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TRION HE Plus 2000 (20 inch x 25 inch) Owner's Manual

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Warranty

ELECTRONIC AIR CLEANER LIMITED FIVE-YEAR WARRANTY

This limited warranty covers TRION Residential Type Electronic Air Cleaners, excluding ductwork, wiring, and installation. TRION warrants that all new TRION Residential Type Electronic Air Cleaners are free from defects in material and workmanship under normal, noncommercial use and service. TRION will remedy any such defects if they appear within 60 months from the date of original installation as evidenced by Proof of Purchase from an Authorized TRION Dealer, subject to terms and conditions of the Limited Five-Year Warranty stated below:

1. THIS LIMITED FIVE-YEAR WARRANTY IS GRANTED BY TRION, 101 MCNEILL ROAD, SANFORD, NC 27330.
2. This warranty shall extend only to any noncommercial owner who has purchased the residential Electronic Air Cleaner other than for purposes of resale.
3. All components are covered by this limited warranty except expendable items such as charcoal filters.
4. If within the warranty period, any TRION residential Electronic Air Cleaner unit or component requires service, it must be performed by a competent heating and or air conditioning contractor (preferably the installing contractor). TRION will not pay shipping charges or labor charges to remove or replace such defective parts or components. If the part or component is found by inspection to contain such defective material and workmanship, it will be either repaired or exchanged free of charge at TRION's option, and returned freight collect.
5. In order to obtain the benefits of this limited five-year warranty, the owner must notify the dealer or distributor in writing or by phone, of any defect within 30 days of its discovery. If after reasonable time you have not received an adequate response from the dealer or distributor, notify in writing, by phone, or email: TRION, 101 McNeill Road, Sanford 27330 | 1-800-884-0002 | customerservice@trioniaq.com.
6. This limited warranty does not apply to any part or component that is damaged in transit or when handling, has been subject to misuse, neglect or accident, has not been installed, operated and serviced according to TRION's instruction, has been operated beyond the factory rated capacity, or altered in any such way that its performance is affected. There is no warranty due to neglect, alteration, or ordinary wear and tear. TRION's liability is limited to the replacement of defective parts or components and does not include the payment cost of labor charges to remove or replace such defective parts.
7. TRION WILL NOT BE RESPONSIBLE FOR LOSS OF USE OF ANY PRODUCT, LOSS OF TIME, INCONVENIENCE, OR ANY OTHER INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES WITH RESPECT TO PERSON OR PROPERTY, WHETHER AS A RESULT OF BREACH OF WARRANTY, NEGLIGENCE, OR OTHERWISE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE LIMITATION OR EXCLUSION IN THE PRECEDING SENTENCE MAY NOT APPLY TO YOU.
8. THIS WARRANTY GIVES YOU SPECIFIC RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.
9. Any warranty (express, implied, or statutory), representation, or guarantee other than those set forth herein, shall expire at the expiration date, of this express limited warranty. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE LIMITATION IN THE PRECEDING SENTENCE MAY NOT APPLY TO YOU.
10. TRION reserves the right to make changes in the design and material of its products without incurring any obligation to incorporate such changes in units completed on the effective date of such a change.



TRION®

101 McNeill Rd. | Sanford, NC 27330

P: 800.884.0002 | F: 800.458.2379 | www.trioniaq.com | customerservice@trioniaq.com

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TRION

Indoor Air Quality



Installation • Operation

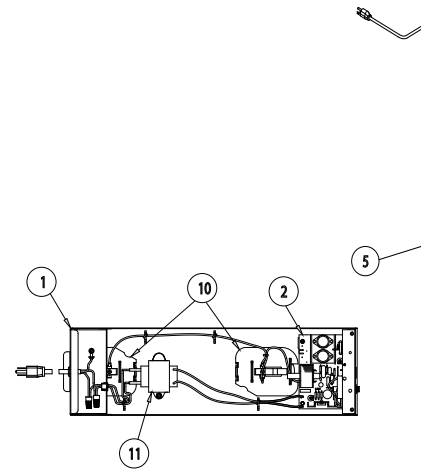
CAUTION: READ INSTALLATION, OPERATION, AND MAINTENANCE INSTRUCTIONS CAREFULLY FOR SAFETY. EXTREME CAUTION WHEN WORKING WITH ELECTRICAL COMPONENTS.

READ AND SAVE THESE INSTRUCTIONS

UNITS NOT FOR COMMERCIAL USE

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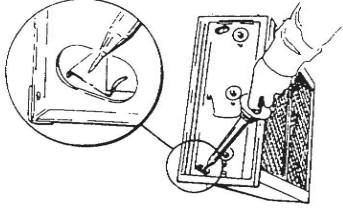


Ref. No.	Description
1A	120V Power Tray Ass'y w/ AFS and
1B	240V Power Tray Ass'y w/ AFS and
2	High Frequency Power Sup
3	On / Off Switch
4	Interlock Switch
5A	Cabinet Assy, British Whit
5B	Cabinet Assy, Warm Gre
6	Pre-filter (2 / pkg)
7	Forever Filter® Cell
8	Ionizing Wire Assy
9A	Front Panel Assy, British W
9B	Front Panel Assy, Warm G
10	Contact Board Assy (2 / pk
11A	Step-down Transformer 120.
11B	Step-down Transformer 240.
12	Insulator (6 / pkg) (2 pkg re
13	Cell Key (1 req) (not show
14A	Power Tray Cover, British W
14B	Power Tray Cover, Warm G
15	Charcoal Filter (opt) (2 / pkg) (no

