General Information

The PureAir™ air purification system uses photo-catalytic oxidation (PCO) technology to reduce levels of airborne volatile organic compounds, cooking odors, common household odors, airborne dust particles, mold spores and pollen. The PureAir™ air purification system is available in three models (PCO3-14-16, PCO3-16-16 and PCO3-20-16). Each unit may be connected to either 120VAC or 230VAC power supply.

Lab tests confirm a 50% reduction in total volatile organic compounds (TVOC) within the first 24 hours of initial operation of the PureAir™ air purification system. It may take up to 48 hours after initial system start-up to reduce the airborne chemicals that have built up in a home over a long period of time.

For peak performance, unit should be installed in homes with TVOC levels that are less than 1000 micro-gram / cubic meter. Home source removal and ventilation may be required to lower total volatile organic compounds to this level.

The Healthy Climate® Carbon Clean 16 Filter combines industry-leading MERV 16 filtration and carbon-coated fiber matrix.
### Dimensions and Specifications

**Figure 2. Dimensions**

![Dimensions Diagram]

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCO3-14-16</td>
<td>23-3/4 (603)</td>
<td>21-1/8 (537)</td>
</tr>
<tr>
<td>PCO3-16-16</td>
<td>26-1/2 (673)</td>
<td>17-1/2 (445)</td>
</tr>
<tr>
<td>PCO3-20-16</td>
<td>26-1/2 (673)</td>
<td>21-1/8 (537)</td>
</tr>
</tbody>
</table>

**Table 1. Specifications**

<table>
<thead>
<tr>
<th>Weight</th>
<th>pc03-14-16</th>
<th>27 lbs.</th>
<th>pc03-16-16</th>
<th>25 lbs.</th>
<th>pc03-20-16</th>
<th>27 lbs.</th>
</tr>
</thead>
</table>

**Electrical**

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Amps -- Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>pc03-14-16</td>
<td>120V, 50/60 Hz,</td>
<td>0.48 Amps</td>
</tr>
<tr>
<td>pc03-16-16</td>
<td>230V, 50/60 Hz,</td>
<td>0.24 Amps</td>
</tr>
</tbody>
</table>

**Power Consumption**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>pc03-14-16</th>
<th>pc03-16-16</th>
<th>pc03-20-16</th>
</tr>
</thead>
<tbody>
<tr>
<td>120VAC</td>
<td>58 Watts</td>
<td>58 Watts</td>
<td>58 Watts</td>
</tr>
<tr>
<td>230VAC</td>
<td>58 Watts</td>
<td>58 Watts</td>
<td>58 Watts</td>
</tr>
</tbody>
</table>

**Operating Environment**

<table>
<thead>
<tr>
<th>Capacity (Tons)</th>
<th>Flow Rate (CFM)</th>
<th>Pressure Drop (in. w.g.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low / Variable</td>
<td>400</td>
<td>0.04</td>
</tr>
<tr>
<td>2</td>
<td>600</td>
<td>0.07</td>
</tr>
<tr>
<td>2.5</td>
<td>1000</td>
<td>0.15</td>
</tr>
<tr>
<td>3</td>
<td>1200</td>
<td>0.20</td>
</tr>
<tr>
<td>3.5</td>
<td>1400</td>
<td>0.25</td>
</tr>
<tr>
<td>4</td>
<td>1600</td>
<td>0.31</td>
</tr>
<tr>
<td>4.5</td>
<td>1800</td>
<td>0.27</td>
</tr>
<tr>
<td>5</td>
<td>2000</td>
<td>0.31</td>
</tr>
</tbody>
</table>

*Not recommended. Excessive system pressure drop can damage HVAC system and reduce performance.*

**Table 2. Approximate Air Flow Resistance (Cabinet and Filter)**

**WARNING**

Risk of property damage, injury, or death. Installation and service must be performed by a licensed professional installer (or equivalent) or a service agency.

**WARNING**

Risk of carbon monoxide poisoning. Can cause injury or death. Do not operate system unless access panel is in place and properly secured. Operation of this equipment without the access panel in place may cause exhaust fumes to be drawn into occupied spaces.
**WARNING**

Electric shock hazard.
Can cause injury or death.
Disconnect all electrical power supplies before servicing.
Access panels must be in place during appliance operation.

**CAUTION**

Sharp edges hazard.
Sharp edges can cause injuries.
Use protective gloves when grasping equipment edges.

