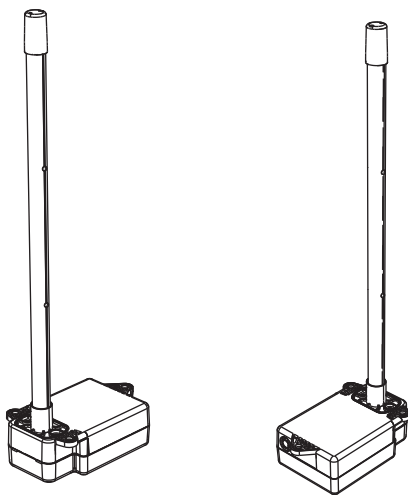


# LIGHTSTICK® / LIGHTSTICK® PLUS

## Germicidal Ultraviolet Light

### Installation & Operation Manual



This manual covers the following models:

LightStick® #19300

LightStick® Plus #19301

## GENERAL

This product emits germicidal ultraviolet (UV-C) light to dose the cooling coil, drain pan, and internal surfaces of HVAC systems for improved indoor air quality where the light shines.

## 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.

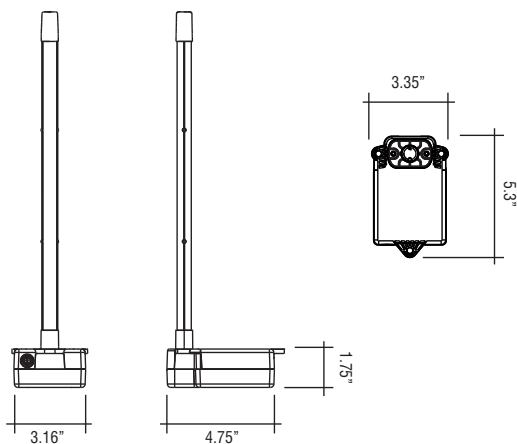
## INCLUDED INSIDE BOX

- Power Module
- Germicidal UV lamp
- Power cord
- Remote lamp cord
- Mounting bracket (LightStick™ Only)
- Magnetic Mounting bracket (LightStick™ Plus Only)
- Filter shield (LightStick™ Plus Only)
- Self-drilling screws
- UV safety viewport
- UV safety label
- Installation & operation manual
- Installation hardware



**DUST FREE®**  
BREATHE THE DIFFERENCE.

## SPECIFICATIONS



### LIGHTSTICK®

#### Dimensions:

Power Module: 4.75"L x 3.16"W x 1.75"H

Bracket: 3.5"L x 2.25"W x 3.5"H

**Electrical:** 24VAC (Expanded range ballast: 20V-32V), 50/60Hz, 1.4A. 3000V surge protection. 3-ft power cord. 4-ft lamp cord

**Lamp Length:** 15"

**Weight:** 2lb

**Humidity:** Water resistant lamp.

**Lamp Life:** 9000-hour.

**Warranty:** 4-year on power module. 1-year on lamp.

### LIGHTSTICK® PLUS

#### Dimensions:

Power Module: 4.75"L x 3.16"W x 1.75"H

Bracket: 3.5"L x 2.25"W x 3.5"H

**Electrical:** 24VAC (Expanded range ballast: 20V-32V), 50/60Hz, 1.4A. 3000V surge protection. 3-ft power cord. 4-ft lamp cord

**Lamp Length:** 15"

**Weight:** 2lb

**Humidity:** Water resistant lamp.

**Lamp Life:** 18,000-hour.

**Warranty:** 7-year on power module. 2-year on lamp.



EPA Establishment No. 73316-TX-1

Visit <http://www.dustfree.com/testing> for a list of micro-organisms inactivated by Dust Free® products.

The product and technologies described are not medical devices, and are not intended to diagnose, treat, cure, or prevent any disease or illness.

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.

## UV INSTALLATION NOTES

This device is meant only to be installed in the duct portion of the HVAC system.



### **The power module must be mounted directly to a metal surface.**

This will help the ballast dissipate heat. Failing to mount the ballast properly will void warranty and lead to pre-mature UV bulb failure.

If the UV device is installed on the inlet side (return air side) of a coil, make sure that the HVAC system is configured such that the blower is located between the return air filter and the in-let 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. Optional lamp shield accessory is available to protect air filter. Ask your local wholesaler.