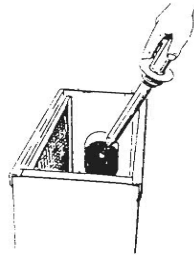
For Qualified HVAC Installer Only

Secondary Circuit Power Supply (continued)

10. If no voltage is present, remove the second cell. Install cell number one and measure voltage as described in Step #7. If voltage is present, the second cell, which is now out of the cabinet, is now shorted. Refer to the section entitled COMMON TROUBLESHOOTING TECHNIQUES (page 9).
11. If no voltage is present, remove both Ionizing-Collecting Cells and measure the power supply output. While depressing the safety interlock switch lever, touch the end of the high voltage probe to either the front or rear contact board assembly. The meter should read 6.2 KVDC or higher.
12. If no voltage is present, check the transformer. Set the Multimeter for reading AC voltage at 200 volts full scale and attach meter test leads to the junction of the transformer secondary leads and the circuit board. The meter should read 24 volts +/- 4 volts.
13. If there is no voltage from the transformer, replace the transformer and power supply board.



Measuring Voltage at Ionizing Collecting Cell

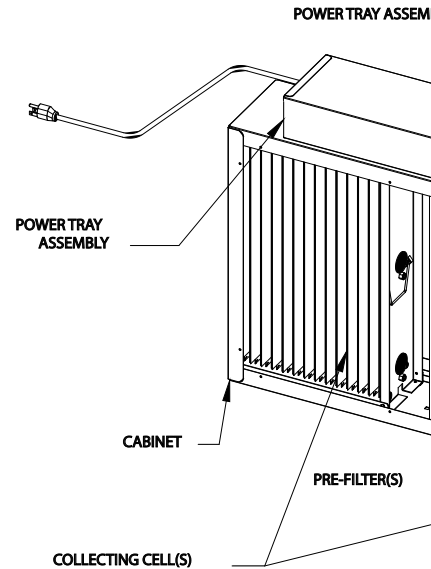


Measuring Voltage at Board Assemblies

This Electronic Air Cleaner is a two-stage cleaner is designed to remove airborne pollen, virus, spores, bacteria, and mo

Air movement through the unit is provided by a ventilating system blower. As dirty air enters the unit through Metal Mesh Prefilters. The Prefilters are in place to prevent excessive dirt loading of the collecting cells. These filters extend the time interval between washings, which allows the ionizing cells to operate for a longer period between washings.

The pre-filtered air then passes through the Collecting Cells. In the first stage, large particles, such as dust, are electronically charged (positively or negatively) in this section. The ionization field is a result of the fine, tightly strung wires suspended in the second stage, the charged particulate is attracted to the established between alternately charged plates. Here, the charged (positive) particulate is captured on the plates and removed from the air stream.



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Secondary Circuit - Ionizing-Collecting Cells

The cells are electrically energized through a contact terminal located at the top center of each cell. The ionizing wires and alternating collector plates are electrically charged while the interleaving plates are grounded.

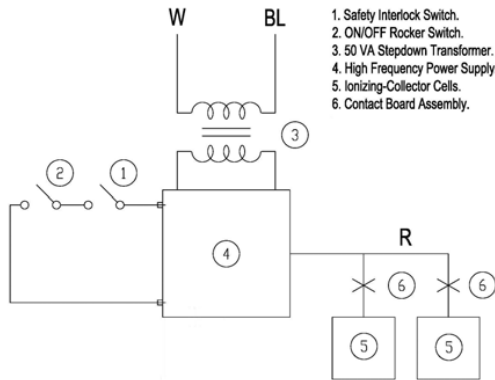
If the space between the charged and grounded plates is bridged with conductive or semiconductive material, a short circuit develops. The bridging or short may be caused by damaged plates, or foreign material lodged between/on the components. Since the cells should be periodically removed from the unit to wash away collected dirt, it is susceptible to physical damage. The cells also contain the ionizing wires, which have been designed, due to their function, with minimal structure support and are susceptible to breakage. Short circuit issues related to dirty or damaged Ionizing-Collecting Cells are readily identified by the lack of illumination of the Red CELL ENERGIZED light and quickly identified and isolated by a simple procedure.

To determine if a short circuit condition exists in one or both Ionizing-Collecting Cell(s), turn the Electronic Air Cleaner OFF. Remove both Ionizer-Collecting Cells from the cabinet. Re-position the Front Panel Assembly to the cabinet, turn ON/OFF switch ON and ensure HVAC system blower is operating.

The Green INPUT POWER light should illuminate. If the Red CELL ENERGIZED light illuminates, an electrical short circuit exists in one or both of the Ionizing-Collecting Cells. Replace the cells, one at a time, to determine which cell has the short circuit. The Red CELL ENERGIZED light will not illuminate if a short circuit condition is detected.

Most short circuit troubles in the cell can be visually detected and corrected. Refer to COMMON TROUBLESHOOTING TECHNIQUES (page 9).

