



TRANSFORMING TECHNOLOGIES
OUTSTANDING ALTERNATIVES IN STATIC CONTROL



Static Eliminators

Airflex Ionizing air nozzle
Model IN4200



Instruction Manual

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Description

Ionizing Air Nozzle Model IN4200

The IN4200 Airflex ionizer combines exceptionally fast static decay capability with excellent balance stability, all in a small footprint. Designed to protect most static sensitive devices, the IN4200 uses a specialized piezoceramic technology that makes all the Ptec™ ionizers so reliable. The height and angle of the nozzle can be easily adjusted with a metal snake shape tube, which is very convenient to operate. A proximity sensing photoelectric eye controls power and air flow for hands free operation. The main unit of the device is equipped with a small HV power unit. No external HV power unit and HV wiring is needed.

About Ptec™ Technology

A specialized piezoelectric high voltage transformer makes Ptec™ ionizers among the most reliable products available. Ptec™ ionizers are designed to remain in balance and to alarm when the HV output affects performance. The model IN4200 ionizing air nozzle produces a 68KHz AC output of approximately 2200V and a continuous stream of balanced air ions. Ionizers that use Ptec™ technology do not require calibration and only minimal maintenance.


Features

The IN4200 features the inherently stable output of all Ptec™ ionizers and high frequency AC (68KHz) ion emission. The flexible metal neck, with multiple nozzle options allows for easy operation and service of emitters. A proximity sensing photoelectric eye and .01 micron filter combine to deliver clean air at the correct pressure when needed.

- Small, light design in shape.
- Uses an ultra-small HV power unit.
- The height and angle of the nozzle can be easily adjusted.
- A footswitch controls both electric power and air supply.
- The device is equipped with auto ion balance.


Operation and Use

The IN4200 can be operated in areas where humidity is 20-70% RH (Non-condensing). Excess humidity may affect ionizer performance. The temperature range for the IN4200 is 65-78°F (18-25°C).

Caution	Do not use this ionizer in an explosive environment! Corona ionizers produce a weak plasma that can cause ignition in explosive environments.
	


Air Requirements

Always supply the ionizer with filtered, dry noncombustible gases, such as compressed shop air or nitrogen. If the air is not dry, damage to the equipment may result and the warranty will be voided. The nozzle may be operated over a range of 30 PSI to 100 PSI. The specific pressure needed will depend upon the application. An air pressure setting of 60 PSI is recommended.

Caution	The IN4200 operates only with clean dry air (CDA) or nitrogen (N2). Operator must provide clean and filtered incoming gas to remove moisture, oil and particles from the source supply.
	

Air Supply Connection

Connect the ionizer the air source (compressor) with 1/4" tubing and the quick connect valve on the back of the controller.

Caution	The IN4200 is not designed to withstand high air pressure. The product should be installed with shutoff valve upstream. The output side of the nozzle should always be at atmospheric pressure.
	

Mounting

Use screws to mount the IN4200 controller to the workstation. Mounting the controller underneath a bench or on a wall saves valuable bench space.

Once you have installed the base of the controller, you can now install the IN4200 gooseneck nozzle to the bench. Secure the bracket base to the bench with screws. Position the IN4200 so that the ion flow is focused on the equipment or area to be ionized.

Foot Switch

The device is equipped with a footswitch. Pressing the switch activates both airflow and power to ionizer.

Power and Gas Connection

- Attach the IN4200 to the gas line using the appropriate tubing. The IN4200 comes with a 1/4" quick release connector. Adjust pressure as required.
- Connect the power cord to its corresponding inlet on the base of the ionizer.
- Make certain the unit is grounded.
- Turn the unit on with the red "On - OFF" button.

Operation

- The footswitch controls a stream of positive and negative air ions. The ionizer will only operate when the footswitch is pressed.
- A green light labeled "Power" will illuminate to signal the IN4200 is operating.
- The ionized airflow is directed through the nozzle. The metal neck of the ionizer can be bended to direct the flow toward work area.
- Turn the power switch off after operation.

Alarm

The device is equipped with abnormal HV alarm. The red alarm indicator light illuminates when the following situations occur:

1. Low output HV
2. Short circuit
3. Abnormal HV discharge
4. Wet air flow
5. Frequent turning on and off of the photoelectric switch in a short time.

Ionization Performance

The ionization performance is tested according to American EOS/ESD-STM3.1-2000 standard.

References are as follows:

Air pressure(kgf / cm ²)	45	55	70	85
Positive decay time (sec)	0.5	0.4	0.3	0.2
Negative decay time(sec)	0.5	0.4	0.3	0.2
Ion balance(V)	Less than $0 \pm 30V$			

Note: The test results will vary slightly due to different test conditions.

Caution !	The only serviceable parts inside the ionizer are the replaceable emitter points. Any unauthorized service will void the warranty and may result in additional repair fees.
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Periodic Maintenance

The only regular maintenance required for the IN4200 is the periodic cleaning of the emitter point. Emitter point cleaning affects the static decay ability of the ionizer and is important for maintaining its optimal performance.

