IONIZING AIR BLOWER XC

INSTRUCTION MANUAL

Thank you for purchasing this XC Ionizing Air Blower. It is designed to eliminate the static electricity from a charged object. Please read this manual before operating the static eliminator. Keep this manual readily accessible for reference.

Table of contents

Section 1 Summary

The series Ionizing Air Blower XC (Ordinary Model XC, Adjustable Model XC, Alarm Model XC) produces an air flow that is rich in positive and negative ions. Directing the air flow on an object that has a static electricity charge will neutralize the charge. If the object has a positive static charge, it will draw negative ions from the air flow. The ions are attracted to the oppositely charged object and neutralize the charge on the object.

The blower uses a integrated stepless speed tangential blower to produce a uniform air flow. This air flow is directed into a duct. The duct shapes the airflow. The duct also contains a heater and ionizer. The low wattage heater can be turned on at any time for user comfort. The ionizer used a transformer which produces high voltage AC. This transformer is inherently current limited for safety. The transformer output also contains a current limiting resistor which provides redundant safety and enhances the ionization stability. The high voltage AC is applied to a row of stainless steel ion emitters which results in an intense alternating electric field at the tip of the emitters. It is this intense electric field that injects alternating polarity ions into the air flow. The shaped air flow exiting the blower carries these ions over a broad area for static elimination. Furthermore, the Ionizing air blower is design with automatic alarm function (For Alarm Model). When the blown air can't eliminate static or the offset of ion balance is too large, the unit is able to automatically give an alarm to prompt. To assure that the unit is working properly, the high voltage AC and ion balance is monitored by sound-light annunciator.

The ionizer of the blower features an exclusive balancing circuit. The balancing circuit works by isolating the transformer secondary form electrical ground. This results in the equal production of positive and negative ions. The blower also features a convenient built in emitter cleaner. Using the emitter cleaner takes only seconds. Cleaning the emitters on a weekly basis prevents the build-up of airborne debris all electrical ionizers are prone to. This keeps your blower working in top form for the life of the unit.

The blower was designed for use with sensitive electronic components, where EOS/ESD is a problem. It can be applied in inspection, testing, assembly, and laboratory environments. The blower can also be used where static electricity cause problem such as: attraction of dirt to product, misalignment of small parts due to electrostatic "jumping", and undesirable adhesion of plastic films due to electrostatic charge.

Section 2 Features

* Rapidly neutralizes static charges
* Ion balance adjustable (Except Ordinary Model XC)
* With the sound-light alarm function. (For Alarm Model XC)
* Covers an extended area with ionized air
* Variable speed fan with wide range of air flow
* Low wattage heater for operator comfort

* Bench stand or optional pedestal mount with 360°adjustability
* Inherently balanced ion output
* Built-in ion emitter cleaner
* Durable, electrically grounded steel enclosure

Section 3 Safety

1. Read instruction manual before installing or operating device.
2. This unit is equipped with a 3-prong grounding plug and must be plugged into a 3-terminal grounded receptacle. Do not defeat the grounding by modifying the plug or using an ungrounded 3-prong adapter. If an extension cord is necessary, use only a 3-wire extension cord that provides grounding.
3. Internal repairs or servicing must be done by qualified service personnel.
4. Do not insert objects through intake or outlet grille.
5. Do not operate unit in flammable or explosive atmospheres.

Section 4 Specification

Line Voltage:	110VAC	220VAC
Current Draw:	Max.3.6Amp	1.8Amp (fan high, heater on)
	Min.0.6Amp	0.3Amp (fan low, heater off)

Ordinary Air Volume :

Air Volume Output:

Fan Speed	Flow
Low	50CFM
Mid	80CFM
High	102CFM

Efficiency range of ionizing air area: 90cm×180cm

High Air Volume :

Air Volume Output:

Fan Speed	Flow
Low	100CFM
Mid	140CFM
High	200CFM

Efficiency range of ionizing air area: 100cm×180cm

Air Velocity:

Fan Speed	30cm	60cm.	90cm	120cm
Low	500	250	150	100
Mid	800	400	220	180
High	1000	500	250	200

Velocity in FPM measured at center line of air stream

Heated Air Temperature:

Fan Speed	Above Ambient
Low	7℃
Mid	5℃
High	4℃

Measured 15cm in front of unit.

Audible Noise:

Fan Speed	
Low	50dB
Mid	56dB
High	60dB

Ozone Production: 0.005ppm (Measured 15cm in front of unit)

Operating Temperature: 0℃～50℃

Enclosure: Steel

Weight: 7.9Kg **(Ordinary Air Volume)**
8.8Kg **(High Air Volume)**

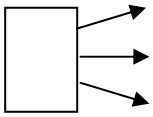
Dimension: 391mm(L)×210mm(W)×190mm(H) **(Ordinary Air Volume)**
605mm(L)×210mm(W)×190mm(H) **(High Air Volume)**

Ion Balance (offset voltage): less than ±50V as ESD association standard ANSI/ESD-S20.20-1999, and regulating value is less than ±5V in our company(temperature:28℃ humidity:60%).

