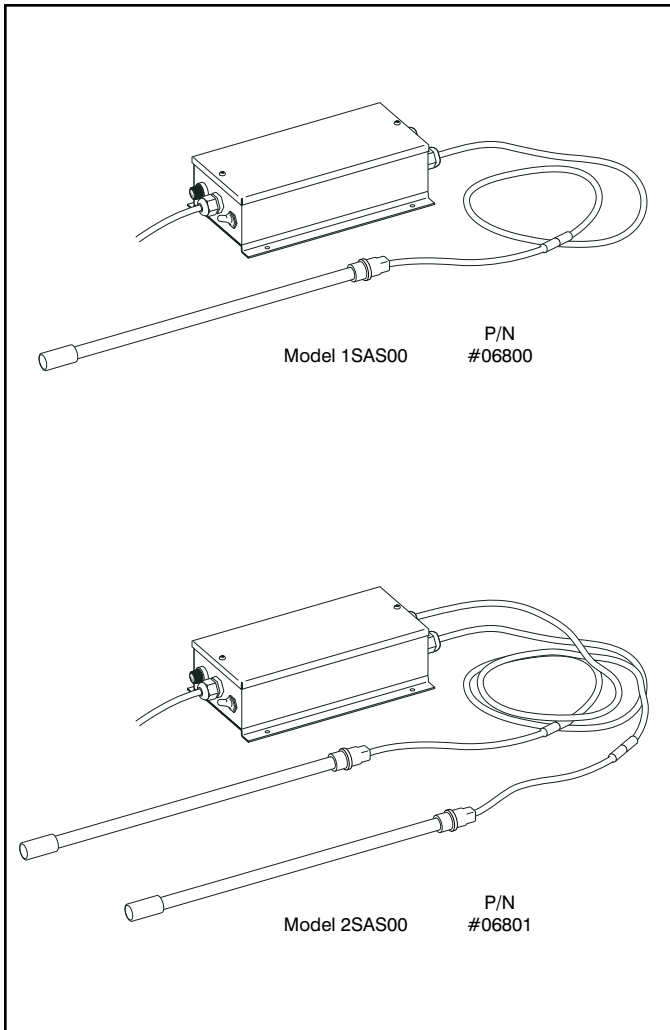


# BIO-FIGHTER® Aqua-Seal 1S and 2S Ultraviolet Light Systems

## Installation & Operation Manual



### GENERAL

This product is designed to help disinfect the internal surfaces of heating, ventilation, and air conditioning systems. Bacteria and viruses that are in the air stream that passes through the system will also be reduced. The result is an improved level of indoor air quality for occupants and improved system hygiene.

The Bio-Fighter® emits ultraviolet(UV-C) radiation at a frequency of 254 nanometers, which has been proven effective in damaging the DNA of microorganisms such as viruses, bacteria, yeast and molds. This process either destroys the microorganism or neutralizes its ability to reproduce.



### FEATURES

- Reduces or prevents mold growth on HVAC coils, allowing them to operate at peak efficiency. Also significantly reduces bacteria, viruses, fungi, and yeasts in the ductwork.
- Water-resistant design.
- Remote-mount lamp configuration.
- Multi-input voltage electronic ballast.
- Suitable for wet locations.

### INCLUDED INSIDE BOX

- Bio-Fighter® Aqua-Seal UV-C system
- Viewport(s)
- Lamp mounting bracket(s)
- Self-drilling screws
- Installation & operation manual
- UV warning label for duct
- Registration card

### TOOLS REQUIRED FOR INSTALLATION

- Electric drill
- Phillips screw bit or screwdriver
- 1/2" drill bit
- 1" drill bit or holecutter
- Eye protection

### BEFORE INSTALLING

- Read all instructions carefully. Failure to do so could damage the equipment or cause harm to yourself or others.
- Acknowledge all warnings.
- Only qualified technicians should perform the installation.

**Dimensions**

9"L x 5"W x 2 1/2"H

**Weight:**

Approx. 5 3/4 lbs.