NOTE: The Ionizing-Collecting Cells are not designed for field repair. Ionizing wires and insulators can be field replaced; however, it is not recommended that you attempt to replace other cell components (i.e. collecting plates, end plates, ionizer wire supports).



Regular Dusting and “White Dust”

Your new Electronic Air Cleaner will efficiently remove dust from the air. It will not eliminate the need for regular dusting. Duct-mounted air cleaners can only remove dust from the ductwork. Therefore, if the particulates are not being removed from the air stream, the air cleaner cannot remove them.

Occasionally a “white dust” may be present in your rooms. This is mainly composed of lint and dust particles, settles before it reaches your air filter with airborne dirt particles; therefore it has different properties. Operating the HVAC system regularly will help reduce this from occurring.

Ozone

Under normal operating conditions, all electronic air cleaners produce small quantities of ozone as an incidental byproduct. Sources of ozone such as televisions, cordless telephones, and other electronic equipment produce small amounts of ozone. The average homeowner can detect ozone at concentrations as low as 25 to 100 ppb (parts per billion). Ozone production is approximately 10% of the level established by the Environmental Protection Agency. It is important that the concentration of indoor ozone not exceed 0.1 ppm in these concentrations. In fact, the ozone concentration can reach as high as 100 ppb on a summer day. After-filters can help reduce the smell of ozone.

Normally, a new unit will produce more ozone than an older unit for several weeks. This is due to sharp edges on the Ionizing-Collecting Cell Plates and is normal. As the plates are smoothed and zaps, the high voltage is vaporizing the ozone. This is part of the breaking in period and is normal. In altitude locations can be more susceptible to ozone.

An Ionizing-Collecting Cell that has been replaced or cleaned between electrically-charged and grounded plates will also produce an abnormal amount of ozone.

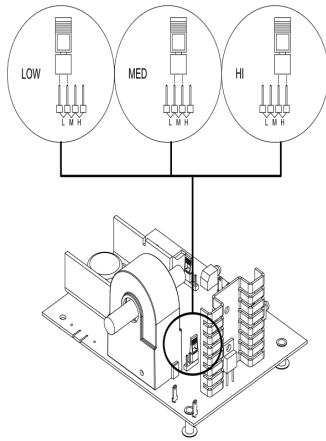
High Altitude Operation

Because the air is less dense at higher altitudes, there is a possibility of nuisance arcing in the Electronic Air Cleaner. The homeowner can quickly and easily correct this condition.

1. Make sure the HVAC system blower is not operating, the ON/OFF switch is in OFF position, and the circuit breaker is turned OFF or input power cord is disconnected.
2. Remove the Front Panel Assembly.
3. Remove the Power Tray Cover from the Power Tray Assembly by removing the two screws on top of unit. (The entire Power Tray Assembly may be removed from the cabinet by removing two screws from inside the cabinet.)
4. Locate the jumper terminal (see illustration below).
5. With a pair of needle nose pliers, carefully relocate the jumper from setting HIGH (H) to MED (M). Ensure that the jumper is firmly seated in the terminal.
6. Replace the Power Tray Cover and secure it with two screws.
7. Replace the Front Panel Assembly, turn circuit breaker ON, reconnect input power cord, and turn ON/OFF switch ON.

This procedure will slightly reduce the output voltage, minimize arcing, and reduce ozone production. If the condition does not improve, repeat the above procedure and relocate the jumper from setting MED (M) to LOW (L).

This unit is produced at the factory with the jumper set in the HIGH (H) position. However, the output voltage may be lowered in any situation where the unit is arcing excessively or there is excessive ozone.



For Qualified HVAC Installer Only

Primary Circuit with HVAC System Blower

- If there is no supply line voltage at the transformer, check for the fault at the dedicated power source.
- If there is supply line voltage at the transformer, check for the fault at the voltage (24 volts nominal), the transformer.
- If there is transformer output voltage at the transformer, check for the fault at the ON/OFF switch, the output voltage, the safety interlock switch and the transformer. Refer to Circuit Diagram (page 22).

Primary Circuit with HVAC System Blower

Follow these steps to test for proper operation of the ON/OFF switch, and safety interlock switch.

1. Ensure that the circuit controlling the blower is in the OFF position, and input power to the air handler is disconnected.
2. The power supply board has a built-in fuse. The fuse can be checked by removing the fuse. If the fuse inside of the fuse is broken, a fault exists. The entire Power Supply Assembly should be replaced. The purpose of this fuse is not to protect the power supply board, but to provide a troubleshooting feature of the product.
3. If the fuse is NOT blown, check the safety interlock switch for proper engagement and operation.
4. Connect a Multimeter with an OHM scale capability to the safety interlock switch terminals.
5. Remove the fuse. Connect one Multimeter lead to the safety interlock switch terminal (J9) located directly beside the wiring terminal block on the power supply board. Connect the other lead to the safety interlock switch connection nearest the front panel.
6. Turn the ON/OFF switch to the ON position. The Multimeter should have a reading of 1.0 ohm. A Multimeter reading of 1.0 ohm or less indicates the ON/OFF switch and the safety interlock switch are properly engaged.
7. If the Multimeter ohm reading is greater than 1.0 ohm, the safety interlock switch should be eliminated by moving the Multimeter leads to the safety interlock switch terminals on the safety interlock switch. If the reading is still greater than 1.0 ohm, the safety interlock switch is defective and should be replaced. If the reading on the meter is less than 1.0 ohm, the safety interlock switch should be replaced.

