



Ionizing Blower

minION2

User's Manual

About Simco-Ion

Simco-Ion develops, manufactures, and markets system solutions to manage electrostatic charge. As the world's largest provider of electrostatics management products and services, Simco-Ion improves its customers' business results by providing a total solution to their electrostatic discharge and electromagnetic interference challenges. Simco-Ion Technology Group is a division of Illinois Tool Works (ITW), located in Alameda, California. For more information about Simco-Ion visit www.simco-ion.com or call +1 800-367-2452. Simco-Ion is ISO 9001-2008 certified.

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Important Safety Information



Carefully read the following safety information before installing or operating the equipment. Failure to follow these safety warnings could result in damage to your ionization system and/or voiding the product warranty.

- ☒ The AC adapter is supplied with a 2- or 3-prong inlet plug, which must be inserted into an appropriate, properly wired wall outlet.
- ☒ A factory-qualified service technician must perform component service and repairs. Please contact Simco-Ion Customer Service for information.
- ☒ Disconnect power supply before servicing.
- ☒ Keep the unit dry. Do not operate the unit in flammable or explosive atmospheres.
- ☒ Do not insert objects through the unit's intake or outlet grilles while in operation. Damage to the ionizer and/or personal injury may result.

Informations de Sécurité Importantes



Lisez attentivement les consignes de sécurité suivantes avant d'installer ou d'utiliser l'équipement. Le non-respect de ces avertissements peut entraîner des dommages à votre système d'ionisation et/ou d'annuler la garantie du produit.

- ☒ L'adaptateur secteur est fourni avec un 2- ou 3-broches fiche d'admission, qui doit être inséré dans un approprié, correctement câblé prise murale.
- ☒ Usine d'un technicien qualifié doit effectuer composant service et réparations. Veuillez contacter Simco-Ion Service client pour plus d'informations
- ☒ Débrancher l'alimentation avant de procéder à l'entretien
- ☒ Garder l'unité sec. Ne pas faire fonctionner l'unité en inflammables ou atmosphères explosives.
- ☒ N'insérez pas d'objets dans l'unité de grilles d'entrée ou de sortie en cours de fonctionnement. Dommage pour l'ioniseur et/ou peut entraîner des blessures graves.

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Description

1.1 minION2 Ionizing Blower

1.1 minION2 Ionizing Blower

Simco-Ion's minION2 Ionizing Blower is designed to control electrostatic charges in semiconductor and electronics manufacturing equipment and for benchtop applications requiring high performance in a compact package. The minION2's small size also makes it easily portable for field service applications where static control is necessary.

- Small and compact
- Closed-loop balance control
- Simple to install and operate



Figure 1. minION2 Ionizing Blower

Features

Using steady state DC corona ion technology, the minION2 features self-monitoring to ensure controlled, consistent ion output. Performance is enhanced by Simco-Ion's radial emitter array and ion balance maintained with the ionizing circuitry. Structured airflow

from the air outlet ensures maximum delivery of ionized air to the target. These features in the design of the minION2 enable it to meet the demands of semiconductor and electronic assembly equipment manufacturers with corona ionization.

The minION2 uses modular wiring to enable “daisy-chaining” of units, up to three units may be daisy-chained on a standard power supply. A plug-type terminal block is included for easy wiring if the user desires to hard-wire the unit in place. There is the option of supplying power to the unit through the terminal block where the user wishes to supply power from a 24 VDC machine bus. The terminal block also features relay contact output of the unit’s fault alarm for remote fault sensing.