**CAUTION**

UVA Lamp contains mercury.
Ingestion of or contact with mercury or mercury vapor is hazardous to your health.
Take care when handling UVA lamp. If UVA lamp is broken, avoid contact with mercury.

**CAUTION**

Ultraviolet (UVA) radiation risk.
Prolonged exposure may cause skin or eye damage.
Avoid prolonged (weeks) exposure to skin or eyes.

**CAUTION**

Personal Burn Hazard.
UVA lamp is very hot when illuminated.
Allow lamp to cool for 10 minutes before removing lamp from socket.
Injury may result from contact with hot UVA lamp.

**CAUTION**

LAMP CONTAIN MERCURY.
Ingestion of or contact with mercury or mercury vapor is hazardous to your health.
Take care when handling UVA lamp. If UVA lamp breaks, avoid contact with mercury.

**NOTICE**

Possible odor emissions. Chemical reactions may cause temporary odors after initial start-up or after lamp replacement. Odor may also be present after paint, cleaning solutions or hobby materials have been used in the conditioned space.
Some occupants may experience irritation or discomfort during this period. If the irritation or discomfort lasts longer than 48 hours, the homeowner should be advised to contact a Lennox dealer.

**NOTICE**

The cabinet should be installed so that the UVA lamp will be in the horizontal position.
Contact the Technical Support Department at 1-800-953-6669 for additional information.

**NOTICE**

This system is NOT intended to be used for removal of active mold growth or continuous sources of high levels of chemicals in the air.
For existing mold growth, the mold must be properly removed PRIOR to installation of the PureAir™ air purification system.

**NOTICE**

This appliance is intended for return air duct installation only.
Improper installation may damage PureAir™ air purification system, HVAC system, or other equipment and may also void warranty.

**NOTICE**

Oil on metal ducts may cause odors.
Use a mild soap and water solution to remove oils from transitions and duct surfaces prior to installation.

**NOTICE**

Do not use any form of silicone sealant.
Use of silicone-based products will reduce the effectiveness of, or damage the titanium dioxide coatings on the PCO cartridge.

**NOTICE**

Route power cord away from traffic areas where the cord may become a safety hazard.
NOTICE
Healthy Climate® Carbon Clean 16 Filter cannot tolerate direct exposure to UVA light.
Filter is protected by PCO cartridge shield.

NOTICE
Unpacking required.
Remove all protective packing material from the UVA lamp (taped to the cabinet) and the titanium dioxide PCO cartridge.
Packing material should be disposed of properly.

NOTICE
UVA lamp life is shortened when lamp is turned off and on. Power to unit must remain on at all times.
Do not interlock lamp operation with air handler blower operation.

NOTICE
Do not wash UVA Lampholder / PCO cartridge. Soap and water will destroy the titanium dioxide catalyst that coats the cartridge surface.

Installation Examples

The unit must not be installed in a confined space where service clearance would be restricted.

When installed in horizontal left application, the access panel will be upside down.

A metal transition should be used. The transition must be planned for each job. Reduction should not be more than 4 inches per linear foot, approximately 20 angular degrees.

Figure 3. Installation Examples

Unique Field-Supplied Installation Items
- Cotton gloves and cloth (to remove finger prints from UVA lamp)
- Aluminum foil tape or water-based mastic (NOT silicone) to be applied as a sealant.

Installation
Select a Location
The unit must be installed in the return air duct upstream of the supply blower. Allow a 30-inch service clearance in front of the access panel as shown in figure 4. The air filter and UVA Lampholder / PCO cartridge must be removable.
Installing Cabinet
The cabinet may either be installed on a level installation deck or platform adjacent to the air handler or it may be suspended from the rafters using metal strapping. If straps are used, take care when attaching straps to the cabinet. Ensure fasteners do not interfere with internal components of the cabinet. The air filter and UVA Lampholder / PCO cartridge must be able to slide freely into the cabinet.

1. Locate and remove the UVA Lampholder / PCO cartridge from the cabinet.

   NOTE: Oil on metal surfaces may cause odors. Use mild soap and water solution to wash all new duct and transition surfaces.

2. Use the air flow directional label on the inside of the UVA Lampholder / PCO cartridge to orient the unit.

3. Properly position the cabinet next to the return air opening of the air handling unit. Use sheet metal screws (1” maximum length), rivets or other appropriate fasteners to secure cabinet to the return air side of the air handling unit.

4. Use field-provided sheet metal screws (1” maximum length) to fasten the return air duct to the other side of the cabinet. Attachment holes are provided in housing.

5. Use field-provided aluminum foil tape or water-based mastic to seal all joints between the cabinet, air handler and duct.