Installation

For Qualified HVAC Installer Only

Troubleshooting

WARNING:

- These procedures must be performed by a qualified HVAC technician or electrician.
- Risk of personal injury or death could occur by attempting to troubleshoot or repair this unit by untrained persons.
- Exercise the usual precautions when working with high voltage.
- When the circuit has been de-energized, always discharge any residual current in the secondary circuit with an insulated handle screwdriver.
- Always ground power supply and Ionizing-Collecting Cell(s) when bench testing.

Recommended Service Tools

- Screwdriver, 8" common with insulated handle (plastic)
- Screwdrivers, Phillips #1 and # 2 with insulated handle (plastic)
- Needle Nose Pliers with insulated handles (plastic)
- Multimeter
- High Voltage Probe

Indication of Electrical Trouble

The air cleaner is equipped with a Red CELL ENERGIZED light for indicating proper unit operation. When the unit is in normal operation (with the HVAC system blower running, Front Panel Assembly in place, and ON/OFF switch in the ON position) and the Red CELL ENERGIZED light is not illuminated, the problem is a shorted secondary circuit or Air Flow Sensor fault. Although failure of the indicating light itself should not be overlooked, this condition is unusual.

Air Flow Sensor (AFS) Circuit

WARNING:

The following procedure must be performed by an authorized HVAC contractor. Failure to do so may result in personal injury or death.

1. Make sure the HVAC system blower is not operating, the ON/OFF switch is in OFF position and the circuit breaker is turned OFF or input power cord is disconnected.
2. Remove the Front Panel Assembly.
3. Remove the cover from the Power Tray Assembly by removing the two screws on top of unit.
4. Locate the AFS Thermistor, a small circuit with a small gray disc connected to the power supply by two silver wires. Refer to the section entitled AIR FLOW SENSOR (AFS) (page 2). Carefully bend the thermistor (small gray disc) wire leads so the thermistor is located in the center of the 3/16" diameter hole in the Power Tray Assembly and approximately 1/8" from the inside edge of the Power Tray Assembly front.

Washing Ionizing-Collecting Cells and Prefilters

Regular washing of the Forever Filter and Prefilters is necessary to ensure proper performance. A thorough cleaning (once every three months) may be necessary with some installations, especially where there is new carpeting, plaster dust, or other airborne contaminants.

CAUTION

Handle Ionizing-Collecting Cells and Prefilters carefully to avoid injury and cause injury if not handled properly.

Remove Ionizing-Collecting Cells and Prefilters

1. Turn air cleaner ON/OFF switch to OFF position and remove Front Panel Assembly.
2. Carefully remove the Ionizing-Collecting Cells and Prefilters to a safe place.
3. Do not drop the Ionizing-Collecting Cells or Prefilters. Cell plates or ionizing wires which results in damage to the unit.

Wash Ionizing-Collecting Cells and Prefilters

We suggest you follow the instructions below to clean your Ionizing-Collecting Cells.

1. Place enough hot water in a utility tub to cover the Ionizing-Collecting Cells and Prefilters. Add a small amount of granulated automatic dishwasher detergent to the water.
2. Allow the cell to soak for 30 minutes. The detergent solution until it appears clean and rinsed.
3. Repeat steps 1 and 2 for second cell.
4. Agitate the Prefilters up and down in the solution.
5. With a water hose, rinse the Ionizing-Collecting Cells and Prefilters. The hose should be held about 10" from the cells. Do not spray directly with the hose as the water pressure may cause the cell to dislodge any trapped lint or dirt. Carefully wipe the cells with a (not emery cloth) along the length of the cells.
6. Stand Ionizing-Collecting Cells and Prefilters in the solution for two hours. You may experience a slight discoloration of the cell plates after washing. This is a normal reaction to the aluminum and detergent and will not affect performance.

Replace Cells in the Air Cleaner:

1. Replace Prefilters and Ionizing-Collecting Cells. The arrow on Cells point in same direction as the arrow on Prefilters. If the arrow is probably in the incorrect position, the cell is probably in the incorrect position.
2. Replace Front Panel Assembly (engineered to fit in cabinet).
3. Turn air cleaner ON/OFF switch to ON position.

Replacing Ionizing Wires in Ionizing-Collecting Cells

Instances of the Ionizing Wires breaking are minimal due to the constant tension design and fixed location of the Ionizing Wire supports. When an Ionizing Wire breaks, the efficiency of the Electronic Air Cleaner will decrease slightly. However, the unit will continue to operate with a broken Ionizing Wire as long as the broken wire has not caused a short in the secondary circuit of the unit. Remove all loose and broken wires as soon as they are identified.

We recommend contacting a qualified HVAC contractor for replacement parts and/or service.

Ionizing Wires are supplied in a coiled spring configuration, with a clinch nut on each end of the wire. Replacement requires a pair of needle nose pliers. Exercise caution in removing any broken wires in the Ionizing-Collecting Cell. The removal of broken wires will prevent accidental shorting of the cell and reduce the need for further maintenance.