Follow these instructions to clean the emitter points:

1. Remove the output nozzle (threaded).
2. Moisten a swab in the IPA solution and wipe the emitter point until it is free of particles.
3. Make certain the emitter point is straight and undamaged.
4. Replace the output nozzle.
5. Make sure the emitter points are dry before turning on the power

Emitter Point Replacement

The IN4200 uses tungsten alloy precision etched emitter needles. Contact Transforming Technologies for information about ordering replacement emitters.

Because the IN4200 high voltage output is AC, emitter erosion from the ionization process on the electrodes is minimal. Unless physically broken or stressed, the IN4200 emitters should last the life of the ionizer.

Follow these instructions to remove the emitter points:

1. Turn off and disconnect the unit from the AC power.
2. Remove the output nozzle.
3. Unscrew the emitter point using needle nose pliers.
4. Replace and tighten the new emitter using the same tool. Do not over-tighten.
5. Check that the emitter points are straight and undamaged.
6. Replace the output nozzle.

Filter Installation

The FL0020 air filter is installed inline with the air tubing. It can be installed inline before the air tube enters the IN4200 or it can be installed in the base. To install in the base, unscrew the bottom plate and locate the blue air line. Cut the tube and install the filter. Periodic replacement of the air filter is recommended for optimum performance of the ionizer. Examine the filter for any evidence of contamination. The filter will turn red if there is any oil contamination. If there has been moisture build-up, there will be a change in air volume or a brownish color to the filter. If either of these conditions exist, you should replace the filter by unsnapping connectors. Depress air line connectors allowing removal of filter.

Service


Ptec™ ionizers are reliable products with a long service life. If you feel your unit is not operating properly, turn off the unit and disconnect the power cord. Contact Transforming Technologies' Technical Support for repair assistance.


Troubleshooting

The information below provides a reference for problems that may arise with your IN4200 ionizing air nozzle. If you have other problems not covered below, please contact Transforming Technologies' Technical Support for repair assistance

Problem	Causes
<ul style="list-style-type: none">• Balance outside specifications.• Alarm light activated	Emitter points are dirty, damaged or not straight. Clean or replace Low HV output, call for repair Unit is arcing, call for repair Short circuit, call for repair

Specifications

Power supply volt	AC 100V~240V 50/60Hz
Output HV	AC2200V
Safety Performance	Abnormal HV Alarm
Air Pressure Range	28-100 (psi)
Ozone Density	Less than 0.01ppm
Ion Balance	0±30V
Indicators	ON/OFF: red LED, POWER: green LED
Controls	On/Off button
Certifications	

Caution 	When adjusting the angle the IN4200 nozzle, grip the metal snake neck only. DO NOT grip the plastic nozzle. Using the plastic nozzle to adjust angle may cause physical or internal damage.
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Service and Warranty

Transforming Technologies, LLC provides a limited warranty for the Model IN4200 ionizing air nozzle. All new products are guaranteed to be free from defects in material and workmanship for a period of one (1) year from the date of shipment. Liability is limited to servicing (after evaluating, repairing or replacing) any product returned to Transforming Technologies. The company does not warrant damage due to misuse, neglect, alteration or accident. In no event shall Transforming Technologies be liable for collateral or consequential damages.

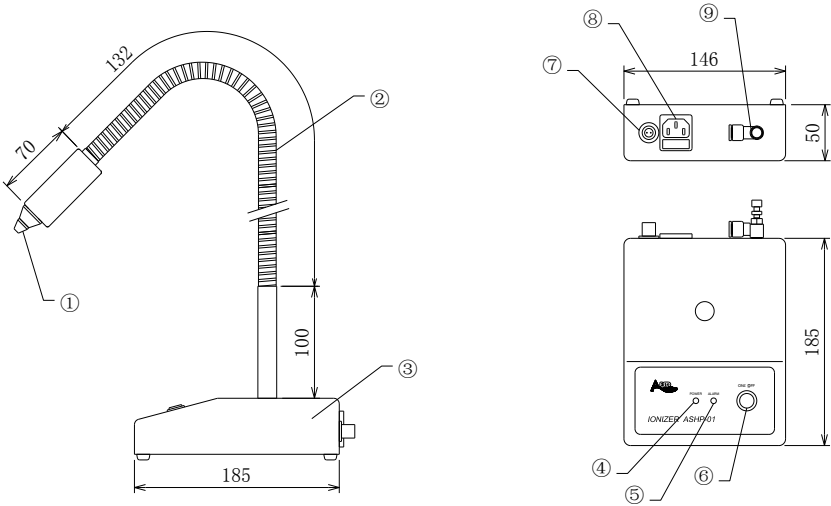
To receive service under warranty, please contact Transforming Technologies Technical Support.

About Transforming Technologies

Since 1998, Transforming Technologies has helped electronic manufacturing facilities to protect their products and processes from the many serious problems associated with static electricity.

Transforming Technologies offers a wide range of unique and outstanding products to detect, protect, eliminate and monitor electrostatic charges. Our products are integral components of an effective static control program.

IN4200 Line Drawing



- ① Nozzle
- ② Snake shape tube
- ③ Base
- ④ LED (Green)
- ⑤ Alarming LED (Red)
- ⑥ Power switch
- ⑦ Foot switch outlet
- ⑧ Power cord outlet (Including fuse)
- ⑨ Throttle valve



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