SIMCO ION™

An ITW Company

PHOENIX 2.0 IONIZING BLOWER

INSTALLATION AND OPERATING INSTRUCTIONS

TABLE OF CONTENTS

1. SAFETY WARNINGS

PLEASE READ INSTRUCTIONS COMPLETELY BEFORE STARTING INSTALLATION

ALL INSTALLATION AND TROUBLESHOOTING OPERATIONS MUST BE PERFORMED BY QUALIFIED TECHNICAL PERSONNEL FAILURE TO DO SO COULD RESULT IN PERSONAL INJURY AND/OR DAMAGE TO THE EQUIPMENT.

This instruction manual uses symbols to identify dangerous situations as follows:

NOTE – Statements identified with **NOTE** indicate precautions necessary to avoid potential equipment failure.

CAUTION – Statements identified with **CAUTION** indicate potential safety hazards.

ATTENTION – Les déclarations identifiées avec **ATTENTION** indiquent des dangers potentiels pour la sécurité.

WARNING – Statements identified with **WARNING** indicate potential serious injury hazards.

AVERTISSEMENT – Les déclarations identifiées avec **AVERTISSEMENT** indiquent un risque de blessures graves.

NOTE – This equipment must be correctly installed and properly maintained. Adhere to the following notes for safe installation and operation:

1. Read the instruction manual before installing or operating equipment.
2. Only qualified service personnel are to perform installation and repairs.
3. All equipment must be properly grounded, including the machine frame to which the equipment is mounted.
4. Turn off input power to unit before connecting or disconnecting other equipment.
5. Do not operate system in close proximity to flammable liquids.

NOTE – Do not attempt to operate at voltages other than those specified.

NOTE – Do not allow dust, dirt or debris to block or obstruct air flow inlets or outlets.

CAUTION – Electrical Shock Hazard

Electrical installation and repairs must be performed by a skilled electrical engineer according to the applicable national and local regulations. The equipment must be properly grounded. Grounding is required to ensure safe and proper operation and to prevent electrical shocks upon contact.

ATTENTION – Risque De Choc Électrique

L'installation et le service électrique doivent être effectuées par un électricien qualifié conformément aux réglementations locales et nationales. Le matériel doit être correctement mis à la terre. Mise à la terre est nécessaire pour assurer un fonctionnement sûr et correct et pour éviter les chocs électriques en cas de contact.

CAUTION – Fire Hazard

Keep the unit dry. Do not operate the unit in flammable or explosive environments. This equipment should be inspected frequently and collected dirt removed from it regularly to prevent excess accumulation that may result in the risk of a fire.

ATTENTION – Risque d'incendie

Gardez l'appareil au sec. Ne pas utiliser l'appareil dans des environnements inflammables ou explosifs. Cet équipement doit être inspecté fréquemment et la saleté accumulée doit être régulièrement retirée afind'éviter une accumulation excessive pouvant présenter un risque d'incendie.

CAUTION - High levels of ozone can be injurious to health. Use as directed in a location no smaller than indicated in the installation instructions.

ATTENTION - Des niveaux élevés d'ozone peuvent être nocifs. Respecter les consignes et utiliser dans unendroit qui n'est pas inférieur qu'indiqué dans les instructions d'installation.

NOTE - FOR COMMERCIAL USE ONLY. NOT FOR RESIDENTIAL USE.

NOTE - POUR USAGE COMMERCIAL UNIQUEMENT. NE CONVIENT PAS POUR USAGE DOMESTIQUE.

2. DESCRIPTION

Simco-Ion's Phoenix 2.0 Ionizing Blower is a highly reliable, extended-range ionizing air blower designed for static elimination in many industrial applications. It is aerodynamically designed to efficiently cover an extended area with automatically balanced ionization for rapid static neutralization. The Phoenix 2.0 is a self-contained unit that includes variable speed fan control, electronic ion balancing, and a built-in emitter point cleaner that removes dust buildup from the tips of the emitter points. The Phoenix 2.0 features universal line voltage input and consistent output over the full range of line voltages. The unit is portable, completely self-contained, and includes a tilt bracket for maximum mounting versatility.

The Phoenix 2.0 features a user interface to continuously monitor performance. The user interface also allows for the unit to be placed in Standby Mode, turning the fans and ionization on and off remotely.

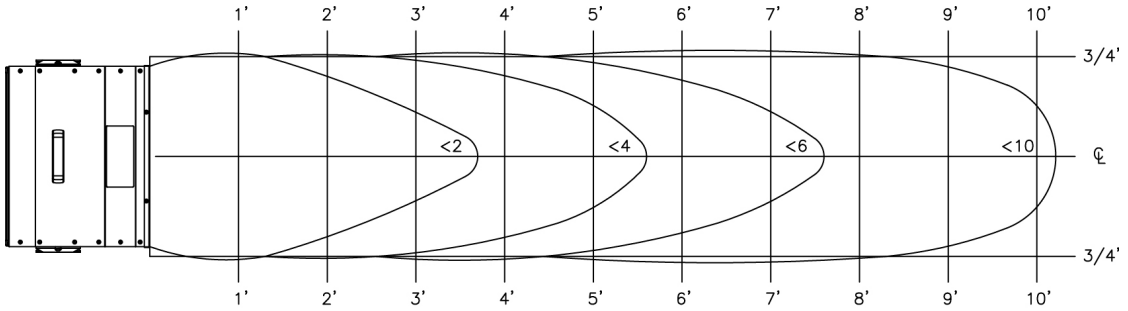
Optional mounting includes a 1" diameter post kit to adapt the tilt bracket to a framing system stanchion base such as offered by 80/20® Inc. Also available is a portable floor stand kit that features a roll-around base and adjustable height mounting pole to position the unit between 4' and 6' above the floor.