Procedure for replacing an Ionizing Wire:

1. Turn Air Cleaner ON/OFF switch to OFF position. Wait 15 seconds. Remove the Front Panel Assembly and remove the Ionizing-Collecting Cells from the unit.
2. Carefully remove all remains of the broken wire from the cell.
3. Grip the new wire at each end with your thumb and index finger. While stretching the wire to approximately 6", allow one end of the wire to uncoil between your thumb and index finger.
4. Place one end of the wire in the slot of the stainless steel wire support located on the Ionizing-Collecting Cell as viewed from the front of the cell. This support is partially covered by the cell brace in front of the support.
5. Grip the other end of the Ionizing Wire with needle nose pliers and insert the terminated end of the wire into the slot in the wire support on the opposite end of the Ionizing-Collecting Cell.
6. The wire should have sufficient tension to be self supporting and remain suspended between the slots in the wire supports.

Cleaning the Air Flow Sensor (AFS):

If the air cleaner is installed in a location that is dusty and dirty, the sensor (thermistor) on the AFS can become coated with dirt and lint. This coating can insulate the AFS and prevent it from operating properly. To clean the thermistor, turn the unit OFF, dip a cotton swab in rubbing alcohol and carefully insert into the 3/16" diameter hole located in the front right hand side of the Power Tray Assembly (when facing the unit). Carefully twirl the cotton swab between your fingers, making sure the tip is lightly in contact with the gray disc (thermistor), cleaning the insulating coating from the thermistor.

For Qualified HVAC Installer Only

System Checkout

WARNING:

The following procedures must be performed by a qualified contractor or repair person ONLY. Do not touch hazardous electrically energized components. Turn power between checks and proceed.

1. The HVAC system blower should be running.
2. Switch the ON/OFF rocker switch to OFF position. The OFF position of the rocker switch should be visible.
3. Inspect both the Green INPUT POWER and Red CELL ENERGIZED light:

System with Air Cleaner INPUT POWER

- The Green INPUT POWER light should be illuminated.
- The Red CELL ENERGIZED light should be illuminated for approximately 20 to 60 seconds. The Air Flow Sensor (AFS) to complete its self test cycle. Turn back on when the HVAC system blower is running. See entitled AIR FLOW SENSOR for more information.

System with Air Cleaner INPUT POWER

Neither Green INPUT POWER light nor Red CELL ENERGIZED light should be illuminated.

4. Wait approximately one minute and check the thermostat. Thermostats have a setting that will prevent the blower from running. If not, set the thermostat so that either the thermostat or the duct work.

System with Air Cleaner INPUT POWER

- The Green INPUT POWER light should be illuminated.
- The Red CELL ENERGIZED light should be illuminated for 60 seconds, and remain illuminated while the blower is running.

System with Air Cleaner INPUT POWER

- The Green INPUT POWER light should be illuminated.
- The Red CELL ENERGIZED light should be illuminated for 60 seconds and remain illuminated while the blower is running.

5. Check to make sure that the Red CELL ENERGIZED light is illuminated under the following conditions:

- Front Panel Assembly is removed
- ON/OFF switch is switched to the OFF position
- HVAC system blower is not running

Installation

For Qualified HVAC Installer Only

Electrical Installation

CAUTION:

If the Electronic Air Cleaner is wired directly to the integrated accessory control on the furnace, it is imperative that the ampere rating of the control be sufficient to handle the current required by the Air Cleaner. All wiring shall be performed in accordance with the National Electric Code.

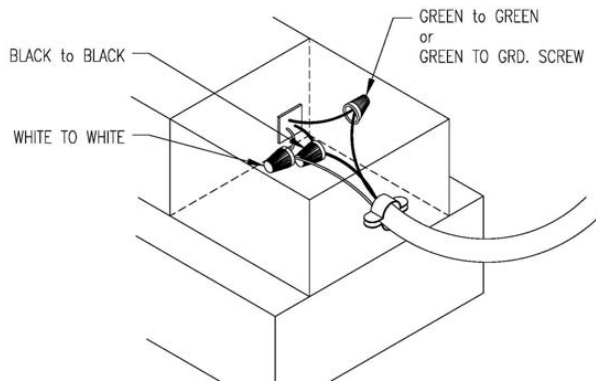
CAUTION:

Do not wire the Electronic Air Cleaner directly to a multiple speed blower motor. Wiring to a multiple speed blower motor will damage the Air Cleaner power supply and void the warranty.

Read the instructions in the furnace installation manual carefully before attempting installation or operation of the Electronic Air Cleaner. Failure to follow these instructions may result in an improper installation and therefore void the HVAC system and/or Air Cleaner warranty.

Procedure for Wiring the Electronic Air Cleaner to the Input Power Source

A power cord is provided for connection to a standard NEMA electrical receptacle (NEMA 5-15R for 120 volt units and NEMA 6-20R for 240/250 volt units). European models are supplied without a plug on the line cord to allow installation of desired plug or permanent wiring to an electrical junction box (by others). If the unit is to be permanently connected to the furnace control, a wiring compartment (with a knock-out hole) is provided on all models at the rear of the Power Tray Assembly. The wiring compartment is accessible by removing the Power Tray Cover.



