

# BLUE-TUBE XL™

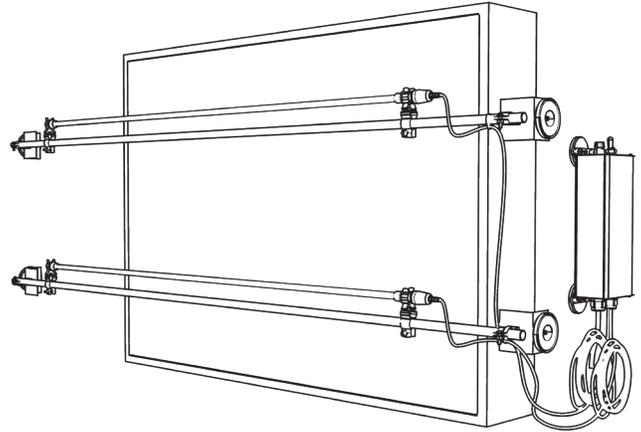
## COMMERCIAL GERMICIDAL UVC SYSTEM



# INSTALLATION & MAINTENANCE

BLUE-TUBE XL™ is designed for installation into commercial air handling units and rooftop package units for the purpose of surface or airborne disinfection using ultraviolet germicidal irradiation. For maximum installation flexibility and cost-effectiveness the UV lamps are mounted onto a framework of standard 0.5" EMT tubing (included). The remotely mounted weather resistant power supply can withstand the wet environment found inside of air handlers or the exposed conditions of outdoor packaged air conditioning systems.

The number and placement of lamps is determined by several factors including coil dimensions and condition or if airborne disinfection is desired. BLUE-TUBE XL™ has everything needed for complete installation in most AHU and RTU equipment.





**WARNING**  
 PROTECT EYES FROM UV LIGHT  
 TURN OFF UNIT OR DISCONNECT  
 BEFORE SERVICING



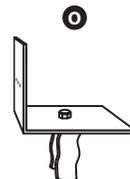
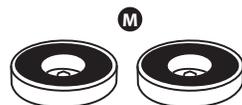
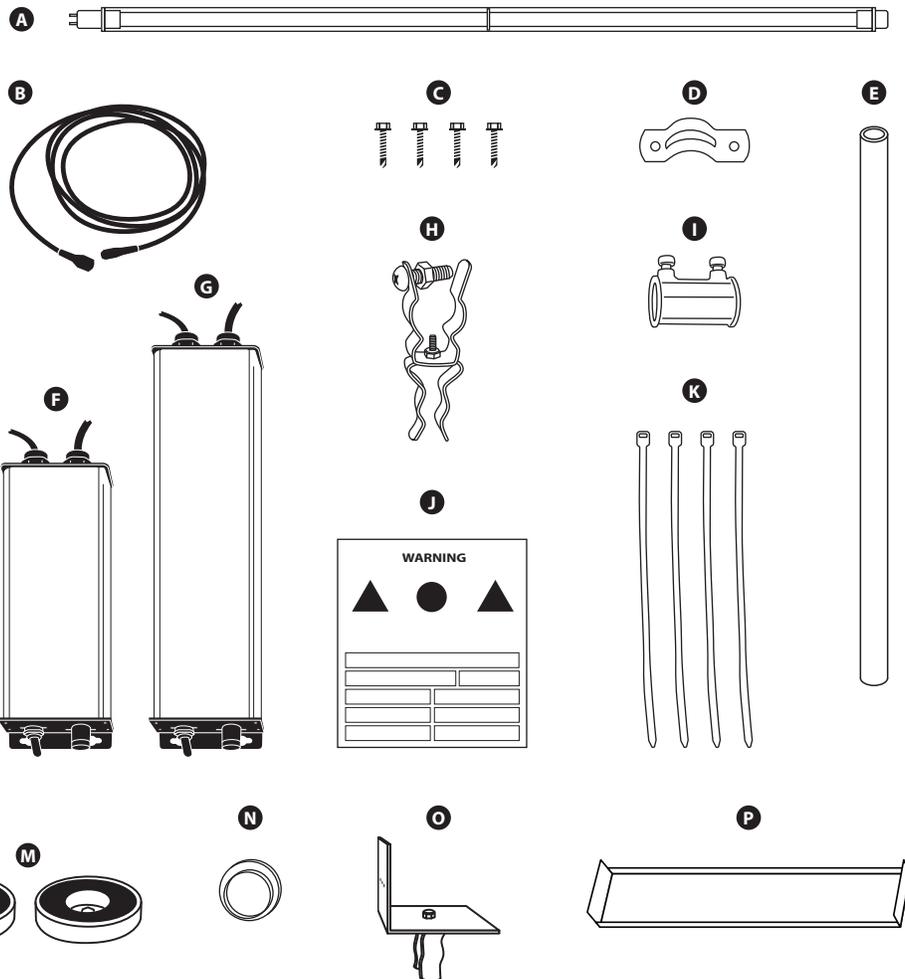
**IMPORTANT!**