1.2 minION2 Identification

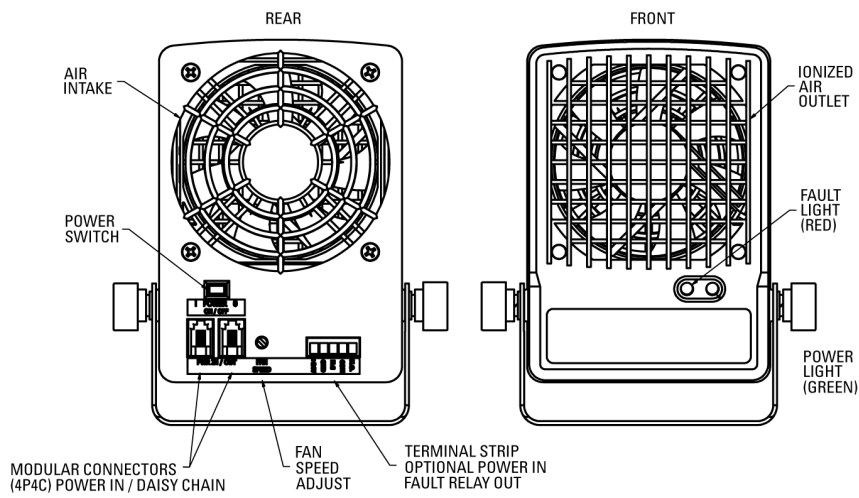


Figure 2. minION2 Identification

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Installation

- 2.1 Unpacking
- 2.2 Installing
- 2.3 Connections

2.1 Unpacking

Carefully remove the equipment from the carton and inspect all contents. Empty the carton to insure that small parts are not discarded. If any damage has occurred during the shipment, notify the local carrier immediately. A report should also be forwarded to Simco-Ion Technology Group, 1750 North Loop Rd., Ste 100, Alameda, CA USA 94502, Tel: 510-217-0600. See Warranty for Return Shipment information.

2.2 Installing

The minION2 Ionizer is designed for operation either in a vertical or horizontal orientation. Typically, the unit should be positioned such that there is good airflow provided to the critical area. Generally this requires that the unit be within 36" inches of the intended target. The stand provided can be used in a permanent operation by bolting it to a sturdy flat surface such as a wall or shelf.



This product is intended to be supplied by a Listed AC Adapter or Power Unit marked "Class 2" or "LPS" and rated output 24 VDC, 1.66A.



Ce produit est destiné à être alimenté par un adaptateur secteur ou unité d'alimentation marqué "Classe 2" ou "LPS" et sortie nominale 24 VCC, 1,66 A.

2.3 Connections

The standard AC adapter provided with the minION2 is a universal input AC type adapter with a line cord suitable for the region of operation. This AC adapter may be used to power up to three minION2 ionized air blowers by wiring them in series (daisy-chain fashion) with the modular cords included. The connectors used on the minION2 are 4P4C modular “handset” style connectors. For reference, the modular cable carries +24 VDC on the inner two conductors and ground/return is on the outer two conductors.

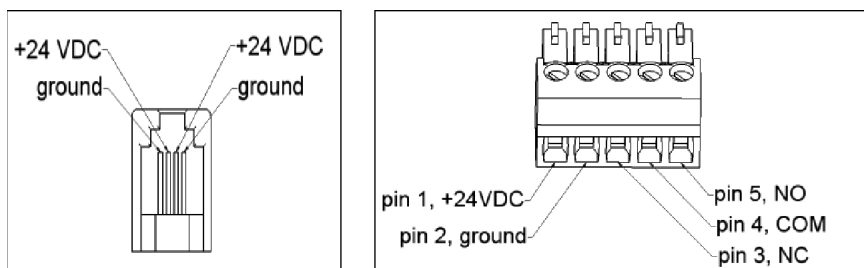


Figure 2. minION2 Electrical Connections

The minION2 may also be powered through the plug type terminal block located on the rear panel; +24 VDC goes to pin 1 and the ground/return goes to pin 2. This allows powering of minION2 ionized air blowers from a 24 volt machine bus. Each minION2 draws 250 milliamps so adequate current must be provided. A unit powered through the plug type terminal block may power other minION2 units wired in series (daisy-chain fashion) with the 4P4C modular cords included.

Power distributed through the modular cable must be limited to a maximum of 2 amps for safety purposes. Wired in this fashion, the recommended maximum number of units wired in series is 5.

The plug type terminal block also provides relay contact output for the fault alarm.

- Pin 4 is Common
- Pin 5 is Normally Open
- Pin 3 is Normally Closed

The relay contacts are rated for a maximum of 1 A at 30 VDC resistive with a maximum switching voltage of 220 VDC.

A terminal block plug is supplied with the minION2.

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Operation

- 3.1 Fan Adjustment
- 3.2 LED Indicators
- 3.3 Optimizing Performance
- 3.4 Troubleshooting

3.1 Fan Adjustment

The minION2 power switch is located on the rear panel of the unit, above the modular cable jacks. The rear panel also has a small hole next to the modular cable jacks that provides access to the recessed fan speed control adjustment. The fan speed may be adjusted with a small screwdriver or trim pot tool. Clockwise rotation provides maximum fan speed, counterclockwise provides minimum fan speed.

3.2 LED Indicators

The front panel of the minION2 has two LED indicator lights. The green LED indicates the unit is powered. The red LED is a fault indicator for the high voltage power supply monitoring circuit. The high voltage power supply monitoring circuit also drives the fault alarm relay.

3.3 Optimizing Performance

The minION2 produces an ionized air stream that covers a targeted area. The time required to neutralize a static charge on a surface in the target area depends on several factors, including the distance from the ionizer and the ionizer's air velocity. Set the fan speed as high as acceptable to provide more rapid static neutralization. For fast neutralizing, the minION2 should be as close to the target area as practical.