Common Questions and Answers

- Q. Why isn't my Electronic Air Cleaner cleaning the air?
- A. The air cleaner is most likely working properly. Several factors can affect the performance of the air cleaner. Is the ceiling dirty? If so, it will be difficult for the air cleaner to clean the air. If the dirt does not get off the ceiling, the air cleaner may be in need of servicing.
- Q. It still is not cleaning my air the way I want.
- A. It is recommended that you operate the air cleaner on the highest speed. Unfortunately, there will always be some dust in the air, such as furniture, etc. Regular dusting is recommended to reduce the amount of dust that they can enter the air stream and affect the air cleaner's performance.
- Q. When I turn on my Electronic Air Cleaner, it takes several seconds and then turns off. The air cleaner is operating properly.
- A. The air cleaner is operating properly. The indicator lights are illuminated. Try turning the Electronic Air Cleaner Off for a few minutes and then turn it back on.
- Q. What is the zapping noise I am hearing?
- A. The zapping or popping noise that you hear is caused by particles being "vaporized" by the Ionizing-Collecting Cell. There is no cause for alarm. As your HVAC system cleans the ductwork and allows the Electronic Air Cleaner to operate, the zapping noise will diminish. However, there will always be some zapping noise from the Ionizing-Collecting Cell, and are caused by the following:
- Q. Should I hear this zapping noise all the time?
 - A. All Electronic Air Cleaners will occasionally hear zapping noise through the Ionizing-Collecting Cells. If the zapping noise is repetitive in nature, then a large particle has collected on the Ionizing-Collecting Cell and may require removal. If the zapping noise in the Ionizing-Collecting Cell does not stop the noise, then the following may be required: Wire, bent collector plate, or other mechanical parts.
- Q. What if I no longer hear any popping or zapping noise? Is it still cleaning the air?
- A. If the zapping noises stop and the air cleaner is still cleaning the air, then one of two situations has occurred. The air cleaner has successfully removed all larger particles which do not cause the zapping noise. The blower is not operating and air is not flowing through the Air Cleaner. The Air Cleaner cannot remove particles if the blower is not operating.

(continued on next page)

Q. I lost power to my home during a storm. Should I worry about the Electronic Air Cleaner?

A. The most common problem associated with power outages is the Electronic Air Cleaner will not turn on properly after power is restored. If the Green INPUT POWER indicating light is illuminated, and the Red CELL ENERGIZED indicating light is illuminated while the HVAC system blower is operating, the unit is operating properly. To reset the Electronic Air Cleaner, turn the HVAC system blower OFF, turn air cleaner OFF, wait one minute, turn air cleaner ON, and then turn HVAC system blower ON. If the Red and Green lights do NOT illuminate while the HVAC system blower is in operation after an electrical storm, the power supply in the Electronic Air Cleaner may be short circuited. Contact your local HVAC contractor for further assistance.

Q. My installer told me to keep my HVAC system blower running all the time, but I do not want to increase my power bill. What should I do?

A. It is recommended that you keep your HVAC system blower operating all the time to achieve the maximum air cleaning efficiency of the Electronic Air Cleaner. This will allow the Electronic Air Cleaner to do what it is designed to do, which is clean the air. Remember that if the air does not reach the air cleaner, it cannot be cleaned. On average, your Electronic Air Cleaner will use the same amount of electricity as a 50W light bulb. The energy usage of the HVAC system blower will depend on the age and size of your system, energy costs in your regional location, and other variables. The best solution is to operate the HVAC system blower in a continuous mode for a month or two, estimate annual energy costs, and base your final decision with what you feel most comfortable.

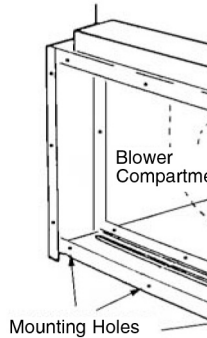
For Qualified HVAC Installer Only

Note: The following is a typical installation for a furnace. You may have to alter the installation for other equipment.

1. Locate the cabinet in the cold air return duct so that air flows through the unit. If the furnace is installed in the duct, use a transition.
2. Mounting holes are provided in the cabinet for easy attachment. The 0.140" diameter holes are designed for 1/8" or 1/8" rivets. If the adjoining duct is not square, the screw heads inside the cabinet will be visible. Prefilters and optional Charcoal Afterfilters should be removed during scheduled maintenance.
3. After the cabinet has been mounted, seal the cabinet with caulking.

Attention: Be specifically careful not to seal the air cleaner access office when sealing the air cleaner area. The access office is located in the front of the power tray.

4. Refer to section entitled DIRECTION OF AIR FLOW for direction.
5. Install Power Tray Assembly onto the cabinet.
6. Install Prefilters and Ionizing-Collector.
7. Install unit's Front Panel Assembly.



Mechanical Installation

CAUTION:

Only a trained, experienced servicer should install this Electronic Air Cleaner. The Front Panel Assembly, Power Tray Assembly, Ionizing-Collecting Cells, and Prefilters should be removed before installation. To remove the Power Tray Assembly, remove the two (2) screws from inside the top front of the cabinet. Keep this hardware for re-installation of the Power Tray Assembly after the air cleaner installation is completed and before operation. A thorough check-out of the unit installation should be completed before operation of the air cleaner.

Installer HELP Line

If you have any questions on installation issues or problems, please call TRION Technical Support at 800-884-0002.

