



## *Advanced PCO System*

# Installation Instructions & Consumer Information



### Section I. Important Installer Information

The Dynamic Advanced Photo Catalytic Oxidation (PCO) System utilizes the latest developments in air purification technology to provide an effective means of controlling odors, volatile organic compounds (VOCs), and biological contaminants.

The Dynamic Advanced PCO System installs in the HVAC ductwork. The system is comprised of a high intensity 33-watt Dual-Radiant™ UV-C Germicidal Lamp and a PCO Catalyst Module with two pleated, nickel titanium dioxide catalyst screens. The UV Lamp can be used in conjunction with the PCO Catalyst Module (figure 1) or installed by itself. At 254 nanometers, the UV-C lamp is two to four times more powerful than most UV-C lamps and is designed for maximum air disinfection and surface irradiation. It can be installed on either the return or supply air side of the furnace or air handler.

#### How the Dynamic Advanced PCO System Works

When the titanium dioxide catalyst material is exposed to ultraviolet light the material becomes highly reactive and breaks down chemical bonds of VOCs and other gas-phase bio-aerosol pollutants and reduces them to simple carbon dioxide and water vapor. Airborne biological contaminants such as bacteria, molds and viruses are destroyed through both exposure to the germicidal UV-C light and the PCO mechanisms. PCO effectiveness depends on the amount of catalyst surface area. The Dynamic PCO System utilizes twenty-four (24) square feet of catalyst surface area. The Dynamic PCO System is the perfect compliment to the Dynamic Polarized-Media Electronic Air Cleaner.

#### WARNINGS

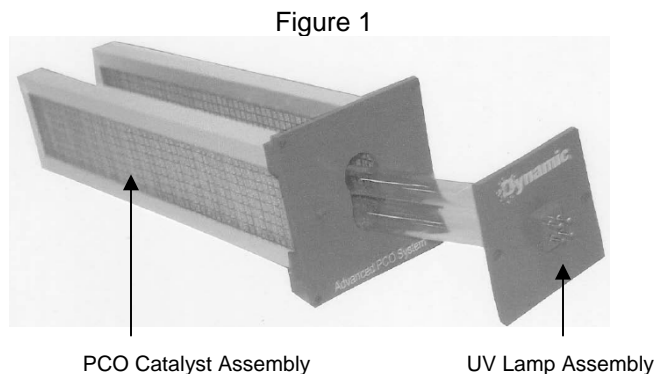
- UV-C light will damage eyes, skin, and plastic and rubber components.
- Do not install in such a way that UV light is visible.
- Do not install in outdoor applications.
- Do not expose wiring or plastic to UV light.
- Do not install beneath a humidifier.
- If installed near an air filter, check with the filter manufacturer for UV resistance.

## Section II. For Installation of UV-C Lamp with PCO Assembly

If mounting the UV-C Lamp by itself, refer to section III.

The 24V Dynamic Germicidal UV Lamp mounts inside the Dynamic PCO Catalyst Module and is designed for easy installation and service (figure 1). The unit can be installed in either the return or supply air side of the HVAC system although locating the unit on the supply side will keep the unit cleaner, thereby improving performance.

- 1) Select a mounting location that offers sufficient flat surface area for the 4" x 4" catalyst assembly with a minimum of 14-1/2 inches of internal depth. In addition, allow sufficient clearance to remove and service the UV lamp assembly. An optional 6" square mounting plate (Part No. AGMPD1) is required when mounting to duct board or can be used to give the installation an extra neat appearance.



- 2) Cut a 3-3/8" x 3-1/2" square opening in the duct or plenum using the template or mounting plate provided.
- 3) Insert the PCO Catalyst assembly into the hole and attach it to the duct wall with sheet metal screws. If mounting to duct board, using molly bolts is recommended.
- 4) Wipe off any fingerprints from the UV Lamp and slide the lamp assembly through the center hole of the PCO catalyst assembly and fit the UV lamp mounting holes over the PCO Catalyst assembly so that the mounting holes line up and the UV assembly fits snugly to the PCO assembly. Attach with acorn nuts (provided). Do not over-tighten.
- 5) Find a suitable location to mount the power supply/ballast module where the UV indicator light is visible and there is sufficient wire available to reach the 24VAC power source. The ballast assembly includes three feet of wire from power to the ballast and six feet of wire from the ballast to the UV lamp connector (Figure 3).