**Electrical:**

120V-240V, 50/60Hz, 1PH. 3 amp-250V fuse.

6 ft. power cord.

**Listings:**

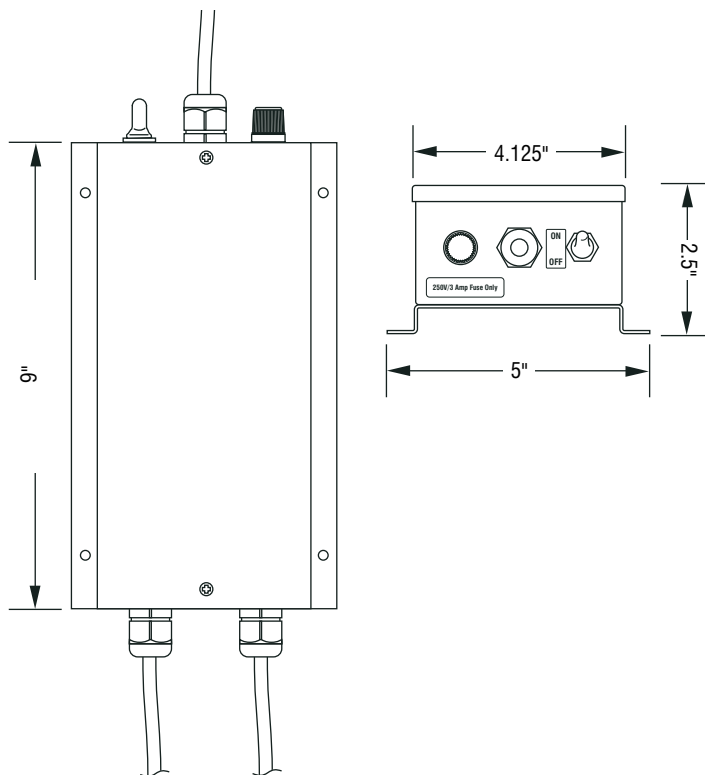
FIFRA - File # 73316

(Federal Insecticide Fungicide Rodenticide Act)

ETL Safety Agency - File #2002554

U.S. Patent Nos. 5,334,347, 5,817,276, 6,245,293, 6,267,924,  
6,280,686, 6,313,470, 6,627,000, 6,539,727, 6,932,494, 6,550,257.

Specifications subject to change without notice.



ETL LISTED  
CONFORMS TO  
UL STD 1598  
CERTIFIED TO  
CSA STD C22.2 NO. 250.0

**Important:**

The device must be installed in compliance with all national and local electrical and mechanical codes. Failure to do so will void Dust Free® warranty.

## MOUNTING OPTIONS

Select a mounting location with enough clearance for the lamp to be installed and replaced easily. Allow approximately 15"-17" depending on lamp length. Suitable for installation inside or outside AHU. Suitable for installation inside package units.

A 120V or 240V electrical supply is required.