6. In high humidity applications, wrap cabinet with field-provided 2” foil-faced insulation (foil on the outside) to prevent condensation.

UVA Lamp Installation
Use cotton gloves or a cotton cloth to protect the lamp and your hands during unpacking and installation.

1. Remove cabinet access panel.

2. The UVA Lampholder / PCO cartridge is shipped in a protective packaging. Packaging must be removed prior to installation. Take care to prevent damage while removing from packaging.

3. Locate the UVA lamp box, which is taped to the inside of cabinet and carefully remove. Set UVA lamp box aside while preparing cabinet for UVA lamp installation.

4. Remove (slide out) Healthy Climate® Carbon Clean 16 Filter from cabinet.

5. Disconnect the lampholder cable assembly from the UVA lamp ballast connector.

6. Secure the UVA lamp electrical connector to the UVA lamp by sliding the UVA lamp pins into the slot. Proper connection will make a snapping sound.

7. Slide the UVA lamp into UVA Lampholder / PCO cartridge. Verify that the UVA lamp is secure to the one metal UVA lamp clamp located mid-way on the UVA lamp reflector.

8. Rotate the hinged control panel assembly out.

9. Thread the UVA Lampholder / PCO cartridge two posts through the UVA lamp connector's two holes.
10. Fasten the lamp socket to the UVA Lampholder / PCO cartridge using the two-brass figure nuts located in the literature bag.

![Brass Figure Nuts](image1)

**Installing UVA Lampholder**
Use the following procedure to install the UVA Lampholder / PCO cartridge.

1. While aligning, slide the UVA Lampholder / PCO cartridge into case rails and align with rear mounting bracket.
2. Secure the UVA Lampholder / PCO cartridge to the two frame screw posts using the provided wing nuts (2).

**NOTE:** There is an arrow on the front of the component indicating the correct way to install it.

![Wing Nuts (2)](image2)

3. Connect UVA lamp 4-pin male connector to ballast female 4-pin connector.

![Ballast Four Pin Male Connector](image3)

4. Rotate hinged control panel assembly back into the cabinet. Make sure no wiring is being pinched.

**Installing Air Filter**
Use the following procedure to install the air filter.

1. Slide the Healthy Climate® Carbon Clean 16 Filter into the rails on the air inlet side of the cabinet. Verify proper airflow direction.
2. Securely fasten the access panel.
3. Plug one end of the provided power cord into the receptacle on the cabinet and the other end into a power receptacle.
4. Look through the view port in the access panel to check that the UVA lamp is illuminated.

**NOTE:** On initial start-up, the UVA lamp may not reach full illumination for several minutes.

**Wiring**
The should be wired in accordance with national and local codes.

![Wiring Schematic](image4)

**Operation**

**NOTICE**
If the system has been operated for a period of time without the UVA lamp being illuminated, an odor may occur when lamp is illuminated. This odor is considered typical and should dissipate within 12 hours of full operation. If the odor does not subside after 48 hours of operation, instruct the homeowner to unplug the unit and contact a Lennox dealer.

1. Check to ensure that access panel is securely in place.
2. Lamp should remain illuminated continuously except during service and maintenance.
3. For optimal odor control, air handler blower should remain on CONTINUOUSLY (thermostat fan setting in ON position, rather than AUTO).
If air handler does not provide a continuous low blower speed option, an additional blower relay should be installed. Use Lennox part number 45H03. Contact the Lennox Application Department at 1-800-453-6669 for wiring information.

*NOTE - Continuous fan operation may result in higher humidity. If humidity levels are uncomfortably high, fan setting should be switched to AUTO during cooling operation.*

**Filter, UVA Lampholder / PCO Cartridge and UVA Lamp Replacement**

The Healthy Climate® Carbon Clean 16 Filter, UVA Lampholder / PCO cartridge and UVA lamp require annual replacement. More frequent filter replacement may be required in applications with heavier dust or dirt loads or if you notice a reduction in odor-removal efficiency. An annual maintenance kit is available.

