

### PUREAIR™ AIR PURIFICATION SYSTEM PHOTOCATALYTIC OXIDATION TECHNOLOGY(PCO)

#### INSTALLATION AND MAINTENANCE INSTRUCTIONS FOR PUREAIR™ MODELS PCO-12C, PCO-20C

##### General

The PureAir™ air purification system helps to significantly reduce levels of airborne volatile organic compounds, cooking odors, common household odors, airborne dust particles and mold spores, and pollen in residential spaces. The PureAir™ air purification system includes a MERV 9 Pleated Filter, UVA lamps, and a Metal Insert that is coated with a titanium dioxide catalyst. As air enters the system, a percentage of airborne particles and bioaerosols, such as mold and bacteria, larger than .3 microns are captured by the pleated filter. The smaller airborne particles, odors, and chemicals continue through the system. The UVA lamp activates the catalyst on the Metal Insert. The catalyst combines with water vapor in the air to form hydroxyl radicals that destroy a percentage of the remaining odors and chemicals.

In tests, we found greater than 50% reduction in Total Volatile Organic Compounds (TVOC's) within 24 hours of initial installation and operation of the PureAir™ air purification system. When the system is first started, it may take 24-48 hours to reduce the airborne chemicals that have built up in your home over a long period of time. After that period, there will be a balance between chemicals emitted inside your home and chemicals removed by your PureAir™ air purification system. Please refer to the included Homeowners IAQ guide for other measures to improve indoor air quality.

The PureAir™ air purification system is NOT intended to be used for remediation of active mold growth or high (industrial) levels of chemicals in the air. For existing mold growth, the mold must be remediated by a qualified service provider PRIOR to installation of your PureAir™ air purification system.

##### ⚠ CAUTION

Access door should be put in place before power is applied.

##### ⚠ WARNING

These lamps emit ultraviolet UVA/UVB radiation which can be harmful to skin and eyes in occupational situations where people are exposed to this radiation for eight hours a day, year in and year out. In such situations, where people are exposed to direct radiation, they should maintain at least 1 meter (39") from the lamps.

##### Shipping and Packing List

###### Package 1 of 1 contains:

- 1 - PureAir™ air purification system c/w:
  - 1 - Metal cabinet, including insulated door
  - 1 - One piece slide-in assembly (Metal Frame and ballasts, with associated wiring.)
  - 1 - MERV 9 Pleated Filter
  - 4 - Installed UVA lamps (PCO-12C)
  - 6 - Installed UVA lamps (PCO-20C)
  - 1 - Separately wrapped Titanium Dioxide Metal Insert
- 1 - Power cord
- 1 - Installation and maintenance instructions
- 1 - Homeowners IAQ guide

##### Unique Supplies

- Cotton cloth and rubbing alcohol (to remove finger prints from lamps.)
- Aluminum foil duct tape

##### ⚠ WARNING

Upon initial start-up a slight odor may occur. As with any new appliance or remodeling work, occupants with allergies, asthma, or sensitivities to odor, may need to stay out of the home until the initial odor has abated (typically less than 4 hours).

##### ⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a qualified installer or service agency.

##### ⚠ WARNING



Electric shock hazard. Can cause injury or death. Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch(es). System may have multiple power supplies.

## Dimensions/Specifications

### DIMENSIONS:

Model PCO-12C: 29" L x 11 5/8" W x 19 1/2" H  
(737mm x 295mm x 495mm)

Model PCO-20C: 29" L x 11 5/8" W x 23 7/8" H  
(737mm x 295mm x 606mm)

### WEIGHT:

Model PCO-12C: 54 lbs.(24 kg.) Installed  
67 lbs.(30 kg.) Shipping

Model PCO-20C: 62 lbs.(28 kg.) Installed  
76 lbs.(34 kg.) Shipping

### ELECTRICAL:

Model PCO-12C: 120V, 1.6 Amps, 60Hz

Model PCO-20C: 120V, 2.4 Amps, 60Hz

Line Voltage: 108V-132V (If unit operates above 128V, a reduction in lamp life on the order of 10%-15% may occur.)

