

IONIZING
AIR BLOWER OVERHEAD

ISE-447

INSTRUCTIONS MANUAL

Thank you for purchasing the overhead 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.

Ion Balance Adjustment

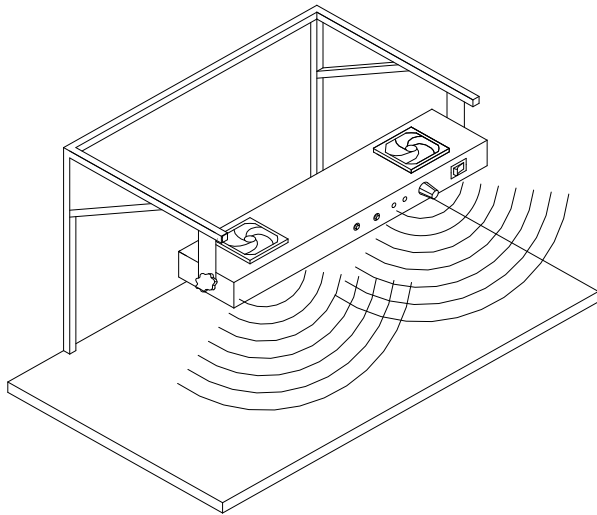
If the offset voltage (ion balance deflection) is too much, you can adjust the ion balance. Use the screwdriver to adjust the balance localizer on the front panel. When ion balance tend to positive, adjust the ‘-’ localizer clockwise or adjust the ‘+’ localizer anticlockwise. When ion balance tend to negative, adjust the ‘+’ localizer clockwise or adjust the ‘-’ localizer anticlockwise.

Calibration

The blower’s ion output is inherently balanced by design. If after adjusting the ion balance as outlined above, the offset voltage is still 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 How to hang



MATTERS FOR DAILY INSPECTION

- ℓ Clean the high voltage needles
- ℓ Verify grounding connection
- ℓ Inspect the unit for damage
- ℓ Inspect for moisture or other contaminates

SECTION 1 Description

The Ionizing AIR BLOWER (overhead) is a member of the ionizing air blower family with two-Fan design. The unit produces an airflow that is rich in positive and negative ions. Directing the airflow on an object that has a static electricity charge will neutralize the charge. If the object has a negative static charge, it will draw positive ions from the airflow to neutralize the charge. Conversely, if the object has a positive static charge, it will draw negative ions from the airflow. The air ions are attracted to the oppositely charged object and neutralize the charge on the object.

The BLOWER is a hanging ionized air blower. The volume of airflow is controlled by variable speed knob which provides a wide range of airflow settings. The ionizing elements are energized with a low current, high voltage DC transformer. The transformer contains a current limiting resistor which enhances ionization stability and provides for safety. The high voltage DC is applied to a circular arrangement of tungsten steel ion emitter points which results in an intense DC electric field at the tip of the emitter points. It is this electric field that creates alternating polarity air ions in the airflow. To assure that the unit is working properly, the high voltage DC is monitored by an ionization indicator lamp.

The unit features a patented balancing circuit. Cleaning the ion emitter points takes only seconds. Use cotton swabs with alcohol to wipe the top of emitter points. Cleaning the emitter points on a weekly basis prevents the build-up of airborne debris all electrical ionizers are prone to. This keeps your BLOWER OVERHEAD

working in top form for the life of the unit.

The unit is designed for use with sensitive electronic components, where electrostatic discharge is a problem. It can also be used where static electricity causes problems 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

- ℓ Rapidly neutralizes static charges.
- ℓ Covers an extended distance and large area coverage with ionized air.
- ℓ Variable speed fan with wide range of air flow.
- ℓ Inherently balanced ion output and the ion balance adjustable.
- ℓ Expediently ion emitter cleaner.
- ℓ With Ionization indicator lamp.
- ℓ Durable, electrically grounded metal enclosure.

SECTION 3 Specifications

Power Consumption:	36W
Output Voltage:	+5000VDC ~ +10000VDC -5000VDC ~ -10000VDC
Ionization Indicator Lamp:	Positive — Red Negative — Green
Ion Balance(Offset Voltage):	Within ± 10 VDC (Adjustable)
Max Air Volume	1.6 m ³ /min (Adjustable)
Audible Noise:	Fan Speed Low 42dB High 48dB Measured 2 foot from unit.
Ozone Production:	0.03ppm measured 6” in front of unit, fan low.

meter such as a SIMCO hand held electrostatic fieldmeter SHISHIDO electrostatic Analyzer or warmbier charged plate monitor is available, ion output may be checked with the following procedure. Take a piece of plastic and rub it with cloth until a static charge can be read with the static meter. Turn on the BLOWER OVERHEAD and set the fan speed to high. Hold the plastic one-foot away from the ionized air outlet for five seconds. Remove the plastic from 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 a transparent tape about 10-inch length. Approach the nonadhesive side of the tape with your free hand note the electrostatic attraction of the tape to your hand. Pass the tape through the ionized air stream approximately 1 foot from the unit and again approach the nonadhesive side of the tape with your free hand, If the tape has been neutralized, it will not attract.

CAUTION! ELECTRICAL SHOCK HAZARD – Do not insert objects through intake or outlet grille.

Do not try to verify operation of the unit by drawing a spark from an ion emitter point. 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 3, Specifications. The test result can be different with different environment.

Do not try to determine ion balance by holding a static meter in the ionized air stream. This will result in a meaningless reading.