3.4 Troubleshooting

This information provides a quick troubleshooting reference for the minION2 Ionizing Blower. Should any of these possible solutions not solve the problem, contact Simco-Ion.

PROBLEM	CAUSE	SOLUTION
Unit fails to operate (no indicator lights)	<ul style="list-style-type: none">• AC adapter not connected• Faulty AC adapter	<ul style="list-style-type: none">• Check electrical connections• Replace AC adapter
Unit fails to operate (green light on)	<ul style="list-style-type: none">• Internal fault	<ul style="list-style-type: none">• Return unit for repair
Red fault indicator illuminates	<ul style="list-style-type: none">• Dirty emitter hub• Internal HV fault	<ul style="list-style-type: none">• Clean emitter hub• Return unit for repair
Excessively long static discharge times	<ul style="list-style-type: none">• Dirty emitters• Worn emitters	<ul style="list-style-type: none">• Clean emitters• Replace ion emitters
Ion balance out of specification	<ul style="list-style-type: none">• Worn emitters• Grounded metal near ionized air outlet	<ul style="list-style-type: none">• Replace ion emitters• Move grounded metal object away from Ionizer or move Ionizer away from grounded metal object

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Maintenance

- 4.1 Emitter Cleaning
- 4.2 Air Inlet & Outlet Cleaning
- 4.3 Ion Balance & Output Check
- 4.4 Emitter Replacement

4.1 Emitter Cleaning

To clean emitters, turn off the minION2 and unplug it from the power supply. Visually inspect the emitter array for particle or dust accumulation. Moisten a lint free swab with deionized water or isopropyl alcohol and insert it through the inlet grille. Wipe each emitter clean and clean the emitter hub as necessary to remove accumulation. Allow to evaporate completely before returning the minION2 to service.

4.2 Air Inlet & Outlet Cleaning

The air inlet grille on the rear of the unit and the ionized air outlet should remain clean to prevent restriction of air flow. They can be cleaned with a soft brush or vacuum.

4.3 Ion Balance & Output Check

To test the unit for ion output, the use of a charged plate monitor is recommended. Prior to performing these checks, clean the emitters as described above and allow the unit to run for 10 minutes to allow the ion balance to stabilize. Offset voltage and discharge times can be measured and checked against the Ion Balance and Ion Output tables in Section 5, Specifications. If a charged plate monitor is not available, a periodic verification system such as the Simco-Ion Model 775 PVS may be used. Results obtained using any PVS system, though, should only be considered as approximations, due to the instrument's wide tolerance.

4.4 Emitter Replacement

To replace emitters, turn off the minION2 and unplug it from the power supply at the rear panel connector. Lay unit face down on a soft surface. Remove the four Philips head screws at the air inlet on the rear panel. Lift the rear panel out of the enclosure and set to one side (Note how the black plastic divider fits between the ionizer and circuit boards during disassembly). The ionizing hub contains sockets for the ion emitting pins. Carefully remove the ion emitters by pulling them straight out from the ionizer hub. Push new ion emitters into the sockets, make sure all sockets have emitters and all emitters are fully inserted into their sockets. Replace the rear panel on the enclosure while guiding the black plastic divider back into place. Ensure that the power switch and power jacks are properly fitted through the openings on the rear panel. Secure the rear panel with the four Philips head screws. Do not over-tighten the screws. Test the unit, and return to service.



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Specifications

5.1 Specifications

5.2 Parts & Accessories

5.1 Specifications

Input Voltage	24 VDC, 250 mA, 6W				
Balance	0±10V				
Discharge*	12" (305 mm)	18" (460 mm)	24" (610 mm)	30" (760 mm)	36" (915 mm)
Fan High (sec)	2	3	5	7	9
Fan Low (sec)	3	4	7	9	12
Airflow Volume	Fan High 42 cfm (1.2 m ³ /min); fan low 21 cfm (0.6 m ³ /min)				
Audible Noise	52 dBA max @ 24" (610 mm); 48 dBA max @ 39" (1m); high fan speed measured perpendicular to air outlet				
Operating Env.	Temperature 50-95°F (10-35°C); humidity 30-70% RH, non-condensing				
Fan Speed	Variable, recessed adjustment				
Switches	On/Off switch				
LED Indicators	Green POWER; red FAULT				
Connectors	Two 4-position, 4-contact (4P4C) modular connectors for power, may also be used for daisy-chaining units (modular cable included with unit), modular connector p/n (Amp 5-641334-3, Hirose TM3P-44P, Kobiconn, 154-UL6164); plug type terminal block may be used for power and/or fault output connection (terminal block included with unit), terminal block p/n (Weidmuller 1792890000, Phoenix 1803604, Altech 36.305)				
Power Supply	Universal 100-240 VAC input (IEC320) / 24 VDC, 1.66 A output, suitable to power up to 3 units				
Emitters	Polished stainless steel				
Enclosure	Reinforced polycarbonate, white				
Dimensions	3 7/8W x 5 3/8H x 2 3/8D in. (98W x 136H x 60D cm)				
Weight	1.1 lb (0.52 kg)				
Stand	Nickel plated stainless steel				
Warranty	Two year limited warranty				
Certifications	RoHS 2 Compliant			us	