### POWER CONSUMPTION:

Model PCO-12C: 192 Watts

Model PCO-20C: 288 Watts

### OPERATING ENVIRONMENT:

41°F - 140°F (5°C - 60°C) Outside of duct.  
10%-60% relative humidity. (PCO has optimal performance at 50% relative humidity.)

### PLEATED FILTER EFFICIENCY:

Minimum Efficiency Rating Value - MERV 9. Tested to ASHRAE Standard 52.2.



### LISTINGS:

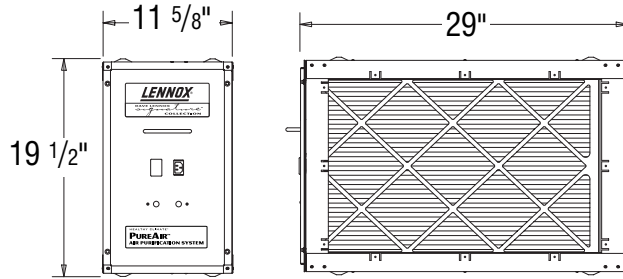
ETL Safety Listing Report #J99\*9379-001, Conforms to UL STD 1598, Certified to CSA STD C22.2 NO.250.0

Specifications subject to change without notice.

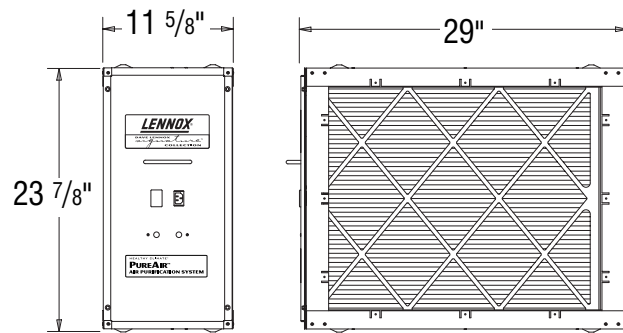
## ⚠ WARNING

Do not operate the blower(s) in the HVAC system without the door on this unit securely in place. Gas fumes, which could contain carbon monoxide, can be drawn into the living space resulting in personal injury or death.

### Model PCO-12C



### Model PCO-20C



### Approximate Air Flow Resistance

Capacity (Tons)	Flow Rate (CFM)	Pressure Drop (inches w.g.)	
		PCO-12C	PCO-20C
2	800	.08	.07
2.5	1000	.12	.09
3	1200	.16	.12
3.5	1400	.21	.15
4	1600	*	.18
4.5	1800	*	.21
5	2000	*	.24

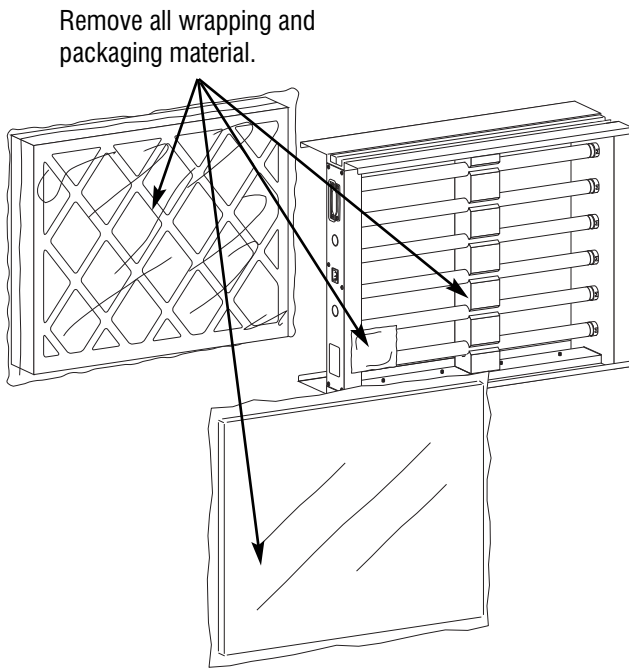
\*Not Recommended. Excessive system pressure drop can damage your HVAC system and reduce its performance.