3. SPECIFICATIONS

Voltage	100-240 VAC, 50/60 Hz	
Current	Max @ 100 VAC; 2.0 Amp Max @ 120 VAC; 1.5 Amp Max @ 230 VAC; 1.0 Amp	(fan at high speed)
Line Input Connector	IEC320	
Fuse	3.15 Amp time delay 5x20 mm (2 required)	
User Interface	5-Position Pluggable Terminal Block	
Operating Temperature	32-100°F [0-38°C]	
Operating Humidity	70% RH max, non-condensing (no dewing) permissible	
Air Output	230 CFM [6.4 m^3/min] to 360 CFM [10.2 m^3/min]; adjustable	
Air Filter	80 sq in [516 sq cm] polyurethane foam 20 PPI	
Air Speed	1350 FPM @ 1 ft [6.86 m/s @ 0.3m] 1010 FPM @ 2 ft [5.13 m/s @ 0.6m] 840 FPM @ 3 ft [4.27 m/s @ 0.9m] 730 FPM @ 4 ft [3.71 m/s @ 1.2m]	From centerline (fan speed high)
Noise Level	62 dB @ 2 ft [0.6 m]; fan speed high	
Discharge Time (typical)	0.5 sec @ 1 ft [0.3m] 1.1 sec @ 2 ft [0.6m] 1.6 sec @ 3 ft [0.9m] 2.4 sec @ 4 ft [1.2m] 3.3 sec @ 5 ft [1.5m] 4.6 sec @ 6 ft [1.8m] 6.6 sec @ 8 ft [2.4m] 9.5 sec @ 10 ft [3.0m]	1000V to 100V (fan speed high)
Enclosure	Aluminum, blue epoxy powder coated	
Dimension	13"L x 16.25"W x 7.46H [330 x 413 x 190 mm]	
Weight	16 lb [7.3 kg]	

Discharge Time Performance

Each region represents approximate times (in seconds) required to discharge per EOS/ESD standard No. 3, 1000V-100V.



Note: Characteristics will vary based on material, air volume output, and use of air input filters.

Figure 1. Discharge Time Performance

4. INSTALLATION

Position and Mounting

For maximum effectiveness, position the Phoenix 2.0 as close as possible to the charged surface to be neutralized. Direct the air stream longitudinally, and in the same direction as the target material movement to maximize the time the charged surface remains in the air stream. Ensure that the ionized air stream covers the entire target surface, and that the material to be neutralized is not in direct contact with a background surface (such as a roller, or laying on a tabletop). For best results, the material to be neutralized should be in free air.

The Phoenix 2.0 can be placed on any flat, level surface. It can also be mounted (without tilt stand) using the (4) four 5/16-18 threaded inserts on the bottom of the unit.

NOTE – Screws should thread into unit minimum of 3/8". User fabricated brackets should have a pattern as shown in the figure below. The bracket must provide secure support for 14 lb [6.4 kg].