Prior to installing this Electronic Air Cleaner:

1. Read instructions carefully for safe operation. Failure to follow instructions can damage the product or cause a hazardous condition and may result in physical harm.
2. Check the ratings stated on the product data label to make sure it is suitable for your application.
3. Select a location for the air cleaner.
4. Remove the old furnace filter and discard.
5. The air cleaner cannot remove existing dirt from the blower and ducts. Clean the area thoroughly before you begin installation.
6. Remove unit's Front Panel Assembly and slide the Prefilters and Ionizing-Collecting Cells out of the cabinet. Remove the Power Tray Assembly and place all components safely aside. Also, remove and discard cardboard shipping inserts from inside Front Panel Assembly and bottom of cabinet.

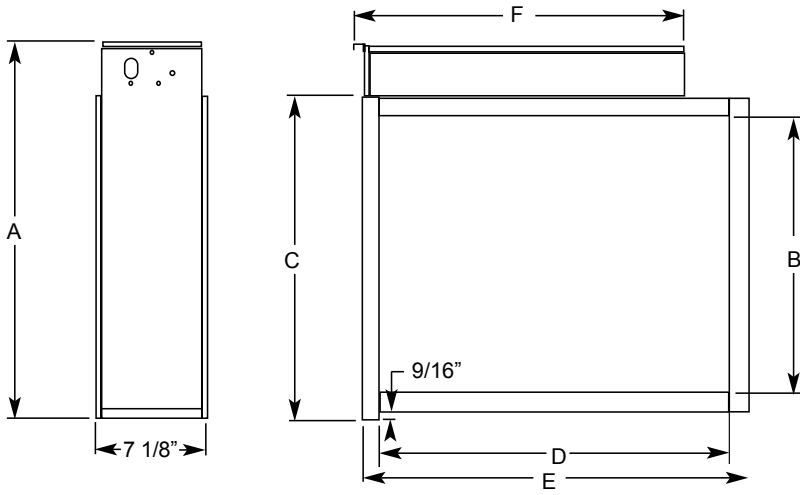
Physical Installation of the Air Cleaner

This Electronic Air Cleaner can be installed in any position, except with the Front Panel Assembly facing UP or DOWN. The section TYPICAL MOUNTING POSITIONS illustrates examples of proper air cleaner mounting with a variety of furnace installations.

(continued on next page)

Symptom	Possible Causes
Rapid Arcing or Zapping	Broken or loose Ionizing-Collecting Cells
	Dirty Ionizing-Collecting Cells
	Damaged or bent Collecting Cell plates
Excessive Ozone Smell	Defective Air Flow Switch
	High altitude
Radio or Television Interference	Poor electrical grounding
Hissing or Sizzling Noise	Poor electrical connections secondary electrical components
Green LED Light is not ON	No power available
	Loose wiring at ON/OFF switch
	Defective ON/OFF switch
	ON/OFF switch not in ON position
Red LED Light is not ON	Loose wiring within the control assembly
	Broken or shorted component
	Excessive dirt on Ionizing Wires
	Contact board assembly corroded or carbonized
	Broken Ionizing Wires
	Dirty Ionizing-Collecting Cells
	Foreign object located on collector plates
	Damaged or bent Collecting Cell plates
Insulators are cracked or carbonized	

Unit Dimensions

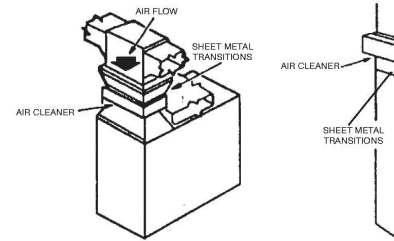


Dimension	HE Plus 1400 (16x25)	HE Plus 2000 (20x25)
A	20 1/4"	24 1/4"
B	13 7/8"	17 7/8"
C	16 15/16"	20 15/16"
D	22 1/2"	22 1/2"
E	24 7/8"	24 7/8"
F	21 7/16"	21 7/16"

For Qualified HVAC Installer Only

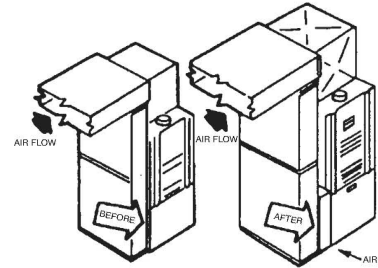
WARNING:
Before making changes to a HVAC system or
of fuel-burning appliances, contact

Typical Mounting Positions

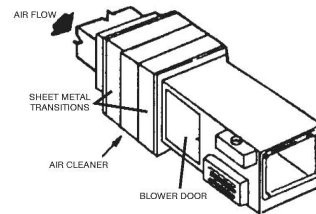


BASEMENT FURNACE (LOWBOY)
Mounted horizontally in return plenum - just above the furnace

COUNTERTOP
Mounted horizontally in return duct - just above the furnace



OFFSET INSTALLATION
If there is less than 7-in. for mounting the air cleaner between the duct and the furnace, move the return duct to the side.



Installation

For Qualified HVAC Installer Only

Location Selection

Remember to select a location that is readily accessible for periodic inspection and cleaning of the Prefilters and Ionizing-Collecting Cells. Allow a minimum of 24" clearance in front and 12" clearance above the air cleaner for component removal and service space.