**NOTE: ONLY A QUALIFIED ELECTRICIAN SHOULD PERFORM ELECTRICAL WIRING. THIS UNIT MUST BE INSTALLED IN COMPLIANCE WITH ALL STATE AND LOCAL ELECTRICAL AND MECHANICAL CODES. FAILURE TO DO SO MAY VOID WARRANTY.**

- 6) Connect the power supply wires to 24VAC power. **100VA is recommended, 70VA minimum.** This may exceed the available capacity of the on-board transformer in the furnace/air handler, so it will be necessary to install a separate transformer. An isolated class II transformer is recommended or use Dynamic Transformer (Part No. AGT100V) with terminals for the 24V UV Lamp and two 24V Dynamic Air Cleaners. Install transformers according to local codes and ordinances.
- 7) Turn on the power to the furnace/air handler. The power indicator light on the power supply module should illuminate.

### **CAUTION**

**Ultraviolet Light Will Cause Eye and Skin Damage** – Never look at an illuminated ultraviolet lamp without UV protective glasses, such as Uvex Ultraspec 2000 S0360X. Sunglasses are not sufficient. Always unplug the lamp before servicing.

**Ultraviolet Lamp May Cause Injury** – Ultraviolet lamps are made of glass and therefore fragile. Safety glasses and gloves should be worn when handling UV lamps. In addition, UV lamps can become hot and cause burns. Allow lamps to cool before handling.

## **Section III. For Installation of UV-C Lamp Only**

If mounting the UV Lamp and the PCO Catalyst Module, refer to Section II. When mounting the UV Lamp by itself, follow these instructions:

- 1) Select a location that offers sufficient space (3" x 3") and a minimum of 14-1/2 inches of internal depth for the UV lamp. Allow sufficient clearance to remove and service the UV lamp assembly. Installation will require 24VAC electrical power.
- 2) Cut a 2" round opening in the duct or plenum.
- 3) Insert the lamp into the hole and attach with sheet metal screws.
- 4) When mounting inside the duct, the UV lamp assembly may also be mounted using the optional bracket (included with the UV lamp) as shown in Figure 2.

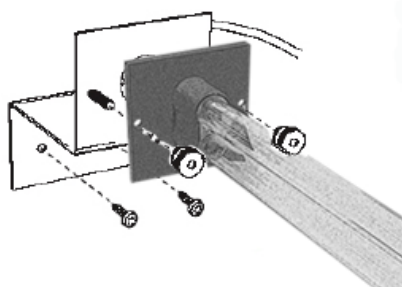
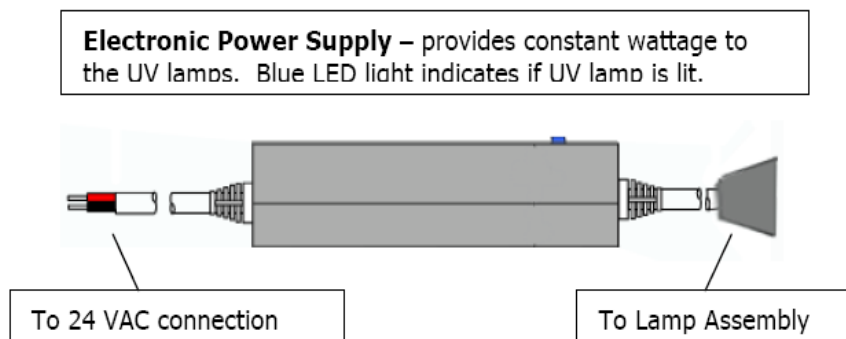


Figure 2

- 5) Find a suitable location to mount the power supply/ballast module where the UV indicator light is visible and there is sufficient wire available to reach the 24VAC power source. The ballast assembly includes three feet of wire from power to the ballast and six feet of wire from the ballast to the UV lamp connector.

Figure 3



NOTE: ONLY A QUALIFIED ELECTRICIAN SHOULD PERFORM ELECTRICAL WIRING. THIS UNIT MUST BE INSTALLED IN COMPLIANCE WITH ALL STATE AND LOCAL ELECTRICAL AND MECHANICAL CODES. FAILURE TO DO SO MAY VOID WARRANTY.