- Only qualified technicians should install this product\*
- Install in accordance with relevant building codes
- Read instructions carefully including safety warnings

\*Installation of this product by anyone other than licensed HVAC or electrical contractors voids warranty.  
 © Fresh-Aire UV

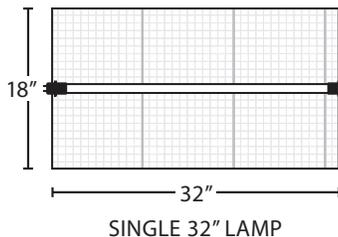
### Parts Included

- Ⓐ UV Lamp(s) 2 Year
- Ⓑ Lamp Cable
- Ⓒ Sheet-metal Screws
- Ⓓ 1/2" Pipe Straps
- Ⓔ 1/2" EMT Tubing (40" length)  
1 piece per lamp
- Ⓕ Power Supply(s) 10" \* (magnet mount)
- Ⓖ Power Supply(s) 14" \*\* (magnet mount)
- Ⓗ Lamp Clip/Conduit Clamps
- Ⓘ 1/2" Pipe Couplings
- Ⓙ UV Warning Sticker
- Ⓚ Black Nylon Zip-Ties
- Ⓛ Power Supply Magnets
- Ⓜ Bracket Magnets
- Ⓝ Sight Glass
- Ⓟ L - Mounting Brackets
- Ⓟ 12" Stand-off