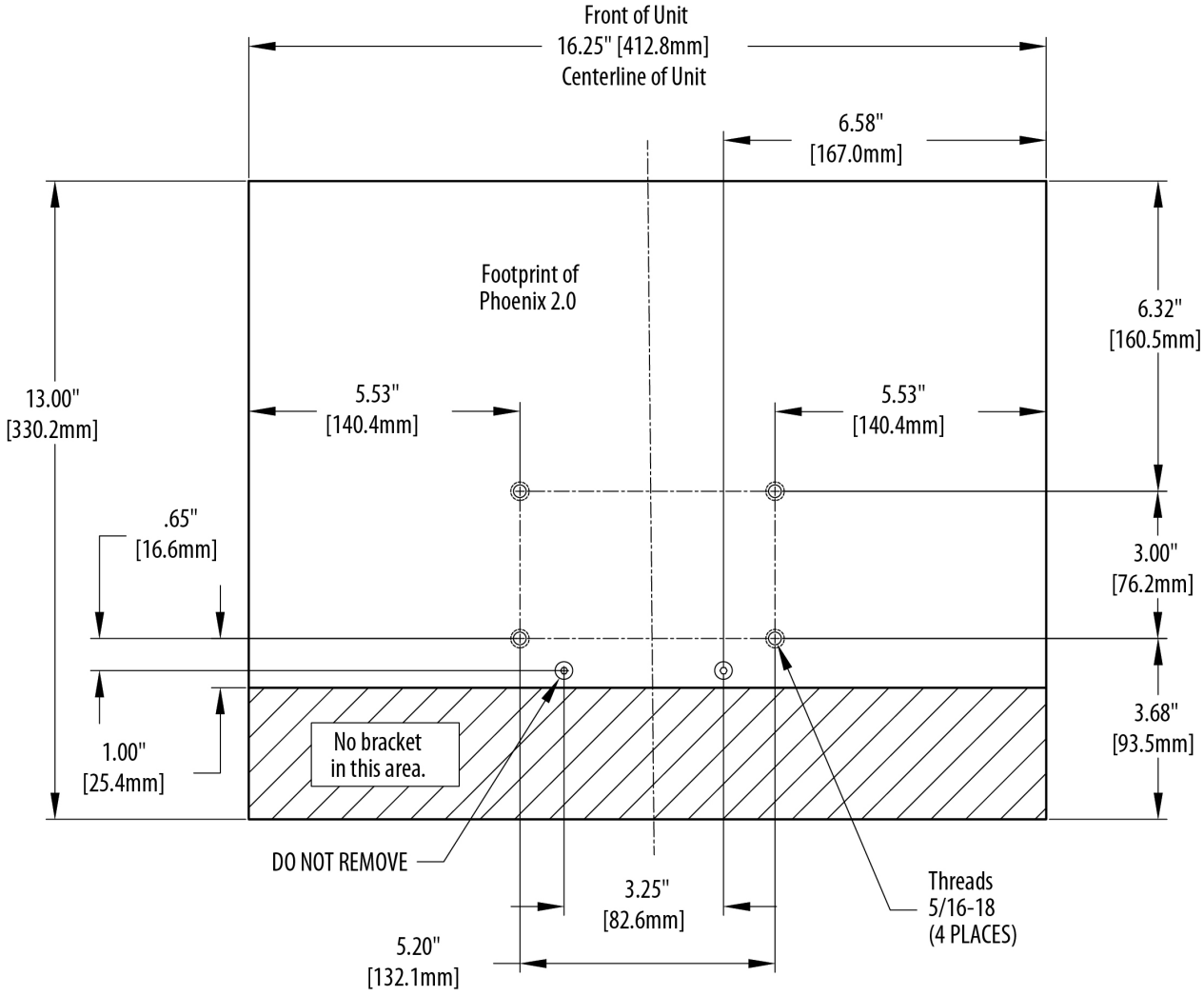


Figure 2. Mounting Points on Bottom of Unit

The Phoenix 2.0 is supplied with a tilt bracket that offers a variety of mounting points. User fabricated brackets should use one of the available patterns as shown in the figure below. The bracket must provide secure support for 16 lb [7.3 kg].

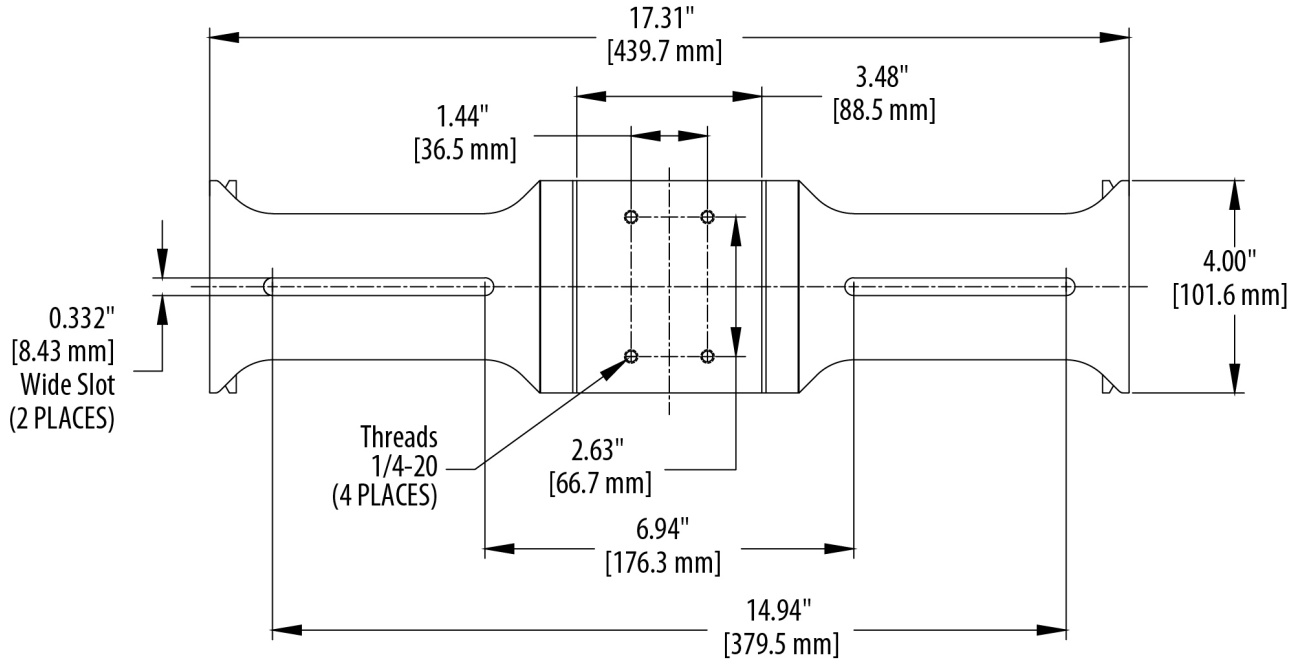


Figure 3. Mounting Bracket Dimensions

An optional 1” dia. post mounting kit (Simco-Ion P/N 5052150) is available for the Phoenix 2.0 Ionizing Blower. The kit includes a 1” diameter post and hardware for adapting the unit to a 1” diameter station base. Along with the included tilt stand, the 1” diameter (4” long) post with a station base allows a wide ranging degree of freedom for aiming the unit’s ionized air flow. The post is suitable for use with a framing system stanchion base such as 5870 offered by 80/20® Inc. See kit for assembly instructions.