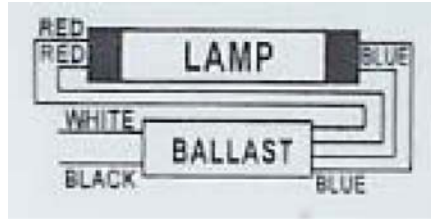


Figure 4

- 6) Connect the power supply wires to 24VAC power. 100VA is recommended, 70VA minimum. This may exceed the available capacity of the on-board transformer in the furnace/air handler so it will be necessary to install a separate transformer. An isolated class II transformer is recommended or use Dynamic Transformer (Part No. AGT100V) with terminals for the UV lamp and two Dynamic Air Cleaners. Install transformers according to local codes and ordinances.
- 7) Turn on the power to the furnace/air handler. The power indicator light on the power supply module should illuminate.

### **CAUTION**

**Ultraviolet Light Will Cause Eye and Skin Damage** – Never look at an illuminated ultraviolet lamp without UV protective glasses, such as Uvex Ultraspec 2000 S0360X. Sunglasses are not sufficient. Always unplug the lamp before servicing.

**Ultraviolet Lamp May Cause Injury** – Ultraviolet lamps are made of glass and therefore fragile. Safety glasses and gloves should be worn when handling UV lamps. In addition, UV lamps can become hot and cause burns. Allow lamps to cool before handling.

## **Section IV. For Installation of AGT100V Transformer**

The optional Dynamic AGT100V transformer, 120V/208/240V input and 24VAC output, is a foot mount transformer providing four sets of 24VAC terminal connections to power the Dynamic Advanced PCO System, 24V UVC Lamp and/or additional Dynamic Polarized-Media Air Cleaners.



## Section V. Maintenance and UV Lamp Replacement

UV lamps decline in output over time and are typically replaced well before they burn out. For optimum performance, the lamp should be replaced after 9,000 hours of operation. This is about one (1) year of constant use. Replacement UV Lamps are available from your heating and air conditioning contractor or by ordering online at [www.DynamicAQS.com](http://www.DynamicAQS.com).

- 1) Make sure power is off to the furnace/air handler and the UV lamp is off.
- 2) Remove the rubberized cap from the UV lamp assembly.
- 3) Remove the screws holding the UV lamp assembly in place and remove the old lamp.
- 4) Insert the new UV lamp assembly and reattach.
- 5) Reattach rubberized cap making sure the socket is pushed tightly onto the metal pins.
- 6) Turn on the power to the furnace/air handler. The power indicator light on the power supply module should illuminate.

The Nickel Titanium Dioxide catalyst module is self-cleaning as long as UV lamps are replaced every 9,000-12,000 hours (1-year). Should a heavy coat of dirt or dust accumulate on the catalyst assembly, it should be removed and cleaned by rinsing the screens with a mild detergent and warm water.

## Section VI. Dimensions (see dimensional drawing on page 6)

### Dimensions

- Overall: 4" x 4" x 15-1/2" (102 mm x 102 mm x 394 mm)
- PCO Mounting Plate: 4" x 4" (102 mm x 102 mm)
- PCO Screens: 3" x 14" x 3/4" (7.6 x 35.6 cm x 19 mm)
- Ballast (UL Listed): 7-1/4" x 2-1/2" x 1-3/8" (18.4 cm x 6.4 cm x 35 mm)
- Ballast & Wire Assembly: 9" (2743 mm)

### Clearances

- Inside Duct Clearance: 3" x 3" x 14-1/4" (76 mm x 76 mm x 362 mm)
- Outside Duct Clearance: 4" x 4" x 2-1/2" (102 mm x 102 mm x 63 mm)
- PCO Duct Opening Required: 3.5" x 3.5" (89 mm x 89 mm)
- UV Lamp Opening Required: 2" round (51 mm)

### Weight

- PCO Catalyst Assembly: 15.6 oz. (442 g)
- UV Lamp Assembly: 5 oz. (142 g)
- Ballast & Wire Assembly: 3 oz. (85 g)