## Installation

### UNPACKING THE PCO-12C/20C (Fig. 1)

The MERV 9 Pleated Filter has been vapor barrier packaged. The Metal Insert has been vacuum packaged. **All protective wrapping MUST BE removed prior to installation and operation of system.**

The UVA lamps have been installed and are held in place with a customized foam packing template which **MUST** be removed before the Metal Insert is installed. Take care to avoid damaging lamps when removing packaging.



**Fig.1** Remove all wrapping and packaging material prior to installation and operation of PCO-12C/20C.

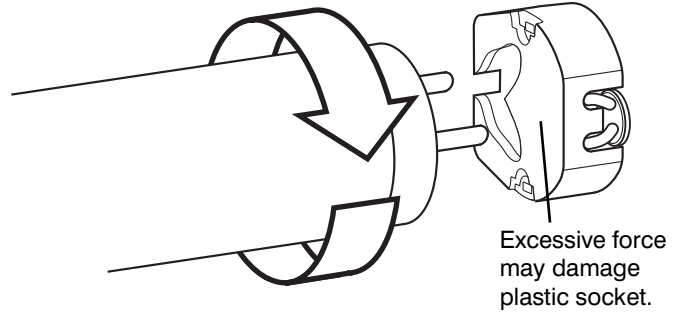
### ⚠ CAUTION

#### Unpacking required.

Please be sure to remove protective wrapping from individual PCO-12C/20C components prior to operation, including Pleated Filter, Metal Insert, and UVA lamps. All packaging material can and should be disposed of in refuse containers.

### CHECKING THE LAMPS (Fig. 2)

Lamps are factory installed as shown below. Make sure that the lamps have not become disengaged during shipping or removal of protective packaging. Use gloves or cloth to avoid fingerprints on the lamp.



**Fig.2** Verify proper installation of lamps.

### ⚠ CAUTION

#### Clean lamps prior to installation.

Failure to clean lamp(s) could reduce the system's efficiency. Use rubbing alcohol and cotton cloth to remove dirt and fingerprints.

### ⚠ WARNING

#### Mercury Hazard. Do Not Break.

Each UVA lamp contains a small amount of Mercury. In case of breakage use proper disposal techniques on page 7.

## Installation

### SELECTING A LOCATION (Fig. 3)

Install the PCO-12C/20C ONLY in the return air duct upstream of the supply blower. Allow approximately 30" of clearance in front of access door to slide out the PCO-12C/20C assembly. This provides ease to change the Pleated Filter, Metal Insert, and UVA lamps.

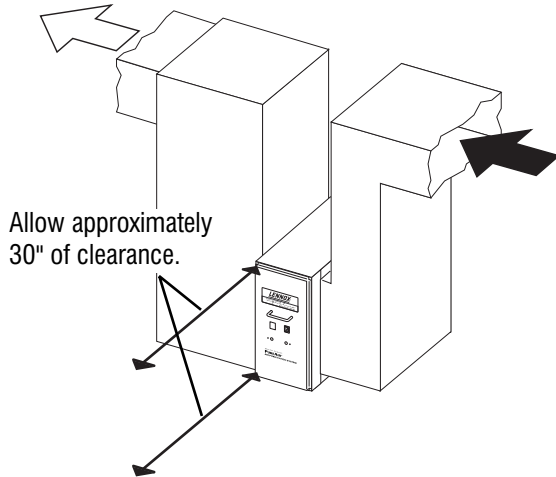


Fig.3 Install PCO-12C/20C in the return air duct.

### INSTALLING THE CABINET

Connect the PCO-12C/20C cabinet to the return air side of the air handling unit with *field provided* sheet metal screws, rivets, or appropriate method. Be sure to orient cabinet to airflow direction as indicated on label inside cabinet. Fasten return air duct to other side of PCO-12C/20C cabinet. Seal all joints between the cabinet, air handling unit, and ducting with aluminum foil tape.

Optionally, the cabinet can be strap-mounted from the ceiling. When drilling screw holes in the cabinet for straps, be sure to locate them where they do not interfere with the insertion of the PCO-12C/20C assembly.