SECTION 7 Maintenance

The BLOWER OVERHEAD has been designed with low maintenance in mind. The only regular maintenance suggested is emitter point cleaning, ion balance checking and ion output checking. The BLOWER OVERHEAD contains a patented balancing circuit that is inherently self-balancing. This circuit compensates for dirt build – up on emitters, emitter point wear, line voltage fluctuations and variations in air velocity. Scheduled checking of the ion output and balance should be considered to assure quality audit requirements.

Emitter Cleaning

To clean the ion emitter points: Take out the filter from the back of unit and use the cotton swabs with alcohol to wipe the top of emitter points. Recommended frequency of cleaning is once a week.

Air Inlet and Outlet Cleaning

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

Air Filter Cleaning

Remove the air filter from the rear of the unit by unsnapping the filter retainer. Rinse the sponge in plain water while gently squeezing. If the dirt is stubborn, wash the sponge in mild soap and water then rinse. Blot the filter dry with paper towels. Install filter on air inlet and secure by snapping the filter retainer in place. *IMPORTANT: If an air filter is used, clean the air filter regularly.*

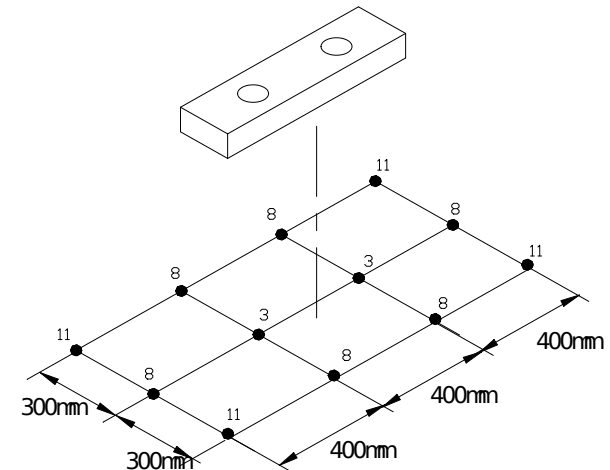
Ion Output Check

To test the unit for ion output, the use of a charged plate monitor is recommended. Discharge times can be measured and checked against the Ion Output tables in **Section3, Specifications**. If a charged plate monitor is not available, but a static

Installation Mode:	Hanging (Angle is adjustable)
Operating Temperature:	329 (0%) 1229 (50%)
Weight:	3.0 kg
Enclosure:	Steel
Size:	430(L) x 170(W) x 60(D) mm

Discharge Time(s) :

Testing Condition: The Air speed is highest and delivery 450mm from charged panel.



1. Ion balance and discharge time determined as American ESD Association Standard ANSI/ESD-STM 3.1-2000 and ANSI/EOS/ESD-S3.1-1~1 using charged plate analyzer (CPM374).
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 and ambient environment.
4. Suggest test the discharge time with the humidity 50 Z70 .

SECTION 4 Safety

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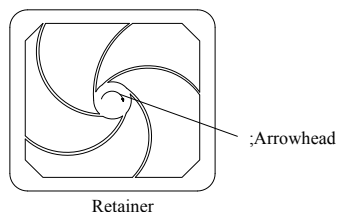
1. Read instruction manual before installing or operating the unit.
2. This unit is equipped with a 3-prong grounding plug and must be plugged into a 3-terminal grounded receptacle. Do not defeat the grounding by modifying the plug or using an ungrounded 3-prong adapter, if an extension cord is necessary,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

SECTION 5 Installation

The BLOWER OVERHEAD is designed for permanent operation. The overhead blower can be used in permanent operation by hanging it to a sturdy flat surface such as a wall or under a shelf. The air stream can be directed by unscrewing the lock knobs and tilting the unit.

Under extremely dirty environments, an optional air filter may be installed. The air filter consists of a filter retainer and an air filter sponge. Put the filter sponge inside the retainer, then fix the retainer to the plastic shield. Press down the edge of retainer slightly, so that the retainer will be locked in.

Note: Make figures of the retainer and the shield superpose. Keep the arrowhead down.



The BLOWER OVERHEAD should be placed approximately 1 to 3 feet 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. Direct the air stream by tilting the unit and tightening the lock knobs on each side of the unit.

The BLOWER OVERHEAD should be connected to proper voltage. The unit must be grounded for safe operation. Plug the unit into a standard 3-terminal grounded receptacle. If an extension cord is necessary, use only a 3-wire extension cord that provides grounding.

SECTION 6 Operation

Activate the BLOWER by turning on the POWER switch. The IONIZATION INDICATOR will illuminate to indicate the presence of ionized air. Set the airflow as desired by adjusting the FAN SPEED knob. The direction of the air stream can be adjusted by loosening the lock knobs, tilting the unit or tightening the knobs.

The BLOWER OVERHEAD produces an ionized air stream that covers a targeted area. The time required to neutralize a static charge on an item in the air stream 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 air ions travel further before they “recombine”. Setting the fan speed as high as acceptable results in more rapid neutralization. For fast neutralizing, the item should be held within 1 to 3 feet from the unit.

When using the BLOWER in an electronics assembly area, the ionized air stream should cover as much of the work area as possible. Charged items introduced into the work area will be neutralized and will remain neutral while in the ionized air stream. If the ionized air stream haven't negative ion, the green lamp is light if haven't positive ion, the red lamp is light.