# BLUE-TUBE XL™

COMMERCIAL GERMICIDAL UVC SYSTEM



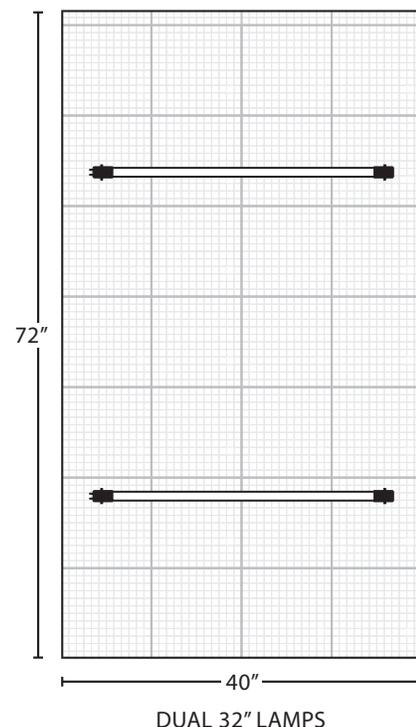
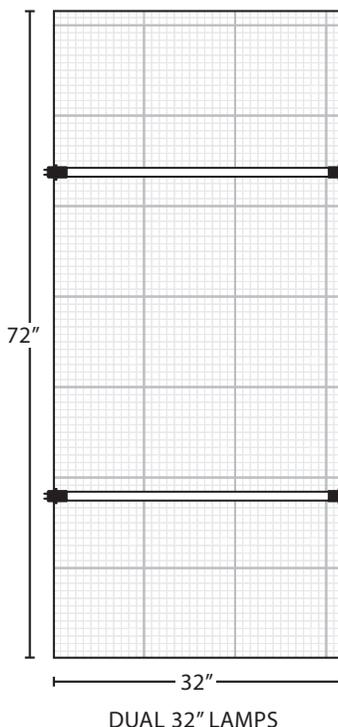
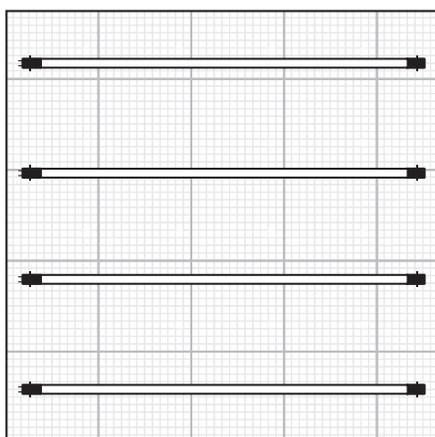
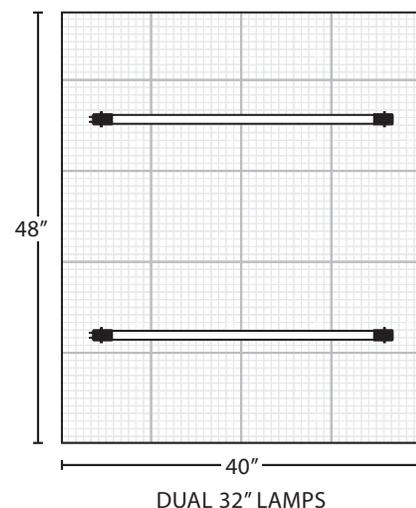
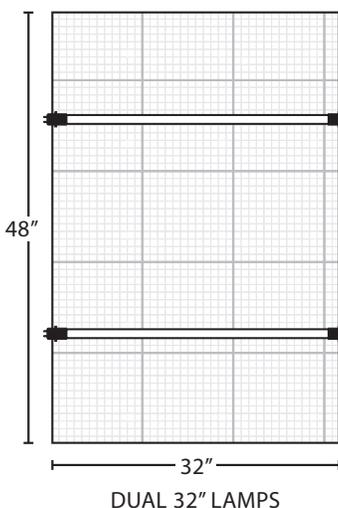
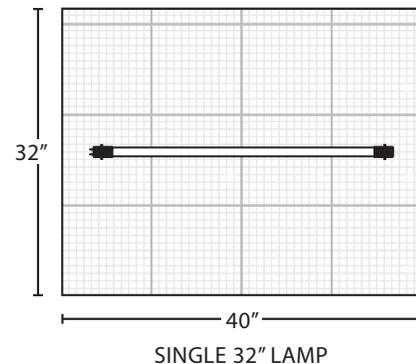
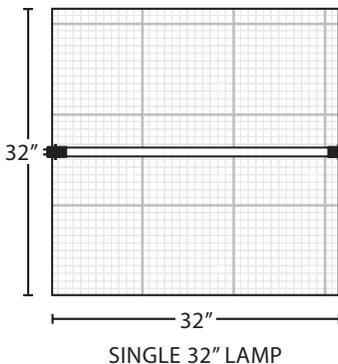
## COIL SIZING REFERENCE

### COIL MOUNT INSTALLATION

1. Determine the dimensions of the coils or area to be irradiated.
2. Use the Coil Sizing Reference to determine the number of lamps needed for proper coverage.
3. Larger coils may require multiple Tubular Rack Kits