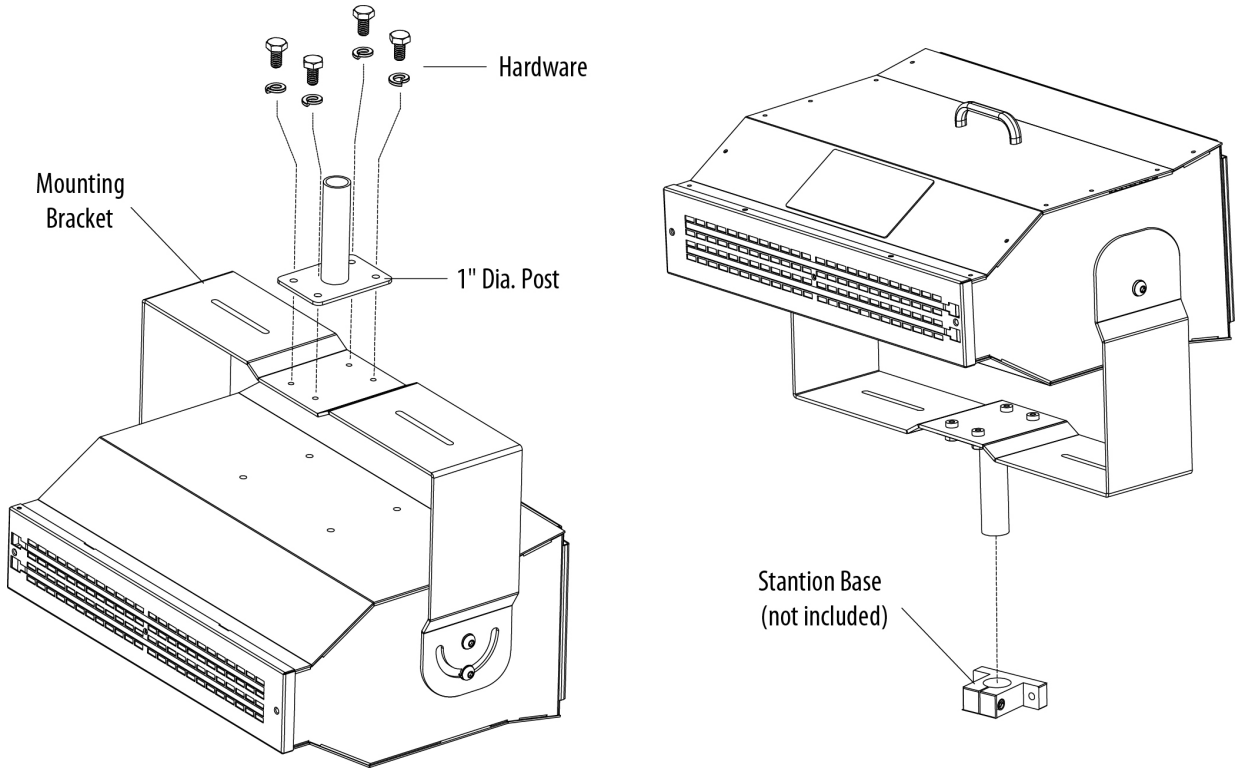


Figure 4. Post Mounting Kit

An optional portable floor stand kit (Simco-Ion P/N 5052148) is also available for the Phoenix 2.0 Ionizing Blower. The stand kit includes the post kit above, an adjustable height mounting pole and a 5-caster roll-around base. The adjustable height mounting pole allows positioning of the unit between 4' and 6' above the floor, while the mounting brackets allow tilting the unit to direct its air flow. See kit for assembly instructions.

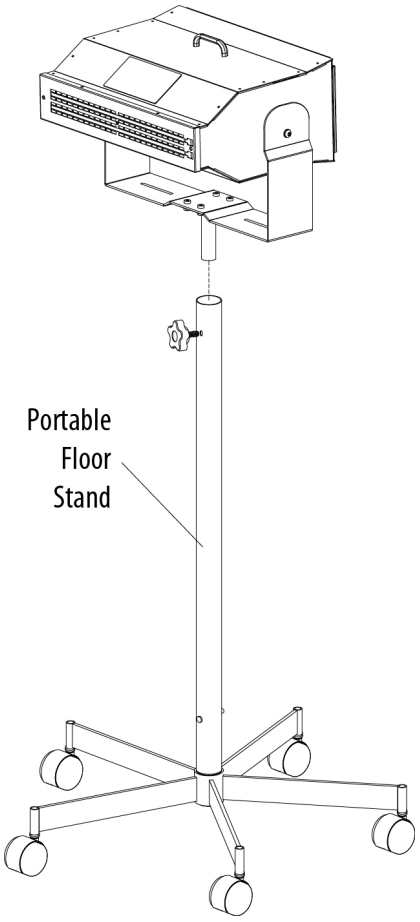


Figure 5. Portable Floor Stand

CAUTION – High Center of Gravity

Blower could fall if moved in the fully raised position. Lower blower before moving.

MISE EN GARDE – Centre de gravité élevé

Le ventilateur pourrait tomber si déplacé en position complètement relevée. Abaisser le ventilateur avant de déplacer.

WARNING – Fire Hazard

Keep the unit dry. Do not operate the unit in flammable or explosive environments.

AVERTISSEMENT – Risque d'incendie

Gardez l'appareil au sec. Ne pas utiliser l'appareil dans des environnements inflammables ou explosifs.

Electrical Connections

The Phoenix 2.0 features universal line voltage input which accepts 100 to 240 VAC, 50/60 HZ. Connect line cord to a grounded receptacle. If an extension cord is used, it must be a 3-wire type providing electrical ground to the unit.

NOTE – Do not attempt to operate at voltages other than those specified.

WARNING – Electrical Shock Hazard

Electrical installation and repairs must be performed by a skilled electrical engineer according to the applicable national and local regulations. The equipment must be properly grounded. Grounding is required to ensure safe and proper operation and to prevent electrical shocks upon contact.

AVERTISSEMENT– Risque De Choc Électrique

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Connection to User Interface

The User Interface provides connection to the alarm relay, and the ability to remotely place the unit in standby.

The connections for the User Interface is a 5-position pluggable header with screw terminals. The connector accepts 16-26 AWG solid or stranded wire with a strip length of ¼" [7 mm]. To install wires into the connector, push stripped wire fully into the square hole on connector and tighten securely with a small flat-blade screwdriver. The terminal block header is plugged into the User Interface, located on the rear of the Phoenix 2.0, next to the power input.

The connections for the User Interface are:

Terminal 1: + Standby Logic Input (24 VDC)

Terminal 2: - Standby Logic Input (24 VDC)

Terminal 3: Fault Relay N.C.

Terminal 4: Fault Relay Com.

Terminal 5: Fault Relay N.O.

Outputs

The Fault Relay N.C. contact "makes" to indicate normal operation. The N.O. contact "makes" to indicate an alarm. The N.O. contact also "makes" when power is removed from the Phoenix or the Phoenix is turned off.

