 flame rating, white
Dimension	4.25"L x 1.32"W x 1.75"H (108 x 33.5 x 44.5 mm)
Weight	0.69 lb (0.32 kg)
Warranty	Two year limited warranty
Certification	 UL pending
Model 4062e Controller	
Voltage	Input: 24 VDC ±5% @ 1.0A (P/N 33-5701-01 or from 24VDC tool power line) Output: ±6.5 kV max, peak-to-peak
Load Current	<100 µA
LED Indicator	Green POWER, red ALARM (indicates instability or HV power failure)
Control	BALANCE adjust; GAIN adjust (not available in 4062e-NS)
Connection	RJ-11 connector for 24 VDC input, two HV connectors, RJ-9 connector for FMS output (relay closure & 4-20 mA), SMA connector for sensor
Operating Env	50-95°F (10-35°C); 30-60% RH, non-condensing
Mounting	(2) M4 holes
Enclosure	Stainless Steel
Dimension	7.91"L x 3.64"W x 2.26"H (201 x 92.5 x 57.4 mm)
Weight	2.4 lb (1.09 kg)
Warranty	Two-year limited warranty
Certification	    

1. Tested in accordance with ANSI/ESD STM3.1.

Ordering Information

91-4604T-2-01	Model 4604 with 2m HV/Sensor cable
91-4062e-02	Model 4062e Controller
4370760	Replacement Tungsten Emitter (4 per Model 4604)
33-5701-01	24 VDC Power Supply*

* IEC power cord required, contact Sales Services for detail.

Performance

The Model 4604 Ionizer delivers high-performance electrostatic charge control, operating independently of ambient airflow conditions. By utilizing Clean Dry Air (CDA) at low flow rates, it maintains consistent performance while extending maintenance intervals.

Available with durable Tungsten emitters, the 4604 is designed for seamless system integration. When paired with the Model 4062e Controller, users gain remote monitoring and power control capabilities, ensuring reliable operation and simplified management in demanding environments.

Ionizer Balance Control

When paired with the Model 4604 Ionizer, the 4062e Controller delivers balance within ±10V in steady-state environments, in compliance with ANSI/ESD STM3.1 industry standards.

While temporary fluctuations may occur due to changes in temperature, humidity, air composition, or mechanical movement in the area, the 4062e's enhanced external gain control provides manual adjustment to maintain stable balance. This capability ensures reliable performance across a wide range of air velocities and sensor distances, minimizing variability and supporting consistent electrostatic charge control.



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