Ordinary Air Volume :

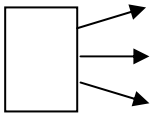
Ion Output (discharge time)（s)： （Temperature: 28℃ Humidity: 60%）

Fan Speed – High



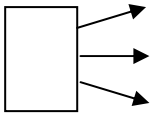
30cm	60cm	90cm	120cm	
4.1	4.6	5.5	7.0	30cm
1.3	2.5	4.0	5.5	Center Line
4.1	4.6	5.5	7.0	30cm

Fan Speed – Mid



30cm	60cm	90cm	120cm	
5.5	6.5	9.0	10	30cm
1.5	3.0	5.0	7.5	Center Line
5.5	6.5	9.0	10	30cm

Fan Speed – Low

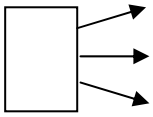


30cm	60cm	90cm	120cm	
7.0	12.5	15.5	23	30cm
2.0	5.0	8.5	12	Center Line
7.0	12.5	15.5	23	30cm

High Air Volume :

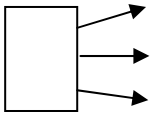
Ion Output (discharge time)（s)： （Temperature: 28℃ Humidity: 60%）

Fan Speed – High



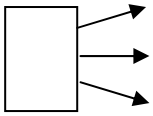
30cm	60cm	90cm	120cm	
2.0	4.0	5.5	8.0	30cm
0.9	2.0	3.5	5.0	Center Line
2.0	4.0	5.5	8.0	30cm

Fan Speed – Mid



30cm	60cm	90cm	120cm	
2.5	5.0	7.5	9.5	30cm
1.1	2.5	4.2	5.5	Center Line
2.5	5.0	7.5	9.5	30cm

Fan Speed – Low



30cm	60cm	90cm	120cm	
3.5	7.5	11	14.5	30cm
1.5	3.5	6.5	8.5	Center Line
3.5	7.5	11	14.5	30cm

1. Offset voltage and discharge time determined as American Standard ESD-STM 3.1-2000 and ANSI/EOS/ESD-S3.1-1991 using CPM374 charged plate analyzer.
2. Discharge times are in seconds from 1000 volts to 100 volts at locations shown.
3. Above testing value can be changed with difference of temperature, humidity, air pressure and ambient environment.
4. Suggest using it in the humidity range of 50%～70%.

Section 5 Installation

1. The blower is designed for portable or permanent operation. It is supplied with a bench stand, an optional pedestal mount is available. The bench stand can be used for portable operation or bolted to a sturdy flat surface such as a wall or under a shelf. If the bench stand is bolted in place, use 8 diameter screws or bolts to secure it.
2. The blower should be placed approximately 300mm to 900mm from the critical work area or objects to be neutralized. It should be positioned to cover as much of the area as possible with the ionized air stream. The air stream can be directed upward or downward by tilting the unit on the stand. Tightening the lock knobs on each side of the unit secure it in position.
3. Check whether the used voltage accords with the voltage on the unit nameplate before using. Plug the unit into a standard 3-terminal grounded receptacle. The unit need to grounded for safe operation.

Section 6 Operation

1. Connect the power to the unit.
2. To clean the ion emitters, it is only need to sweep the emitter cleaner back and forth once across the ionized air outlet.
3. Press “Power” switch to turn on the unit and the switch’s lamp is light. Here, the blower is in normal working condition, the ion indicator lamp indicate the produced ion air.
4. Adjust the fan speed knob to set the air flow as desired.
5. If warm air is desired for operator comfort, turn on the “Warm” switch.
6. The direction of the air stream can be adjusted upward or downward by loosening the lock knobs on each side of the stand, tilting the unit and retightening the knobs.
7. The blower produces an ionized air stream that covers a large area uniformly. The time required to neutralize a static charge on an item in this area depends on many factors. Two important factors are distance to ionizer and air velocity. Air ions constantly “neutralize” each other. Positive and negative ions are statically attracted to each other. When they contact, the charge transfers and the ions recombine. With high air velocity the ions travel further before they recombine. Setting the fan speed to high results in coverage for the greatest possible area. Decreasing the distance to the ionizer results in more rapid

neutralization. For fast neutralizing, the item should be held within 300mm to 900mm from the blower. For virtually instantaneous neutralizing, the item may be held as close as 150mm.