**Annual Maintenance Kits**

The annual maintenance kits include the following:
- Healthy Climate® Carbon Clean 16 Filter (1)
- PCO cartridge (1)
- UVA lamp (1)

Order using the following kit catalog numbers:

**Table 3. Maintenance Kits**

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Catalog Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Maintenance Kit</td>
<td>Y6616, Y6612, Y6608</td>
</tr>
</tbody>
</table>

**Replacement Parts**

Replacement parts are available through Lennox, see figure 1 for parts arrangement. Part description and catalog numbers are as follows:

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Catalog Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PCO3-14-16</td>
</tr>
<tr>
<td>Healthy Climate® Carbon Clean 16 Filter</td>
<td>Y6606</td>
</tr>
<tr>
<td>UVA Lamp</td>
<td>X8794</td>
</tr>
<tr>
<td>PCO cartridge</td>
<td>Y6621</td>
</tr>
<tr>
<td>Lampholder Assembly</td>
<td>Y6622</td>
</tr>
<tr>
<td>Power Cord (120VAC)</td>
<td>49M48</td>
</tr>
<tr>
<td>Power Cord (230VAC)</td>
<td>91X44</td>
</tr>
<tr>
<td>Electrical Socket</td>
<td>75X77</td>
</tr>
<tr>
<td>Ballast</td>
<td>Y6620</td>
</tr>
</tbody>
</table>

**Removing and Installing UVA Lamp, Lampholder and Air Filter**

1. Remove power cord from 120VAC or 230VAC receptacle.
2. Remove power cord from unit.
3. Remove access panel.
4. Remove Healthy Climate® Carbon Clean 16 Filter.
5. Rotate out the hinged control panel.
6. Disconnect UVA lamp electrical connector from ballast.
7. Remove both fasteners securing the UVA Lampholder / PCO cartridge from the chassis.
8. Slide out the UVA Lampholder / PCO cartridge from the chassis.
9. Remove both brass figure nuts that secure the UVA lamp electrical connector to the UVA Lampholder / PCO cartridge.
10. Slide out UVA lamp from UVA Lampholder / PCO cartridge.
11. Push the red button on UVA lamp electrical connector and gently slide off connector from UVA lamp (do not dispose of UVA lamp electrical connector).
12. Properly dispose of UVA lamp and air filter.
13. Reinstall in reverse order starting with step 11.

**Proper Clean-Up of Broken UVA Lamp**

If UVA lamp is broken, it must be disposed of properly.
- Wear protective gloves, eye wear and mask.
- Sweep broken glass and debris into a plastic bag and seal before disposal in accordance with instructions provided by local waste management office.
- **Do not use a vacuum cleaner. Do not incinerate.**

**NOTICE**

Hg -- UVA Lamp contain mercury. Manage in accord with disposal laws. Refer to www.lamprecycle.org or call 1-800-9LENNOX.
Troubleshooting Flow Chart

START

- Look through the access panel viewing port to check lamp.

Is the lamp on?

- Is there power to the PCO?
  - NO: Check PCO power cord for damage and AC outlet for power. Check breaker panel. Repair electrical problem and plug-in power cord.
  - YES: Unplug power cord to the PCO cabinet.

- Is there power to the PCO?
  - NO: Check lamp electrical connectors. Also check electrical wiring from ballast to lamp connector. Any issues?
  - YES: Unplug power cord to the PCO cabinet.

Check lamp electrical connectors. Also check electrical wiring from ballast to lamp connector. Any issues?

Repair Issues

- Plug power cord back to the PCO cabinet.

Continue with maintenance per unit installation instruction.

Check PCO power cord for damage and AC outlet for power. Check breaker panel. Repair electrical problem and plug-in power cord.

Is the lamp on?

- NO: Repair Issues
  - YES: Plug power cord back to the PCO cabinet.

Check ballast voltages (see table below) on red and blue wires at 4-pin connector. Replace any burned out or damaged components.

- NO: Is the lamp on?
  - YES: Continue with maintenance per unit installation instruction.
  - NO: Repair Issues

<table>
<thead>
<tr>
<th>INPUT/OUTPUT</th>
<th>WIRE/TERM COLOR</th>
<th>NORMAL READING</th>
<th>SERVICE ACTION (See wiring diagram, Figure 5, Page 6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BALLAST</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OUTPUT</td>
<td>RED</td>
<td>&gt;60</td>
<td>Replace ballast if less than 60VAC.</td>
</tr>
<tr>
<td></td>
<td>RED</td>
<td>&gt;60</td>
<td>Replace ballast if less than 60VAC.</td>
</tr>
<tr>
<td></td>
<td>BLUE</td>
<td>&gt;200</td>
<td>Replace ballast if less than 200VAC.</td>
</tr>
<tr>
<td></td>
<td>BLUE</td>
<td>&gt;200</td>
<td>Replace ballast if less than 200VAC.</td>
</tr>
</tbody>
</table>

Figure 6. Troubleshooting Flow Chart