The relay contacts are rated for a maximum of 1 amp at 24 volts, with a resistive load.

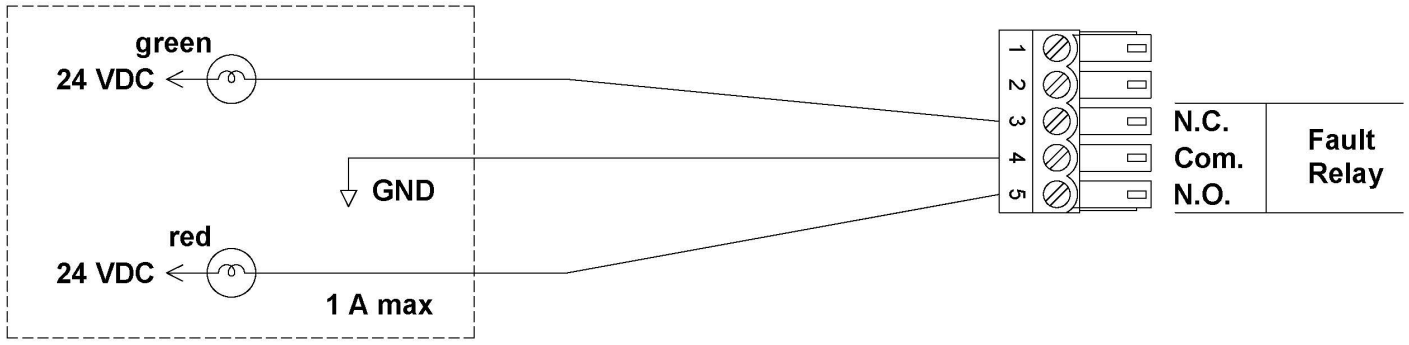

Figure 6. User Interface Relay Output (Typical Light Tree Schematic)

In a typical indicator or light tree application:

- The green light indicates the unit is operating correctly or in standby.
- The red light indicates the unit in fault or not powered.

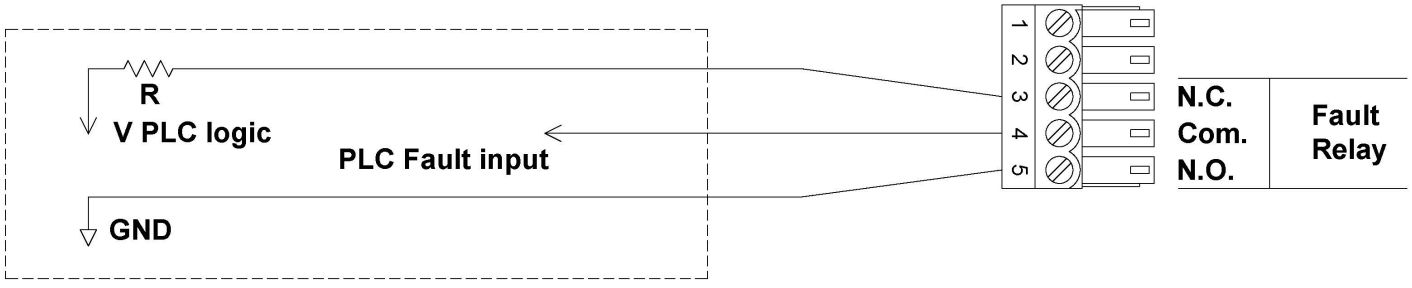

Figure 7. User Interface Relay Output (Typical PLC Schematic)

In a typical PLC application:

- The PLC input will be held high during normal operation or in standby.
- The PLC input will be low on fault or if the unit is not powered.

Input

Remote control allows placing the unit in Standby Mode. This mode is convenient where the Phoenix 2.0 must be turned on and off for process requirements. Turning the unit on from Standby Mode eliminates the brief self-check delay that occurs when the unit is turned on by the power switch or applying line voltage remotely.

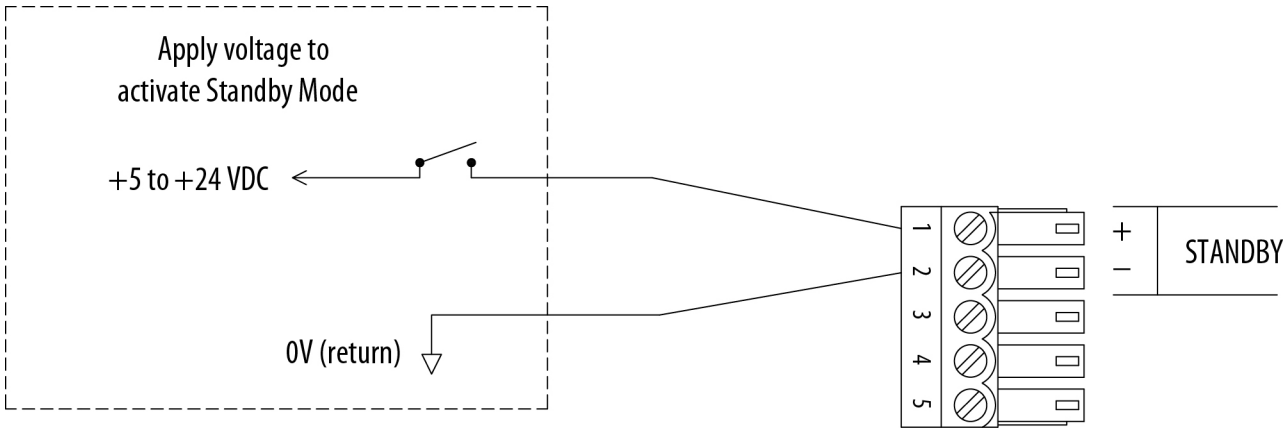

Figure 8. User Interface Standby Input (Typical Schematic)

A continuous application of +5 to +24 volts DC to terminal 1 (terminal 2 being the return, 0 volts) will place the unit in Standby Mode. In standby the blower fan and ionization power supplies are de-energized. Removing voltage from terminal 1 places the unit back in operation.