When using the blower in an electronics assembly area, the ionized air stream should cover as much of the work area as possible. The constant flow of ionized air will prevent items such as work surfaces, tools, materials and components from developing a static charge. Charged items introduced into the work area will be neutralized and will remain neutral while in the air stream.

8. If the blower make a sound of alarm during working, this indicate that the offset of ion balance is too much or the blown air without positive and negative ions not to eliminate static. The unit should be check.
9. Please turn off the power switch and pull out power plug when the unit isn't used.

Section 7 Maintenance

The blower has been designed with low maintenance in mind. The only regular maintenance suggested is emitter cleaning, ion balance checking and ion output checking. Emitter cleaning takes only seconds with our cleaner. This assures you of continued performance of ion output. The blower contains an exclusive balancing circuit that is inherently self balancing, it compensates for dirt build-up on emitters, emitter wear, line voltage fluctuations and variations in air velocity. This assures you of continued balance of ion output. Scheduled checking of the ion output and balance should be considered to assure quality audit requirements.

Emitter Cleaning

The ion emitters of the blower, as any other electrical ionizer, tend to accumulate deposits of dust and dirt. Dirty electrodes reduce the ion output and should be cleaned. To clean the ion emitters: grasp the emitter cleaner between thumb and forefinger, and sweep back and forth across the ionized air outlet.

Air Inlet and Outlet Cleaning

The air inlet screen on the bottom and rear panel, and the ionized air outlet should remain clean to prevent restriction of air flow. They can be cleaned with a soft brush or Ionizing Air Gun.

Air Filter Cleaning (Optional)

Remove the air filter from the unit by sliding the aluminum frame of the filter towards the rear of the unit. Rinse the filter in plain water while gently squeezing the element. If the dirt is stubborn wash the filter in mild soap and water then rinse. Place the filter, metal grille down, on a paper towel and gently blot element with another paper towel. Allow filter to air dry. Reinstall filter on unit by sliding it under brackets from rear of unit.

Note: A clean filter is vital to the operation of this unit, clean regularly.

Ion Output Check

To test the unit for ion output we recommend the use of a charged plate monitor such as Charge

Plate Monitor 374. Discharge times can be measured and checked against the tables in Section 4, specification.

If charged plate monitor is not available, but ion output may be checked with the following procedure by a static meter. Take a piece of plastic and rub it with cloth until a static charge can be read with the static meter. Hold the plastic one foot away from the ionized air outlet for five seconds. Remove the plastic form the ionized air stream and measure the static charge. The plastic should be neutralized. If no instrumentation is available, the unit's operation can be verified with the following procedure. Tear-off about a 250mm length transparent tape. You will note that the tape is charged and will easily attract to a nearby surface such as a wall when held vertically approximately 25mm from the surface. Pass the tape thru the ionized air approximately 300mm from the ionizer and again approach the surface with the tape. If it has been neutralized, it will not attract.

Note: Do not try to determine unit's operation by the "spark test". The design of the balancing circuit makes the "spark test" inconclusive. Sustained grounding of the ion emitters may damage the balancing circuit.

Ion Balance Check

To test the unit for ion balance, we recommend the use of a charged plate monitor such as Charge Plate Monitor 374. Offset voltage can be measured and checked against the Ion Balance in Section 4, Specifications. The test result can be changed with different environment.

Ion Balance Adjust

If the offset voltage (ion balance deflection) is too much, you can adjust the ion balance. Use the screwdriver to adjust the balance localizer behind the unit. When ion balance lean to positive, adjust clockwise. Adjust clockwise to produce negative ion; When ion balance leas to negative, adjust anticlockwise. Adjust anticlockwise to produce positive ion.

Calibration

The blower's ion output is inherently balanced by design. If after checking the ion balance as outlined above, the offset voltage is too much, contract our factory.

Caution: Trouble shooting requires opening the case of the unit. This exposes hazardous voltages. If repairs are necessary, the unit must be returned to the factory.

Section 8 Trouble shooting

Caution: To avoid shock, always unplug the power cord before inspecting the unit or changing parts.

1) The unit will not operate when the power switch is turn on.
   Check 1: Is the fuse blown?

Action: Replace the fuse.(Be sure to replace with a fuse of the same rating)

Check 2: Is the power cord plugged in?

Action: Plug it in.

2) Make a sound of alarm during working. (The air is flowing, but the static is not eliminated or the balance offset is too much. **For Alarm model**).

Check 1: Has dust or other foreign matter collected on the electrodes?

Action: Clean the tips of the electrodes.

Check 2: Is the filter dirty?

Action: Clean or change the filter.

For any problems other than those listed above, contact our company or our sales agents in your area.

***** Specifications and design subject to change without notice.