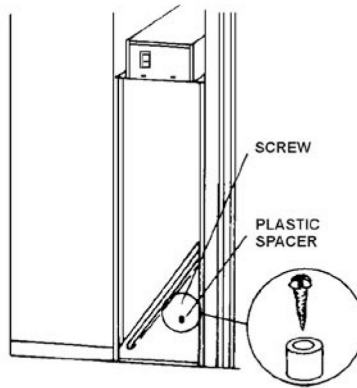
Direction of Airflow through the Air Cleaner

Left to right airflow:

This air cleaner is factory set for left to right airflow when you are facing the Front Panel Assembly.

Right to left airflow:

1. Remove the Prefilters and Ionizing-Collecting Cells from the cabinet. A plastic positioning spacer is located inside the bottom of the cabinet. See illustration below. This spacer is secured to the cabinet by a #6 Phillips Drive Screw to ensure installation of the cells in the correct position with respect to airflow.
2. Remove the screw and reposition the spacer in the alternate hole in the bottom of the cabinet.
3. Replace the screw to ensure the plastic spacer is not accidentally dislodged during normal maintenance. The spacer must be installed in the hole provided nearest to the air leaving side of the cabinet.
4. Remove the Ionizing-Collecting Cell handle and reattach to the opposite end of the cell(s). Turn Cells around, (reversing their orientation) and replace in cabinet. The directional arrows on the Cell end plates must point in the direction of airflow. Reposition Pre-filters on the air entering side of the air cleaner.



For Qualified HVAC Installer Only

CAUTION:

The following section is to be used by a Qualified HVAC Installer ONLY.

These procedures are not to be attempted by anyone not qualified to work with high voltage or familiar with the operation of an air cleaner. Seller cannot be held responsible for any injury or damage by any person not qualified to install or maintain this unit.

Technical Specifications

MODEL	HE Plus 1400
Dimensions (nominal)	16" x 25" x 7"
Unit Part Number (British White)	455600-125
Unit Part Number (Warm Grey)	455600-129
Rated Airflow (Max)	1400 CFM (2380 m/hr)
Pressure Drop (Max)	0.11" w.g. @ 1400 CFM
Cell Weight (2 Cells per Unit)	10 lbs (4.5 kg) each
Unit Weight	32 lbs (14.6 kg)
Power Consumption (Max)	40 watts
Electrical Output	2.5 MADC @ 6200VDC
Classification	UL / C-UL
Accessories (Optional)	Charcoal After Filter

For Qualified HVAC Installer Only

Application

The air cleaner is used in forced air heating, cooling, and ventilating systems. It should be installed in the system such that all the system air is circulated through the air cleaner. The air cleaner will only remove the airborne contaminants delivered to it; maximum performance is obtained with the HVAC system blower set for continuous operation.

Installation Requirements

- The best location for the air cleaner is in the return air duct next to the HVAC blower compartment. In this location, the blower motor and cooling coils will be kept clean.
- Do not install the Air Cleaner in the discharge air duct.
- Before installing the air cleaner, consider the application and type of HVAC system present.
- Refer to the Typical Mounting Positions section for the most common configurations.
- Refer to the Transitions section if a transition is required between the duct work and the air cleaner.
- The unit must be readily accessible for periodic inspection and cleaning of the Prefilters and Ionizing-Collecting Cells to maintain maximum efficiency and trouble free operation.

Air Conditioning

The air cleaner should be installed upstream of the cooling coil to keep the coil clean and reduce air conditioning coil maintenance. A clean coil will reduce utility costs by maintaining the coil's efficiency. If the air cleaner is downstream of the cooling coil, condensation will form on the cooled collector plates when the air conditioner cycles. This will allow water droplets to form on the collector plates and cause nuisance arcing in the air cleaner. Arcing will reduce air cleaner's efficiency and reduce the life of the high voltage power supply.

Evaporative Humidifiers

An evaporative type humidifier can be mounted either upstream or downstream of the air cleaner, depending upon the desired humidification capacity.

For Qualified HVAC Installer Only

Atomizing Humidifiers

If an atomizing humidifier is mounted up

1. Mount the humidifier as far upstream of at least 10 feet is recommended to prevent arcing as water droplets pass through the air cleaner.
2. Install a standard disposable furnace air cleaner to trap water droplets and help prevent arcing.
3. Clean the air cleaner more frequently than recommended.

If an atomizing humidifier is mounted downstream

No additional considerations required.

Sheet Metal Installation

The Electronic Air Cleaner is adaptable to new or existing residential forced air furnace and cooling systems.

Transitions

If the air duct does not fit the air cleaner, gradual transitions are recommended to reduce air turbulence through the air cleaner and maximize efficiency. Not more than 4" (about 4" per running foot) of expansion or contraction should be used on each side of the transition section.

Outdoor Air

When outdoor air is added to the return air duct, sufficient heat should be added to maintain the return air temperature at 40°F (4° C) minimum. Lower temperatures can cause ionic discharge failure.

Turning Vanes

If the air cleaner is installed adjacent to a duct elbow, add turning vanes inside the duct to improve air distribution across the face of the air cleaner. This recommendation can reduce the efficiency of the air cleaner.