5. OPERATION

Turn unit on with main power switch, located adjacent to the line cord connector on rear of unit. After the Phoenix 2.0 goes through a self-check cycle, it will begin to operate. The fan speed may be adjusted with pushbuttons (▲ and ▼) on the face label. Use the highest airspeed the application allows. Airspeed is proportional to neutralization range, at maximum fan speed the Phoenix 2.0 will neutralize static charges at a distance of ten feet. Higher fan speed ensures quick discharge times and maximum coverage.

NOTE – DO NOT allow dust, dirt, or debris to block or obstruct airflow inlets or outlets.

Control Panel

Indicator lights on the Phoenix 2.0 face label display the unit's operating status.

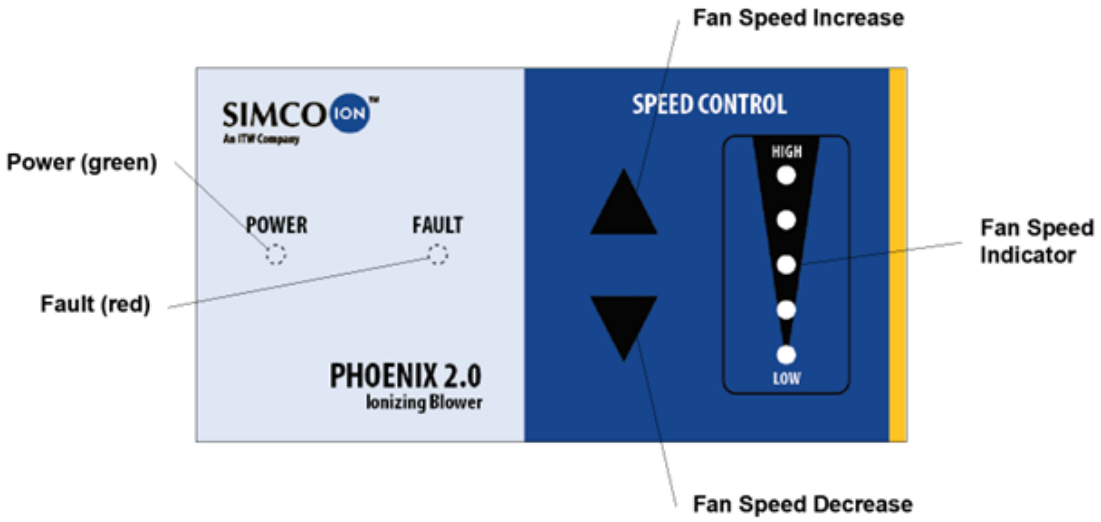

Figure 9. Phoenix 2.0 Indicator Lights and Fan Speed Control

Power

- A steady green Power light indicates the unit is powered and active.
- A blinking green light indicates the unit is in standby.

Fault

A steady red Fault indicator indicates the internal monitoring and control circuits have exceeded limits for normal operation. A steady red Fault light may also indicate a failure of a high voltage power supply or control circuitry.

Fan Speed

The blue fan speed indicators are for the relative fan speed, indicating the relative output.

Standby Mode

The Phoenix 2.0 may be placed into / removed from Standby Mode using the control panel on the face label. Pressing both Fan Speed controls (▲ and ▼) at the same time toggles the state of Standby Mode. If the unit is running, pressing both ▲ and ▼ at the same time will place the unit into Standby Mode. If the unit is in Standby Mode, pressing both ▲ and ▼ at the same time will "turn on" the unit with no delay.

6. MAINTENANCE

Ionizing Emitter Points

1. Dust or dirt on the ionization points will reduce effectiveness of the blower. Ionization points must be cleaned periodically to prevent deposits from accumulating.
2. To clean ionization points; turn unit OFF or place in standby and slide the built-in Point Cleaner (located on the front face of the blower) from one side to the other and back again.
3. Frequency of cleaning should be at least once monthly, or as determined by inspections based on operating conditions.

Air Intake Filter

1. Filter cleaning or replacement frequency depends upon the cleanliness of the operating environment. Inspect filters weekly, clean or replace as required.
2. Turn the unit OFF or place in standby and remove air filter from intake.
3. The air filter is open cell polyurethane. It may be cleaned with mild soap and water. Rinse thoroughly, blot and allow to dry before reinstalling.
4. To install air filter, place over intake grille. Tuck edges of air filter in recess around perimeter of intake grille.

Ionizer Module

The ionizing module may be removed from the unit for deep cleaning to restore performance in particularly dirty applications.

CAUTION – Risk of Injury

Turn off and disconnect unit from line voltage before removing ionizer module.
Use care handling ionizer module, puncture hazard, sharp pins are present.

MISE EN GARDE – Risque de blessure

Éteindre et débrancher l'unité de la tension secteur avant de retirer le module ioniseur.
Manipuler le module ioniseur avec précaution, risque de piqûre, broches pointues présentes.

1. Turn unit OFF and disconnect power cord from unit.
2. Remove two (2) screws located on top of ionizing module.
3. Slide Point Cleaner out of its parking spot and remove two (2) screw located on output face of ionizing module at ends. **DO NOT** remove screw at center face ionizing module.