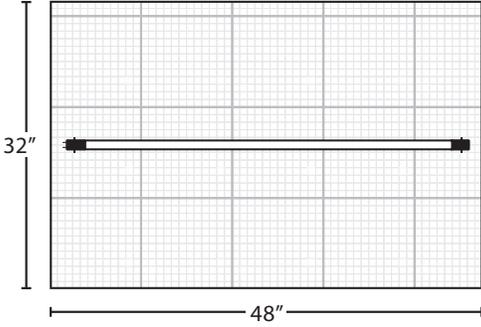
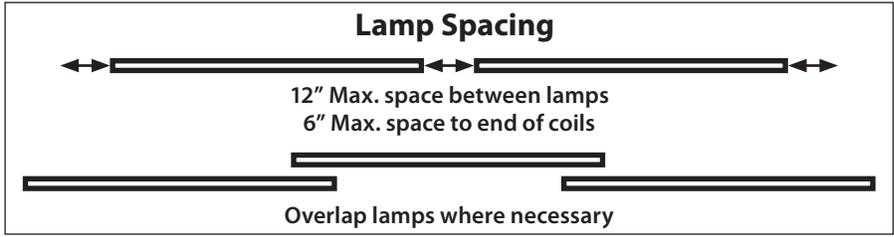
#### UV Lamp Configuration Guidelines

- Maximum germicidal effectiveness is within an 18" radius from UV lamp center axis
- The distance between UV lamp(s) and the irradiated surface should be between 6"-18", 12" is optimal
- The distance between stacked UV lamps should not exceed 35"
- The distance between end to end UV lamps should not exceed 12"
- The distance of UV lamp ends to the edge of irradiated surface should not exceed 6"

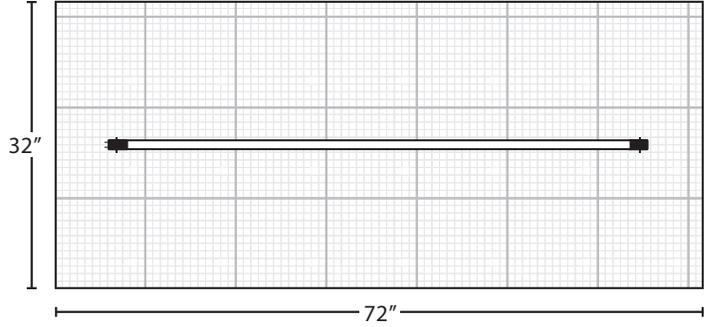


#### NOTE:

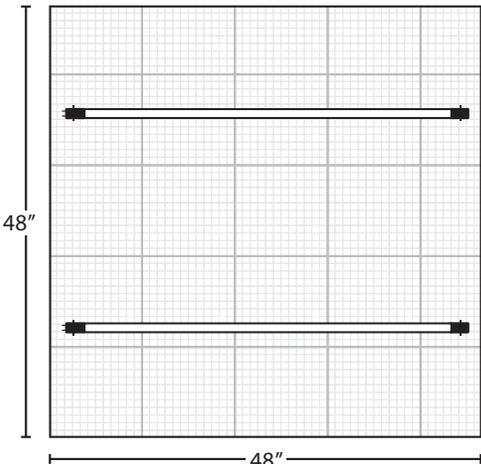
The configurations shown here represent typical UVC coverage for coil surface disinfection. Adding more lamps is acceptable and is recommended for airborne disinfection.