## Special Installation Notes

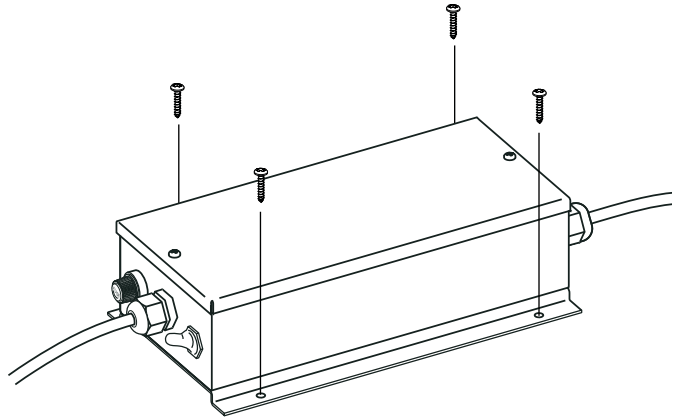
- Do not install in closet return grille applications.
- Do not install in outdoor applications.
- Do not expose wiring or plastic parts to UV-C light.
- Do not install where UV-C light can be seen after installation.
- Do not install beneath a humidifier.
- If the UV device is installed on the inlet side (return air side) of a coil, make sure that the blower is located between the return air filter and the inlet side (return air side) of the coil, such as would be found in a traditional up-flow, or horizontal furnace with the coil placed after the heat exchanger.
- If the UV device is installed near an air filter, check with filter manufacturer for UV-C resistance properties.
- If the desired UV installation location is intended to irradiate an air filter, to neutralize the microbiological matter on the air filter surface, such as would be found in the return air drop of a basement application or in the return plenum of a horizontal system in an attic; take precautions as described in note above, and make sure the UV fixture is placed on the return side of the filter. **DO NOT INSTALL THE UV FIXTURE ON EITHER SIDE OF THE FILTER IN HALL / CLOSET RETURN AIR APPLICATIONS.** (See ATTENTION! Warning sheet #212945-00).

### ⚠ NOTICE

**Clean lamp(s) prior to installation.**  
Failure to remove dirt and fingerprints from the lamp(s) could shorten their lifespan.

## MOUNTING THE BASE (Fig.1)

Place the base at the desired location and use the included mounting screws to install the base to the surface.



**Fig. 1** Use included mounting screws to install device at desired location.

## INSTALLING THE LAMP (Fig.2, on next page)

To maximize the efficiency and life of the UV-C lamp, clean each lamp prior to installation. Use isopropyl alcohol and cotton cloth to wipe dust and fingerprints from the lamp.

Drill a 1" hole for the lamp at the desired location. Insert the lamp and secure with lamp washer using two self-drilling screws (included). Repeat for the second lamp if applicable.

### ⚠ WARNING

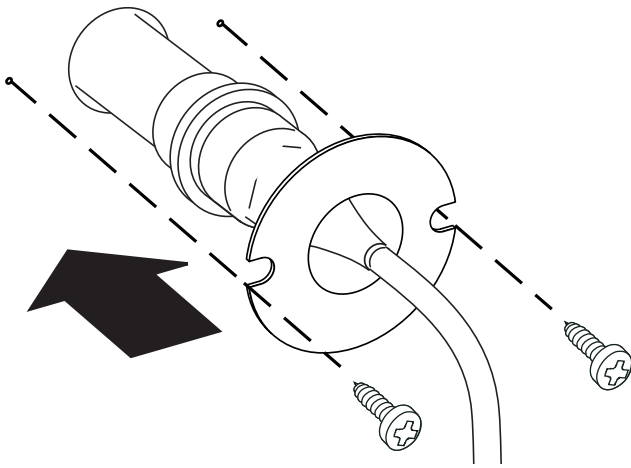
#### UV-C Light Hazard.

UV-C light can cause temporary or permanent loss of vision, and sunburn. To prevent exposure, do not install device in any applications that allows UV-C light to be visible after installation.

### ⚠ CAUTION

#### UV-C Light May Degrade Plastic and Rubber.

Shield exposed plastic drain pans, wire insulation, flex duct, or other plastic/rubber components from UV-C light.

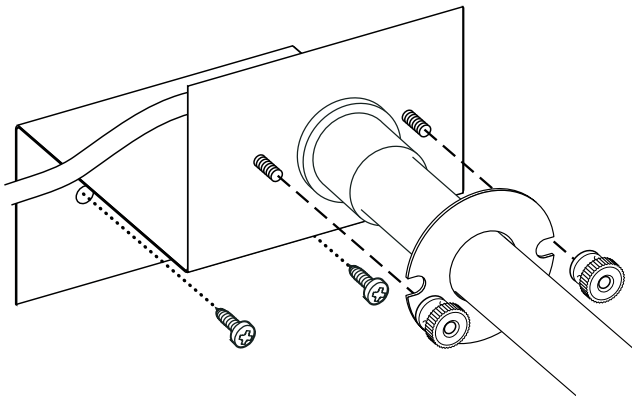


**Fig. 2** Insert lamp into lamp hole and fasten with self-drilling screws (included).

**OPTIONAL LAMP BRACKET(s)** (Fig.3)

Use the optional lamp bracket(s) to install the entire lamp assembly inside the AHU or package unit.