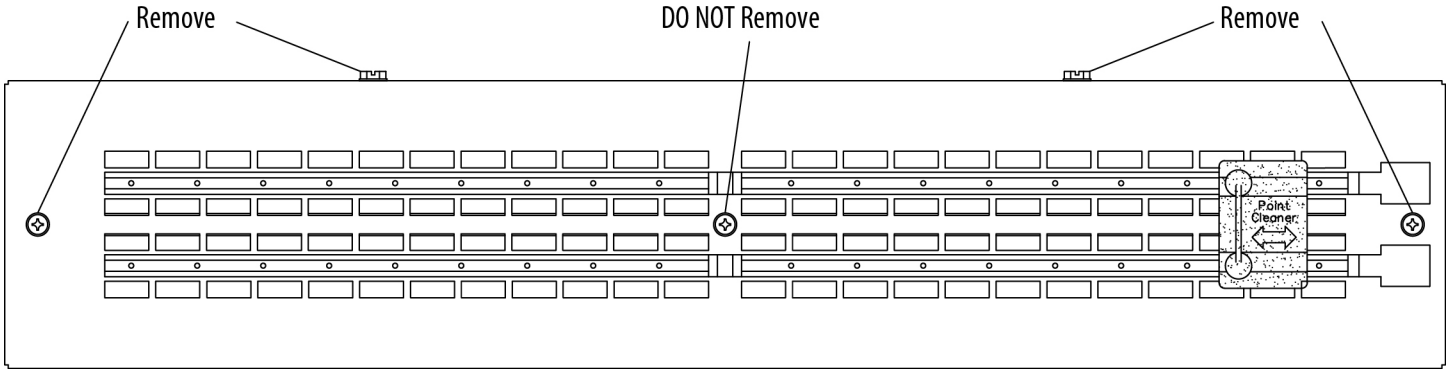

Figure 10. Phoenix 2.0 Ionizing Module

4. Remove ionizing module. Carefully rotate face of ionizing module down and disengage the two (2) tabs at bottom of face. Remove module from unit, there will be a spring on the back of the module that is the HV spring contact for the ion emitter assembly.
5. Handle the ionizing module with care. The ion emitters are sharp pins that present a puncture hazard.
6. Loosely adhering dirt and debris may be brushed or vacuumed from the ionizing module.
7. Stubbornly adhering dirt and debris may be wiped off with a clean, lint-free rag dampened with a 50/50 mix of isopropyl alcohol and distilled water.

NOTE – DO NOT soak rag or ionizer with cleaning mix. **DO NOT** use other cleaning fluids, soaps, etc. **DO** allow ionizer to dry completely before reinstalling.

8. If cleaning is not successful, replace ionizing module.
9. To install the ionizing module.

   Start the HV spring contact into the HV pickup assembly inside the Phoenix 2.0,

   Engage the two (2) tabs on bottom of ionizer module into slots in the Phoenix 2.0 case,

   Rotate module into position.

10. To secure ionizing module.

    Install two (2) screws on output face of ionizing module. Ensure screws go through holes in gray plastic ionizer block. Tighten screws.

    Install two (2) screws on top of ionizing module. Tighten, but do not over torque, screws.

11. Slide Point Cleaner back and forth on outlet grill to ensure free movement. Place Point Cleaner into parking spot.
12. Reconnect line voltage and turn power ON to check operation of unit.

Ion Output / Ion Balance

The Phoenix 2.0 includes ion balancing circuitry and HV monitoring circuitry. To ensure satisfactory operation periodic verification is recommended.

Performance may be evaluated using a charged plate monitor such as the Simco-Ion CPM. The plate should be placed at the typical operating distance for testing. Static charges in the vicinity of measurement will affect reading, remove or neutralize static charges in the vicinity before taking ion balance and discharge time measurements.

7. TROUBLESHOOTING

NOTE – Only qualified service personnel are to perform troubleshooting tasks.

CAUTION – Electrical Shock Hazard

Do not troubleshoot high voltage components with power supply energized. Disconnect input power before troubleshooting. Troubleshooting must be performed by a qualified service person.

ATTENTION – Risque De Choc Électrique

Ne pas faire de dépannage des composantes de haute tension avec alimentation sous tension. Couper l'alimentation électrique avant le dépannage. Le dépannage doit être effectué par une personne qualifiée.

Operational Check

1. Rub a small strip of plastic film until a static charge is developed (cellophane works well). The charge can either be measured with an electrostatic fieldmeter or will be evidenced by the film's attraction to a grounded metal surface.
2. Pass the film in front of the blower for five seconds at a distance of one foot. Check for any charge remaining on the film as in step 1.
3. If the static charge has been neutralized, then the device is working properly.

If equipment fails to function properly, contact Simco-Ion Customer Service or your local Simco-Ion Representative.

NOTE – Never use a "spark test" to check operation. The ionizing circuit design of the Phoenix 2.0 makes the "spark test" inconclusive and arcing may damage the unit.

PROBLEM	CAUSE	SOLUTION
Unit not working; no indicators, fan not running	Power not on	Turn on power switch near line cord
	Line voltage not supplied	Check line voltage and connections
	Blown fuse	Check fuse and replace with proper value / type*
Fault indicator is lit	Unit exceeding control limits	Clean ion emitters with the built-in point cleaner
		Remove ionizing module and thoroughly clean or replace ionizing module
	Failure of high voltage power supply or control circuitry	Replace HVAC transformer Return unit to factory authorized repair facility
Weak performance	Low fan speed	Increase fan speed using face label control panel
	Inoperative fan	Replace inoperative fan assembly

* Fuse is 5x20 mm 3.15A time delay / slo blo, Littlefuse 02183.15HXP or Bussman GDC-3.15A or equal.