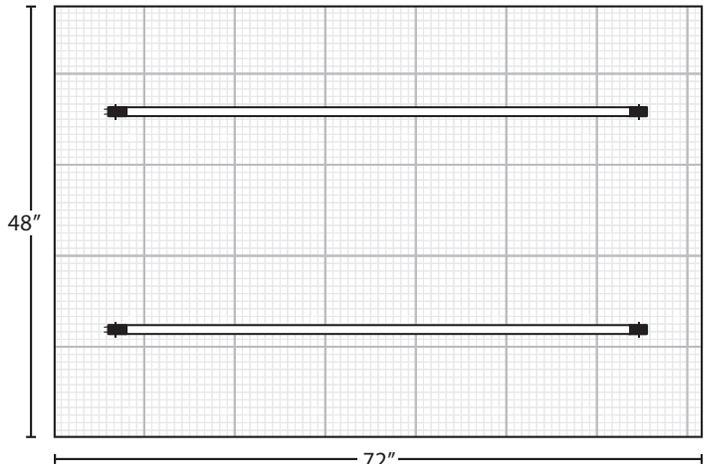
SINGLE 46" LAMP



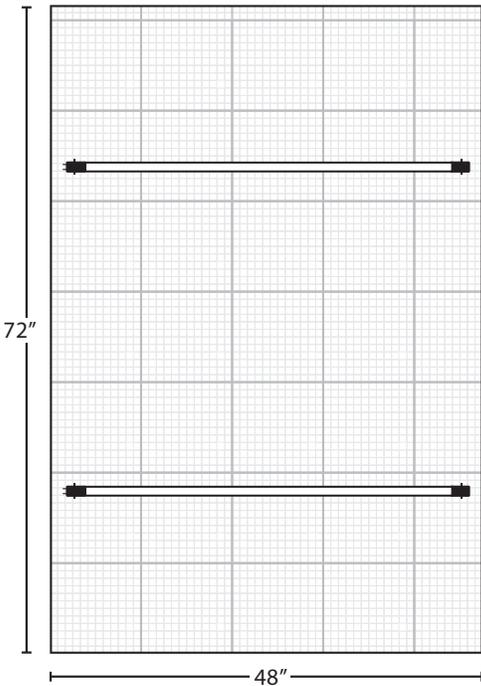
SINGLE 60" LAMP



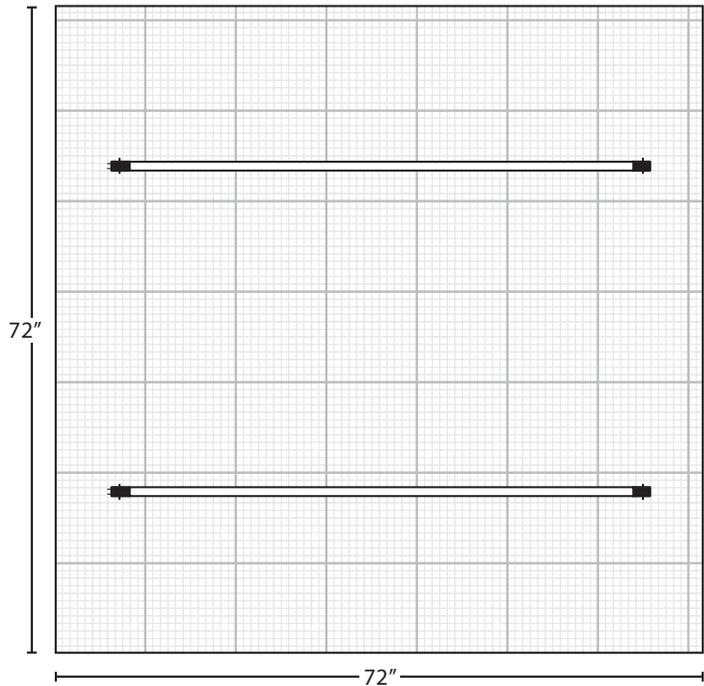
DUAL 46" LAMPS



DUAL 60" LAMPS



DUAL 46" LAMPS

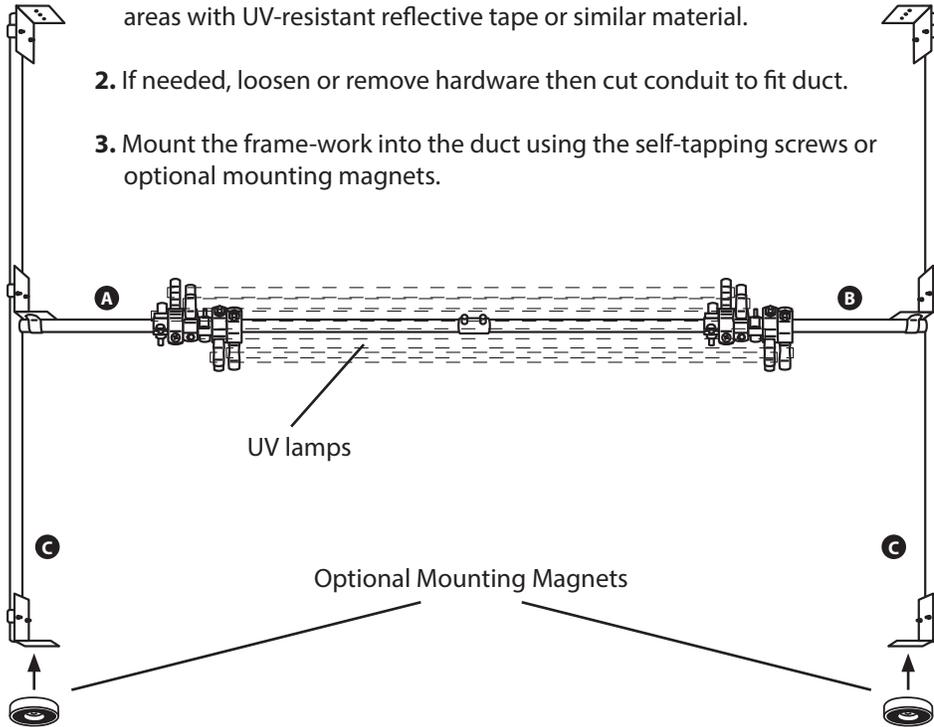


DUAL 60" LAMPS

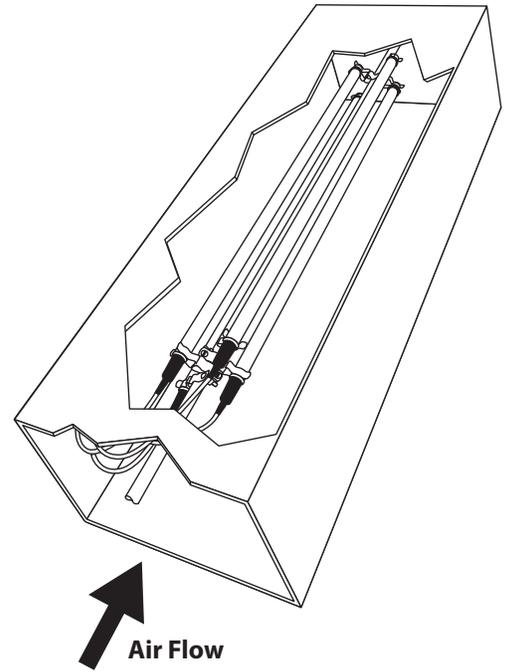
# DUCT MOUNT INSTALLATION

## System Configuration A: In-Line With Air Flow (pre-assembled parts are ready for this configuration)

1. Cut an access panel into the duct. If necessary cover high exposure areas with UV-resistant reflective tape or similar material.
2. If needed, loosen or remove hardware then cut conduit to fit duct.
3. Mount the frame-work into the duct using the self-tapping screws or optional mounting magnets.