High Humidity Environments: Wrapping cabinet with 2" foil faced insulation (foil on the outside) around the case (excluding the insulated door) will prevent condensation on the sides of the PureAir™ case.

### INSTALLING THE ASSEMBLY (Fig. 4)

1. Check lamps for proper seating in socket and that foam packing has been removed.
2. Slide the PCO-12C/20C assembly into cabinet, using the cabinet rails as a guide.

### INSTALLING THE ASSEMBLY (Cont'd)

3. Slide the Pleated Filter into the rails on the air inlet side of the PCO-12C/20C assembly. Verify proper air flow direction through Pleated Filter.
4. Slide Metal Insert into rails downstream of UVA lamps. Metal Insert is not sensitive to air flow direction.
5. Install access door using provided screws. Be sure unused plug opening is covered with black hole plug.
6. Plug one end of provided power cord into receptacle on PCO-12C/20C and the other end into a 120V power receptacle.  
**IMPORTANT: Route power cord away from traffic areas where the cord may become a safety hazard.**
7. Verify that all lamps are running prior to closing the PCO unit.

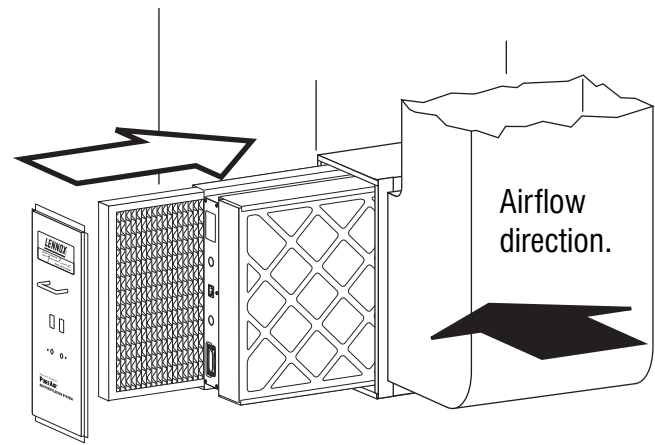


Fig. 4 Slide PCO-12C/20C assembly with provided Pleated Filter and Metal Insert into the PCO-12C/20C cabinet.

### ⚠ CAUTION

System should only be installed on return air side of air handling unit.

### ⚠ CAUTION

Sharp Edge Hazard. Be careful of sharp edges on device and HVAC equipment while installing the device. Personal injury may result.