8. PARTS AND ACCESSORIES

Phoenix 2.0 Unit & Kits

Item	Description	Part Number
1	Phoenix 2.0 Blower with NA/JPN 115V Cable	5052152
2	Phoenix 2.0 Blower with NA/JPN 230V Cable	5052153
3	Phoenix 2.0 Blower with EU 230V Cable	5052154
4	Phoenix 2.0 Blower with China 220V Cable	5052155
5	Phoenix 2.0 Blower with UK/IRL 230V Cable	5052156
6	Phoenix 2.0 Ionizing Blower (no line cord) (100 to 240 VAC, 50/60 Hz)	4017492

Replacement Parts

Item	Description	Part Number
1	Air Filter Kit (package of 10), Open Cell Polyurethane for Phoenix 2.0 Ionizing Blower	5052149
2	Fan Assembly, Phoenix 2.0	4111014
3	Fuse, 3.15 Amp, 5x20 mm, Time Lag / Slo Blo	4610982
4	Ionizer Module, Phoenix 2.0 Ionizing Blower	4111018
5	HV Transformer Assembly, Phoenix 2.0 (includes wiring harness)	4111015
6	Line Cord, N. American/Japan Type, 115 VAC, 7.5 FT, IEC320, Black	4106272
7	Line Cord, N. American Type, 230 VAC, 8 FT, IEC320, Black	4106274
8	Line Cord, Cont. Europe Type, 230 VAC, 6.5 FT, IEC320, Black	4106273
9	Line Cord, China Type, 220 VAC, 6 FT, IEC320, Black	4110508
10	Line Cord, UK/Ireland Type, 230 VAC, 8.2 FT, BS1363 with 13A Fuse, IEC320, Black	4107957

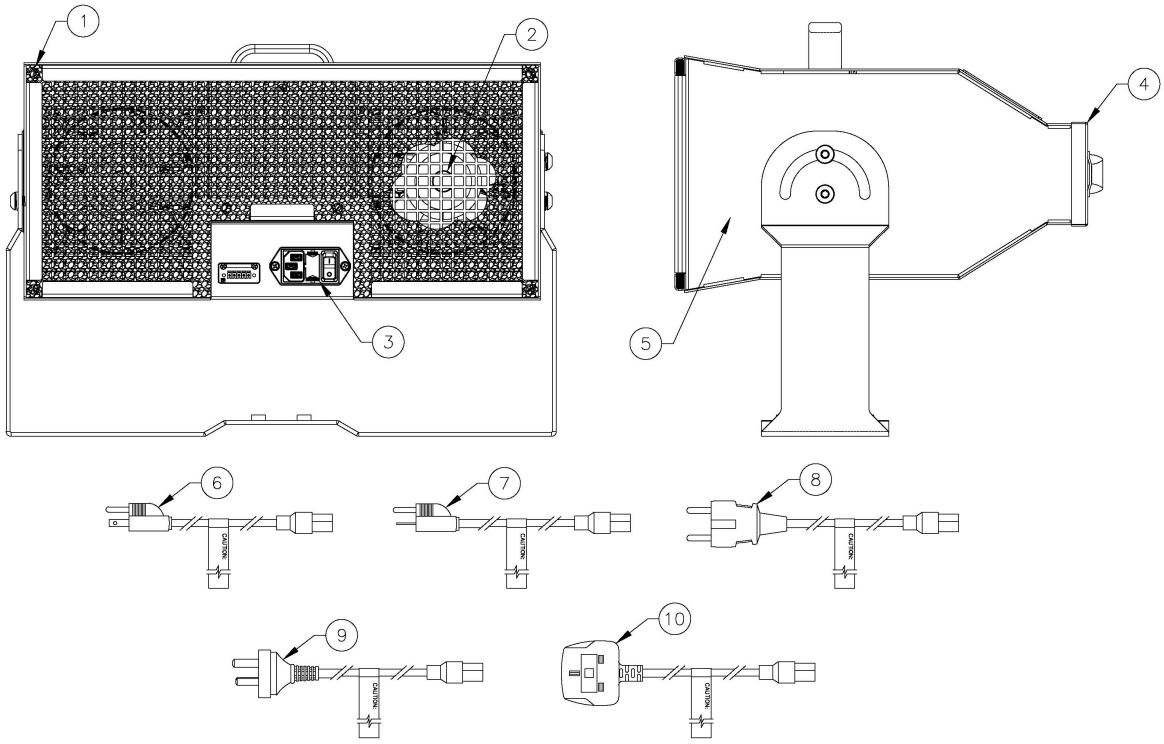

Figure 11. Replacement Parts

Accessories

Item	Description	Part Number
1	1″ Diameter Post Mounting Kit, Phoenix 2.0 Ionizing Blower (contains 1″ diameter post and hardware)	5052150
2	Portable Floor Stand, Phoenix 2.0 Ionizing Blower (includes above post kit and adjustable mounting pole with 5-caster roll-around base)	5052148
3	PCB 5-Position Connector (for remote operations)	5051926

9. WARRANTY

This product has been carefully tested at the factory and is warranted to be free from any defects in materials or workmanship. Simco Ion will, under this warranty, repair or replace any equipment which proves, upon our examination, to have become defective within one year from the date of purchase.

The equipment being returned under warranty should be shipped by the purchaser to Simco-Ion, 2257 North Penn Road, Hatfield, PA 19440, transportation prepaid and insured for its replacement cost. Prior to returning any goods for any reason, contact Simco-Ion Customer Service at 215-822-6401 for a Return Authorization Number (RMA). This number must accompany all returned items.

This warranty does not apply when the equipment has been tampered with, misused, improperly installed, altered, has received damage through abuse, carelessness, accident, connection to improper line voltage, or has been serviced by anyone other than an authorized factory representative.

The warranty does not apply when Simco-Ion parts and equipment have been energized by other than the appropriate Simco-Ion power supply or generator, or when a Simco- Ion power supply or generator has been used to energize other than Simco-Ion parts and equipment. Simco-Ion makes no warranty, expressed or implied, nor accepts any obligation, liabilities, or responsibility in connection with the use of this product other than the repair or replacement of parts stated herein.

Information in this publication supersedes that in all previous published material. Specifications are subject to change without notice.

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