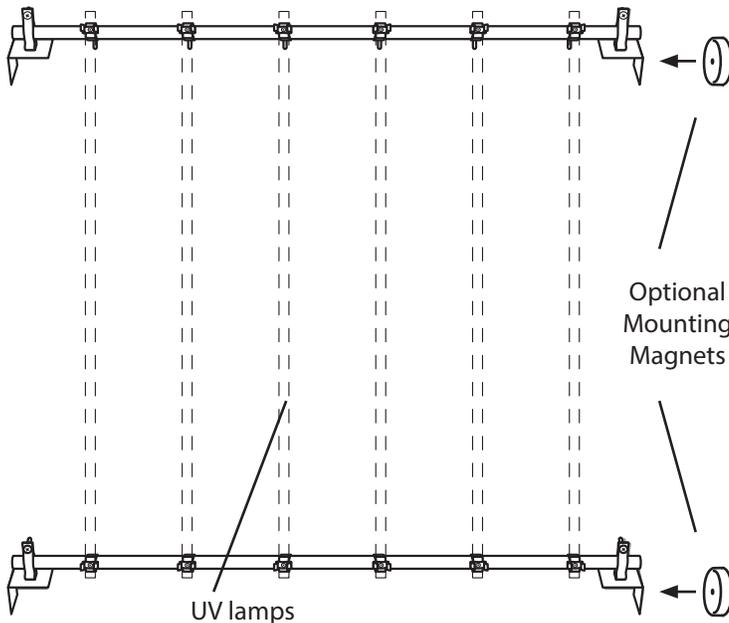


Configuration A Assembled

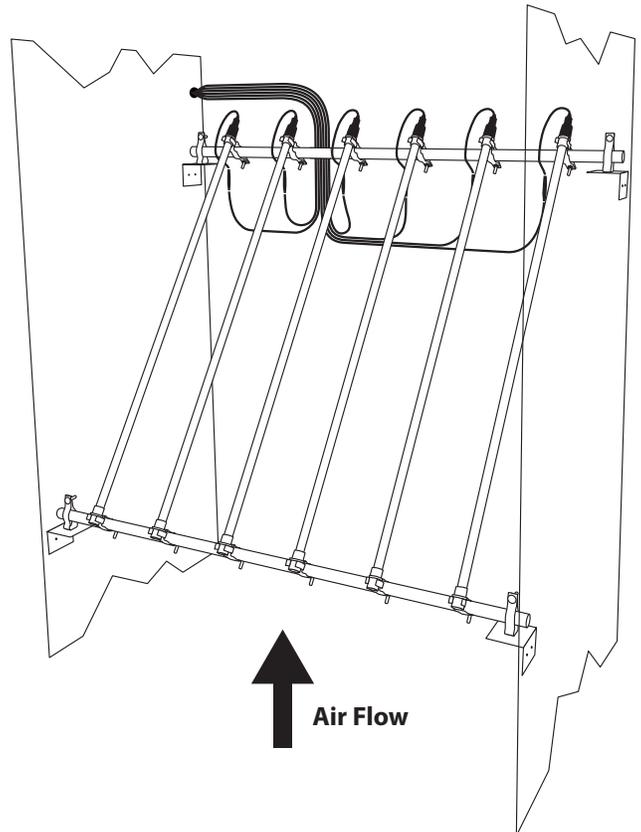


## System Configuration B: Diagonal To Air Flow

1. Cut an access panel into the duct. If necessary cover high exposure areas with UV-resistant reflective tape or similar material.
2. Remove hardware then cut conduit to fit duct.
3. Re-attach hardware in the configuration below.
4. Adjust the angle of the mounting brackets so the UV lamps will cross the air-stream diagonally. Mount the frame-work into the duct using the self-tapping screws or optional mounting magnets.



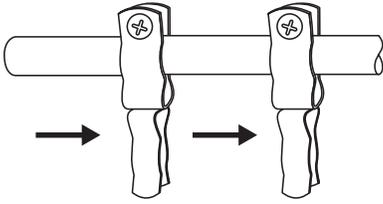
Configuration B Assembled



## 1 Assemble Conduit Framework

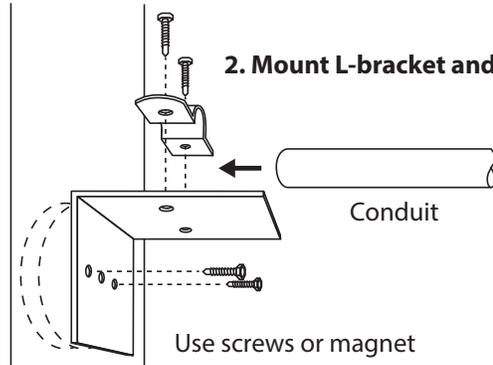
1. Measure and cut tubing to length then slide on conduit/lamp clamps (do not fully tighten bolts yet).