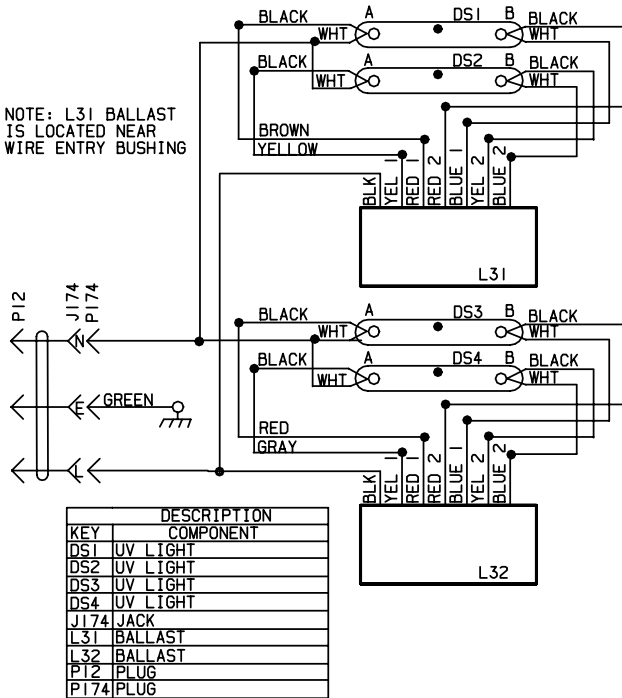
## Installation

### WIRING INSTRUCTIONS (See wiring diagrams)

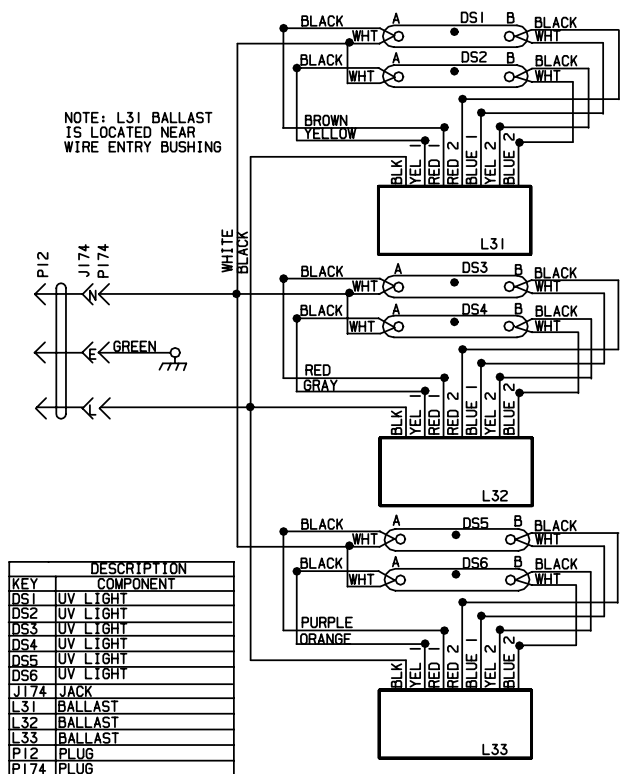
The PCO-12C/20C must be wired in accordance with national and local codes.

**IMPORTANT:** To ensure UVA lamps life, power **MUST** remain on to PCO-12C/20C at all times. **Do not interlock with air handler blower.**

### MODEL PCO-12C WIRING DIAGRAM



### MODEL PCO-20C WIRING DIAGRAM



## Operation

For the cleanest, purest air possible, it is recommended that the indoor air handling unit be set to run continuously.

### ⚠ WARNING

Odor. Lamps must operate continuously, **DO NOT** interlock with HVAC blower(s). Cycling lamps with HVAC Blower(s) can cause odors to be emitted from unit due to oxidation of accumulated contaminants on catalyst when lamp(s) were off, resulting odor in allergic, asthmatic or odor sensitive individuals may cause personal injury or death.

## Maintenance

The PCO-12C/20C has three components that will require maintenance: MERV 9 Pleated Filter, Metal Insert, and UVA lamps. (For replacement part numbers refer to Replacement Parts section in these instructions. PCO-12C/20C performance will be dramatically reduced if the required maintenance is not performed on these three components.)

### MERV 9 PLEATED FILTER

The Pleated Filter should be replaced every 12 months. More frequent filter changes may be required in situations with high dust or dirt loads.

1. Unplug the power cord and remove the access door.
2. Partially slide out the PCO-12C/20C assembly.
3. Remove the Pleated Filter and replace with the same MERV 9 rated filter. (Performance of PCO-12C/20C will be dramatically affected if improper filter is installed.)
4. Slide assembly back into cabinet and install access door.
5. Reconnect power cord.
6. Verify that all lamps are running prior to closing the PCO unit.

### METAL INSERT

Replace the Metal Insert every 5 years.

1. Unplug the power cord and remove the access door.
2. Partially slide out PCO-12C/20C assembly.
3. Remove the Metal Insert and replace with the approved replacement. (Performance of PCO-12C/20C will be dramatically affected if improper filter is installed.)

### METAL INSERT(Cont'd)

4. Slide assembly back into cabinet and install access door.
5. Reconnect power cord.
6. Verify that all lamps are running prior to closing the PCO unit.

**Note:** DO NOT WASH Metal Insert. Washing will destroy Titanium Dioxide catalyst.

### LAMP CHECKOUT (Does not illuminate.)

1. Check power cord for 120V power.
2. Unplug power cord and remove access door.
3. Slide out assembly and remove Pleated Filter or Metal Insert.
4. Check lamps for proper connection in sockets.
5. Exchange non-working lamp with one of the working lamps. If the new lamp operates normally, replace defective lamp.
6. If steps 1 through 5 pass inspection then the ballast may be at fault. Ballast must be replaced with an approved ballast by a qualified service technician.