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.**

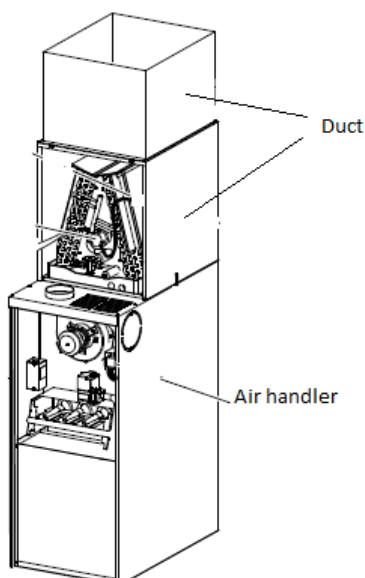


Fig. 1 HVAC system.



### **WARNING**

#### **UV Light Hazard.**

**Can cause serious eye and skin damage.**

*Do not look at UV-C light. Wear UV-C eye and skin protection.*

## W-COIL / ABOVE A-COIL INSTALLATION (Remote Lamp)

- Disconnect power to the air handler and open access panels.
- Magnetic Bracket Installation - Slit insulation on the back or side wall of air handler and attach magnetic bracket to the wall.
- Standard Bracket Installation - Install the lamp bracket at the desired location with two self-drilling screws (included).
- Secure the lamp to the lamp bracket with the provided knurled nuts.
- Connect remote mount lamp power cord.

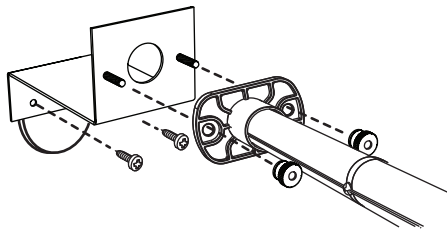


Fig. 2 Attach lamp to lamp bracket and install in desired location.

## A-COIL DELTA PLATE INSTALLATION (Remote Lamp)

- Drill a 7/8" hole into the delta plate and place gasket (included) around hole.
- Insert lamp directly into hole and secure the lamp to the delta plate with two self-drilling screws. (Screws and rubber washers Included.)
- Connect remote mount lamp power cord. **Note: A-Coil delta plate installation does not use lamp bracket.**

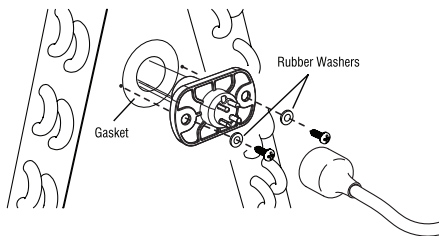


Fig. 3. Insert lamp into delta plate hole and secure with screws and washers. Connect remote lamp power cord.



### NOTICE

**Clean lamp prior to installation.**

*Use a cotton cloth to remove dirt and fingerprints. Failure to clean the lamp could shorten the lamp's lifespan.*



### WARNING

**UV Light Hazard.**

**Can cause serious eye and skin damage.**

*Do not look at UV-C light. Wear UV-C eye and skin protection*

## A-COIL DELTA PLATE INSTALLATION (Direct Connect™)

- Drill a 7/8" hole in the outer sheet metal where the lamp will be centered on the return side of the coil. See diagram.
- Place gasket (included) around hole.
- Insert lamp into power module and secure with self-drilling screws. (Included.)
- Insert lamp/power module assembly directly into hole and secure with self-drilling screws (Included.) **Note: A-Coil delta plate installation does not use lamp bracket.**

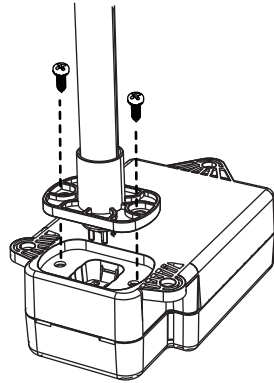


Fig. 4 Insert lamp into power module and secure with screws.

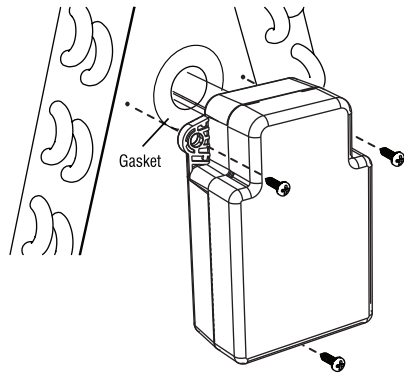


Fig. 4A Insert assembly into delta plate hole and secure with screws.