### PCO Surface

- 24 Sq. Ft.
- Titanium Dioxide Coated Nickel

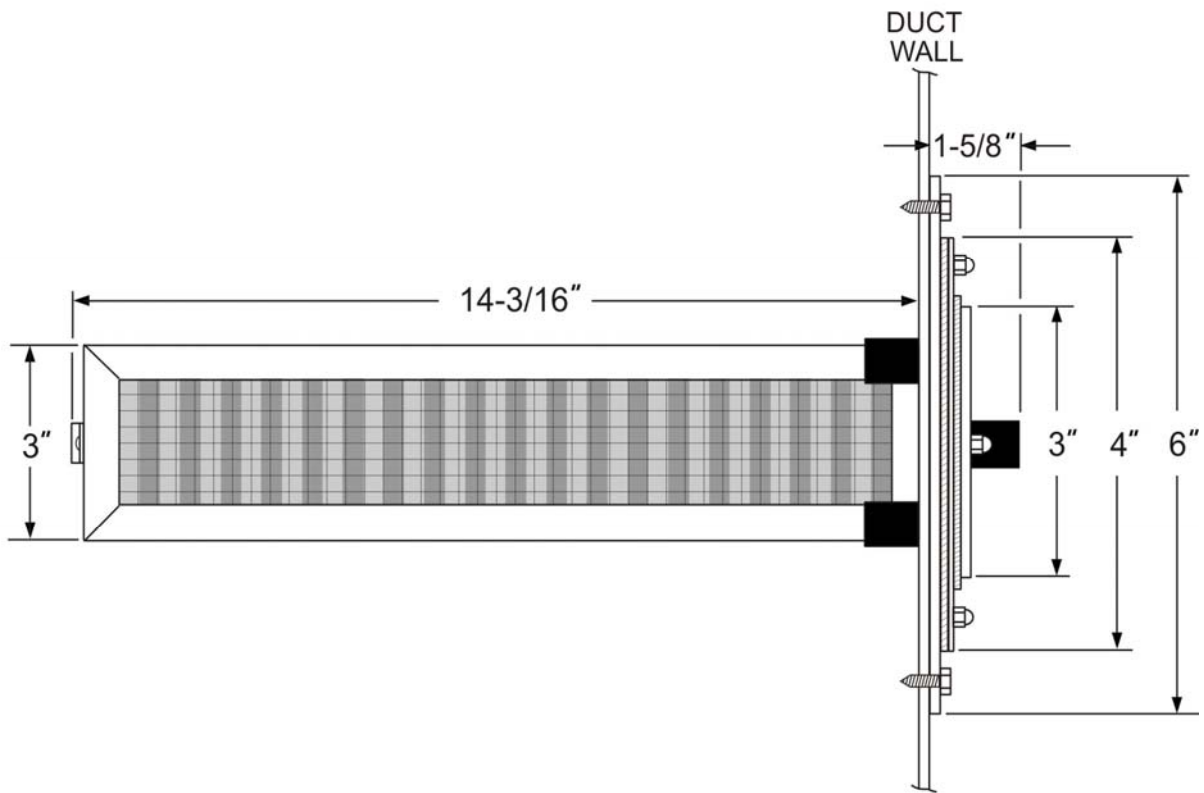
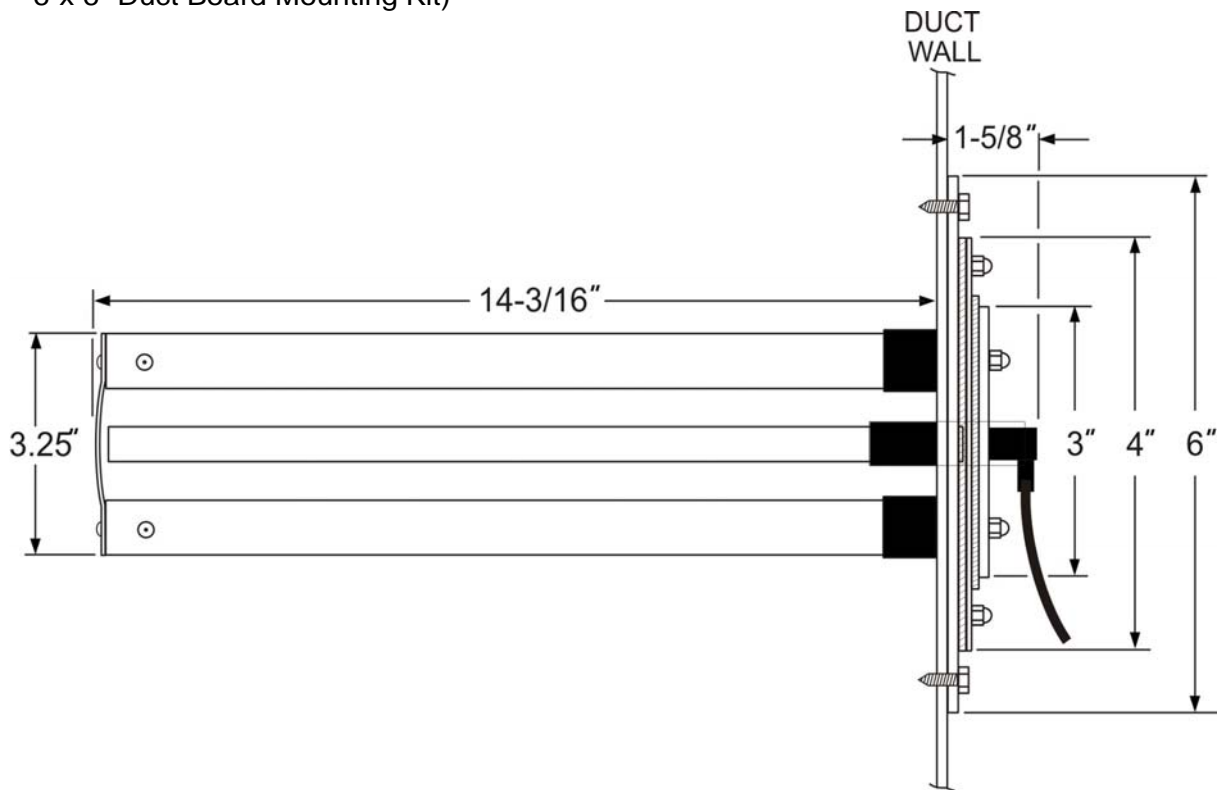
### Electrical