* Tested in accordance with ANSI/ESD STM3.1-2006.

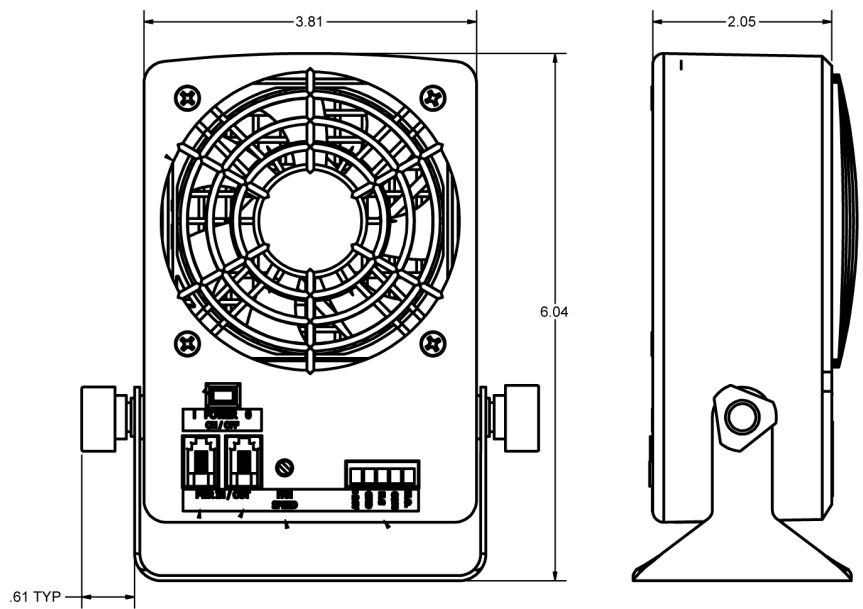
5.2 Parts & Accessories

Part No.	Description
4112230	minION2 without power supply, locking stand, 4P cable
4011424	minION2 without power supply ¹
4012230	minION2 without power supply ²
4011425	minION2 with 100/120 VAC Japan / N. Amer. power supply ¹
4011426	minION2 with 230 VAC Continental Europe power supply ¹
4011427	minION2 with 230 VAC United Kingdom power supply ¹
4015592	minION2 with 230 VAC to 24 VDC power supply, China
4012231	minION2 with 100/120 VAC Japan / N. Amer. power supply ²
4012232	minION2 with 230 VAC Continental Europe power supply ²
4012233	minION2 with 230 VAC United Kingdom power supply ²
5051406	minION2, power supply only (100/120 VAC Japan / N. Amer)
5051407	minION2, power supply only (230 VAC Continental Europe)
5051408	minION2, power supply only (230 VAC United Kingdom)
4371099	Emitter, standard stainless steel (6 required)
4370760	Emitter, long life tungsten (6 required)
4520764	Modular cable, 4P4C, 3' long
4520767	Modular cable, 4P4C, 6' long
5051141	Articulating Arm Kit

1. Units come with tilt stand and thumb knobs.

2. Units come with locking bracket and screws.

5.3 Dimensional Drawing



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Warranty & Service

Simco-Ion provides a limited warranty for the minION2 Ionizing Blower. New products manufactured or sold by Simco-Ion are guaranteed to be free from defects in material or workmanship for a period of two (2) years from date of initial shipment. Simco-Ion liability under its new product warranty is limited to servicing (evaluating, repairing, or replacing) any unit returned to Simco-Ion that has not been subjected to misuse, neglect, lack of routine maintenance, repair, alteration, or accident. In no event shall Simco-Ion be liable for collateral or consequential damages. Consumable items such as, but not exclusive to, emitter points, emitter wires, batteries, filters, fuses or light bulbs are only covered under this warranty if found defective as received with the new product.

To obtain service under this warranty, please contact Simco-Ion Technical Support at techsupport@simco-ion.com or +1 (510) 217-0470.

Notes

Notes



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