### LAMP REPLACEMENT

The UVA lamps should be replaced every 12 months to ensure maximum effectiveness. The lamps may continue to glow blue at the end of the period; however, efficiency may be reduced as much as 40%.

1. Unplug the power cord and remove the access door.
2. Slide out PCO-12C/20C assembly.
3. Remove Pleated Filter or Metal Insert.
4. Twist each lamp approximately 1/4" to remove from socket.
5. Install new lamp making sure to snap them completely into the socket. (See page 3.)
6. Replace Pleated Filter or Metal Insert.
7. Slide assembly back into cabinet and install access door.
8. Reconnect power cord.
9. Verify that all lamps are running prior to closing the PCO unit.

**Regeneration of Insert:** If the insert has been operated for a period of time with lamp(s) out, an odor may

### LAMP REPLACEMENT(Cont'd)

occur when lamps are restarted. If an odor occurs on starting the lamps, remove the inserts from the unit and place in a PureAir™ unit with the lamps on in an unoccupied space to allow oxidation of the accumulated contaminants. Alternately, the insert can be placed in direct sunlight outside the home for 6 hours or more until the odor is eliminated. Do not allow inserts to get wet or catalyst may wash off.

#### **WARNING**

If occupants have allergies, asthma, or sensitivities to odors, as with start up of any appliance that has been non-operational for a period of time, occupants may need to stay out of the home until the odor caused by the accumulated contaminants on the catalyst has abated (typically less than 12 hours). To reduce the time that an odor may persist (and sensitive occupants may wish to be out of the home), the insert can be replaced, or regenerated by exposure to UVA light outside the home, before non-operating lamps are replaced.

#### **WARNING**

**Mercury Hazard. Do Not Break.**  
Each UVA lamp contains a small amount of Mercury. In case of breakage use proper disposal techniques.

#### **WARNING**

**Potential Odor on Lamp Replacement:** If lamps are not operating when lamps are replaced every 12 months, replacing lamps may cause a temporary odor in the home for up to 12 hours as contaminants that have accumulated on the catalyst are oxidized (eliminated). A yellow tint on the insert is an indication of a significant amount of accumulated contaminants, however, even without a yellow tint, an odor may occur.

#### **CAUTION**

Access door should be put in place before power is applied.

## Maintenance

### LAMP DISPOSAL

Each UVA lamp contains less than 5mg of Mercury (typical fluorescent lamps contain 25-50 mg of Mercury) and must be disposed of appropriately as you would a fluorescent lamp. Dispose of spent lamps one of the following ways.

1. Through your local hazardous waste disposal facility.
2. Returning to the address below in the same container in which you received your replacement lamps.

**Healthy Climate™ Lamp Reclamation**  
**1112 Industrial Park Drive**  
**Royse City, TX 75189**

### PROPER CLEAN-UP TECHNIQUE IN CASE OF LAMP BREAKAGE

- Wear protective gloves, eyewear and mask.
- Sweep the broken glass and debris into a plastic bag, seal the bag, and dispose of properly. Contact your local waste management office for proper disposal.
- **Do not use a vacuum cleaner. Do not incinerate.**

## Replacement Parts

No.	Description	PCO-12C	PCO-20C
	Complete PureAir™ System	75X69	75X61
1	Cabinet	75X72	75X65
2	Assembly	75X70	75X62
3	Access Door	93X39	75X64
4	Electrical Socket	75X77	75X77
5	UVA Lamp	10M35(4)	10M35(6)
6	Lamp Socket	75X76	75X76
7	Ballast	75X75	75X75
8	Titanium Dioxide Coated Metal Insert	75X73	75X66
9	MERV 9 Pleated Filter	75X74	75X67
	Power Cord (Not Shown)	64X47	64X47

Contact your local Lennox® dealer to order replacement parts.  
 For the Lennox dealer nearest you, dial 1-800-9Lennox.  
 Visit us at <http://www.Lennox.com>

**Model PCO-12C Exploded View**

**Model PCO-20C Exploded View**