Install each lamp bracket at the desired location with two self-drilling screws (included). Install the lamp using the lamp washer and knurled nuts. Be sure plastic wire guard is in place to protect lamp cord from sharp metal edges.



**Fig. 3** Lamp may be installed inside the duct using the optional lamp bracket(s).

**⚠ WARNING**  
**UV-C Light Hazard.**  
 UV-C light can cause temporary or permanent loss of vision, and sunburn. Take precautions to protect eyes and skin from direct exposure.

**⚠ NOTICE**  
**Clean lamp(s) prior to installation.**  
 Failure to remove dirt and fingerprints from the lamp(s) could shorten their lifespan.

**CONNECT THE LAMP**

After the base is mounted and lamp installed, connect the lamp by inserting the lamp plug into the base receptacle.

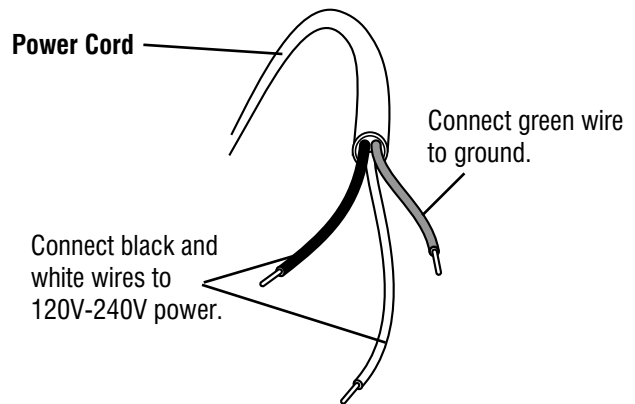
**INSTALLING THE VIEWPORT(s)**

The Aqua-Seal comes with UV-C safe viewports that must be installed separately. To install the viewport, select a location near the lamp installation and drill a 1/2" hole in the duct. Then press the viewport into the hole.

**CONNECT POWER AND CHECK OPERATION**

Connect the device to 120V-240V power. (Fig.4)

The device power switch must be turned on and device checked for operation using the viewport(s). The lamp(s) should be radiating a bright blue light.



**Fig. 4** Power cord connection.

**OPERATION**

Under normal conditions the Bio-Fighter® Aqua-Seal should be operated continuously to extend the life of the lamp(s), and to increase the effectiveness in disinfecting the location selected. A convenient power switch is located on the device, and should be turned off before any maintenance on the device or HVAC system is performed.

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

### IF THE LAMP DOES NOT ILLUMINATE

- Check that the lamp connector is securely attached to lamp.
- Check that the fuse is in good working order. Replace if necessary.
- Check that proper power is being supplied to the device..

### LAMP REPLACEMENT(Annually)

The lamp should be replaced annually even if it appears to be operating normally. UV-C energy production diminishes over time.

1. Obtain the correct replacement lamp for your model.
2. Turn off power to the equipment.
3. Disconnect the electrical connector to the lamp.
4. Remove the UV-C lamp and replace it with the new lamp. Be sure to clean the lamp of dust and fingerprints prior to installation.
5. Reconnect electrical connector to the lamp.
6. Turn on power to the equipment.
7. Verify operation using viewport.

### FUSE REPLACEMENT

1. Turn off power to the equipment.
2. Unscrew the knob marked "Fuse" and remove fuse.
3. Install new fuse and screw knob back in place. Be sure O-ring is in place when used in wet locations. Only use a 250V/3 amp fuse.
4. Turn on power to the equipment.