- 24VAC, 2 Amps

### UV Lamp (9000 Hour)

- 33 watt, 95  $\mu\text{w}/\text{cm}^2$  @1 meter

Dimensional Drawing (shown with AGMPD1  
6"x 6" Duct Board Mounting Kit)



## Section VII. Part Numbers & Accessories

<b>PCO Systems:</b>	<b>Dynamic Part No.</b>
PCO Catalyst Assembly	PCO-5000-CAT
UVC Lamp Assembly with 24V ballast	PCO-5000-UV
Complete 24V PCO System with mounting kit & transformer	PCO-5024-SYS
UVC Lamp Assembly with 24V ballast, mounting kit & transformer	PCO-5024-UVS
<b>Accessories:</b>	
Replacement UV Lamp	AGL1430
Replacement 24V Ballast	AGB2436
100VA Multi-Tap Transformer	AGT100V
Duct board Mounting Kit	AGMPD1

## Section VIII. Warranty

The Dynamic PCO Catalyst Module is warranted against defects and workmanship under normal use and service for a period of ten (10) YEARS from date of installation. This warranty is provided to the original purchaser of the air purifier and is not transferable.

The Dynamic Germicidal UV Ballast is warranted against defects and workmanship under normal use and service for a period of three (3) YEARS from date of installation. Lamp is covered under warranty for its useful life of one (1) YEAR. This warranty is provided to the original purchaser of the air purifier and is not transferable.

This warranty does not cover damage caused by handling, shipment, negligence, misuse, cosmetic damage, acts of God, connection to improper voltage, improper maintenance, or abuse. The manufacturer is not responsible for the installation of this product. This warranty does not cover faulty installation or damage to personal property resulting from incorrect or faulty installation. The warranty does not cover any labor, the cost of removal or reinstallation of the unit, or the cost of return shipping to the manufacturer.

The manufacturer's exclusive obligation under this warranty shall be to supply, without charge, a replacement for any covered component that is found to be defective within the parameters defined herein. The manufacturer reserves the right to replace or repair the defective part or component.

The manufacturer shall not be liable for any loss or damage of any kind, including any incidental or consequential damages resulting, directly or indirectly, from any breach of warranty, express or implied, mis-application of the product, or any other failure of this product. The manufacturer's maximum liability shall not exceed the actual purchase price paid for the product. The warranties set forth herein are exclusive and the manufacturer expressly disclaims all other warranties, whether written or oral, implied or statutory, including but not limited to any warranties of merchantability, workmanship, or fitness for a particular use. This warranty does not obligate the manufacturer for any labor costs and shall not apply to defects in workmanship or materials furnished by the installer.

If you have a warranty claim, contact the dealer that installed the product. Proof of original purchase is required. Do not return products or parts without a Return Authorization from the manufacturer.

**FOR TECHNICAL SUPPORT CALL (800) 578-7873**

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