### NOTICE

**Clean lamp prior to installation.**

*Use a cotton cloth to remove dirt and fingerprints. Failure to clean the lamp could shorten the lamp's lifespan.*



### WARNING

**UV Light Hazard.**

**Can cause serious eye and skin damage.**

*Do not look at UV-C light. Wear UV-C eye and skin protection*

## INSTALL POWER MODULE (Remote Lamp)

- With the lamp cordage facing away from the mounting surface, use the long mounting screws and install the power module in a suitable location inside the control panel of the air handler using two self-drilling screws (included).

**NOTE: DO NOT OVERTIGHTEN SCREWS.**

- Connect the power module to constant 24VAC power.
- Connect input 24VAC power cord. Align markers on power module with power cord connector.

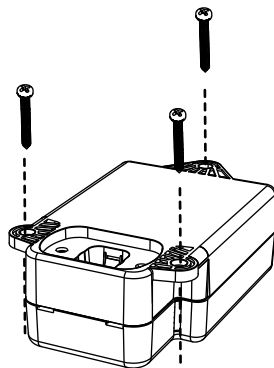


Fig. 5A Flip power module over and secure with long screws. Do not overtighten.

## INSTALL POWER MODULE (Direct Connect™)

- With the lamp directly connected to the power module, connect the power module to the mounting surface using the short, self drilling screws (included).
- Connect the power module to constant 24VAC power.
- Connect input 24VAC power cord. Align markers on power module with power cord connector.

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



### **WARNING**

**Electric Shock Hazard.**

**Can cause injury or death.**

*Disconnect all electrical power supplies before servicing.*



### **WARNING**

**For Use with 24VAC Only..**

**Do not exceed voltage rating.**

*Severe damage to device and/or fire could result. Verify proper voltage.*

## 24VAC INSTALLATION NOTES

Installing the 24VAC UV fixture may require an upgrade to the 24VAC transformer in the furnace, or air handler, depending upon the capacity of the OE specified by the manufacturer of the AHU / furnace.

1. Verify the available volt amps prior to connecting the UV fixture to the 24VAC circuit. Energize all 24VAC components so they reach their maximum amp load (Straight cool system - activate cooling. Heat pump - activate heating mode.)
2. After obtaining the available volt amps, determine if the existing transformer can accommodate a 1.4 amp load:
3. After installing the UV fixture, energize all 24VAC components at their full amp draw, including the UV fixture, and ensure that all systems are operational and that fuses remain intact.
4. RECOMMEND CONNECTING TO A DEDICATED 40VA CLASS 2 TRANSFORMER IF EXISTING TRANSFORMER CANNOT ACCOMMODATE AMP LOAD RECOMMENDED ABOVE.

## CONNECT LAMP

- Connect lamp connector to power module connector. Connectors are keyed for proper alignment. **Be sure to fully seat the connectors for proper electrical connection and water resistance.**



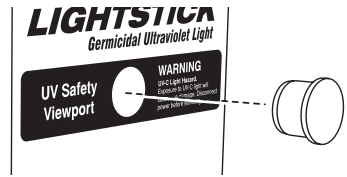
### **NOTICE**

#### **Fully Seat Lamp Connector.**

*Failure to properly seat lamp connector could result in improper lamp operation and/or compromise water resistance.*

## INSTALL UV SAFETY VIEWPORT

- Adhere the provided UV safety label to the outside of the duct near the installation location and drill a 5/8" hole as indicated on the label. Press the UV safety viewport into hole.
- Close all access panels and reconnect power to the air handler.
- Verify that a blue glow can be seen through the UV safety viewport.



### **NOTICE**

#### ***Replace Lamp Per Recommended Maintenance Schedule.***

*UV-C lamps expend their germicidal effectiveness over time. Replace the lamp even if the lamp appears to be operating normally.*



## 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 a period of four (4) years or seven (7) years from the date of purchase. This warranty does not cover UV-C lamp(s), which carry a one (1) year warranty or (2) year warranty from the date of installation.

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®

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