### LAMP DISPOSAL

Dispose of your spent UV-C lamps at your local recycling center. You may also send your spent lamps in the same container you received your replacement lamps to:

**Dust Free® Lamp Reclamation**  
**1112 Industrial Drive**  
**Royce 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	Part No.
UV-C Lamp - 14"	06803
UV-C Lamp - 16"	06802
UV-C O3 Lamp - 14"	06806
UV-C O3 Lamp - 16"	06805
Ballast - Multi-Voltage	06606
Power Cord (Whip-Type) (120V/240V)	06303
Knurled Nuts (2)	210226-00
On/Off Switch	06607
Fuseholder	212225-00
Fuse	750-0108-001

For information on the dealer in your area call: 1-972-635-9565.  
 Visit us at <http://www.dustfree.com>

### **⚠ WARNING**

#### **Burn Hazard.**

During replacement, allow lamps to cool 10 minutes before removing them. Personal injury may result.

### **⚠ WARNING**

#### **UV-C Light Hazard.**

UV-C light can cause temporary or permanent loss of vision, and sunburn. Take precautions to protect eyes and skin from direct exposure.

### **⚠ WARNING**

#### **Mercury Hazard. Do Not Break.**

Each UV-C lamp contains a small amount of Mercury. May cause redness or irritation. Use proper disposal techniques in case of breakage.

## LIMITED LIFETIME WARRANTY

Dust Free® LP warrants this Bio-Fighter® UV-C Light to be free from defects in materials and workmanship under normal use and service, for as long as it is owned by the original purchaser. This warranty does not cover UV-C lamp(s), which carry a one (1) year warranty from the date of installation, or the ballast(s) which carry(s) a five (5) year warranty.

This warranty does not cover cosmetic damage, damage due to acts of God, damage as a result of handling or shipment, negligence, misuse, connection to improper voltage, improper maintenance, or abuse. This warranty is void if defect(s) result from failure to have this unit installed by a qualified, properly licensed, heating and air conditioning contractor in compliance with all local building and construction codes.

Dust Free® LP's exclusive obligation under this warranty shall be to supply, without charge, a replacement for any covered component of the Bio-Fighter® UV-C Light which is found to be defective within the parameters defined herein. Dust Free® LP reserves the right to replace or repair the defective part or component.

DUST FREE® LP 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, OR ANY OTHER FAILURE OF THIS PRODUCT. (Some states do not allow the exclusion or limitation of incidental or consequential damages, so this limitation may not apply to you.) THE WARRANTIES SET FORTH HEREIN ARE EXCLUSIVE AND DUST FREE® LP 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. If the limited warranty is void due to failure to use a qualified contractor all disclaimers of implied warranties shall be effective upon installation.

How to make a warranty claim or have questions answered:

Should you have a warranty claim or questions about the warranty policy, contact the distributor or dealer from which you purchased the product. Proof of original purchase and proof of identity that the original purchasing party is filing the claim is required in order to initiate a warranty claim. Defective parts must be returned no later than thirty (30) days after the failure to the installing contractor together with the model number, serial number, and date of installation. All service and removal must be performed by a licensed HVAC contractor. You must pay shipping charges and all other costs of warranty service. Warranty is only valid the United States and Canada.

THIS WARRANTY SHALL NOT OBLIGATE THE MANUFACTURER FOR ANY LABOR COSTS AND SHALL NOT APPLY TO DEFECTS IN WORKMANSHIP OR MATERIALS FURNISHED BY THE INSTALLING CONTRACTOR AS CONTRASTED TO DEFECTS IN THE GERMICIDAL LIGHT ITSELF.

NOTE: Do not return any products or parts to the factory without a factory issued Return Authorization number issued by the Dust Free® LP customer service department.

In the event you have any questions concerning the use and care of this product or this warranty which have not been answered to your satisfaction by the distributor or dealer, please call or write the factory.

**Dust Free®**  
**PO Box 519**  
**1112 Industrial Drive**  
**Royse City, TX 75189**  
**1-972-635-9565**