### 1. Slide On Hardware



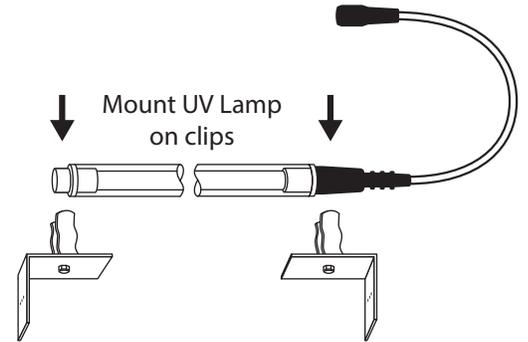
2. Mount the L-bracket and tubing as shown. Mount L-bracket to air handler wall using screws or magnet (galvanized metal only).

### 2. Mount L-bracket and Tubing



## 2 Install UV Lamps

Snap **UV Lamps** into the **Lamp/conduit Clamps**. Be sure to clamp to the rubber lamp connector on one end and the ceramic lamp tip on the other end. **DO NOT clamp onto the lamp glass**. Use **Black Nylon Zip-Ties** to secure lamp cables to Blue-Tube XL components and/or supports.



### **IMPORTANT! Install in accordance with all state and local electrical and building codes.**

Proper voltage is automatically selected by the unit between 120–277 VAC Single Phase 50/60 hz. For 460 VAC use a step-down transformer.

### **IMPORTANT! An external power suppressor is suggested if power surges occur often.**

## 3 Mount Power Supply

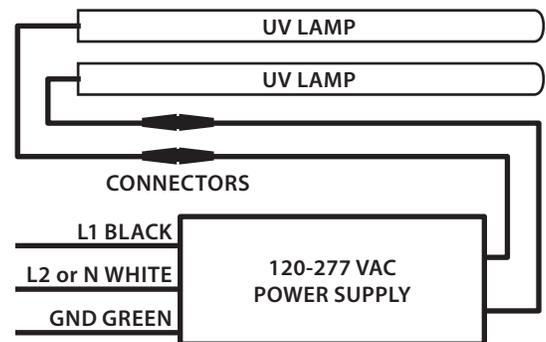
Mount the power supply in a location (inside or outside of the HVAC system) that is convenient for access to the main power supply and for connection to the UV lamps. The power supply is weather resistant and is suitable for mounting inside or outside of the air handler. An **Optional Power Supply Panel Mount** (part # TUVCP) is available for mounting two or more power supplies.

1. Use the supplied self-taping sheet metal screws to mount the power supply in place through the mounting holes on the sides of the base. It is recommended to use wire boxes or another sealing method to pass the power cord and lamp cables into the interior of the air handler for connections. We also offer an **Optional 3/4" or 1" Cable Strain Relief**

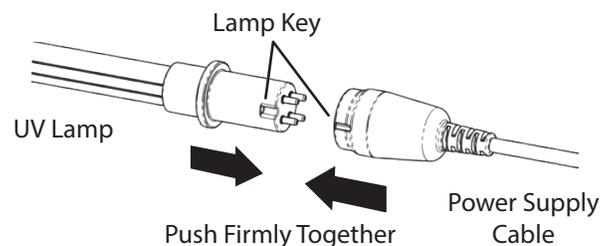
2. **IMPORTANT! Turn off main power before making electrical connections.** Refer to the **Electrical Diagram** for proper connection of the power supply to the main power.

3. An **Optional Door Interlock Switch** is available to prevent accidental exposure to UV Light. Interlock switches are mounted on the access panels and doors so the UV lights turn off when the entryway is opened.

### Electrical Diagram



Align Pins & Lamp Key



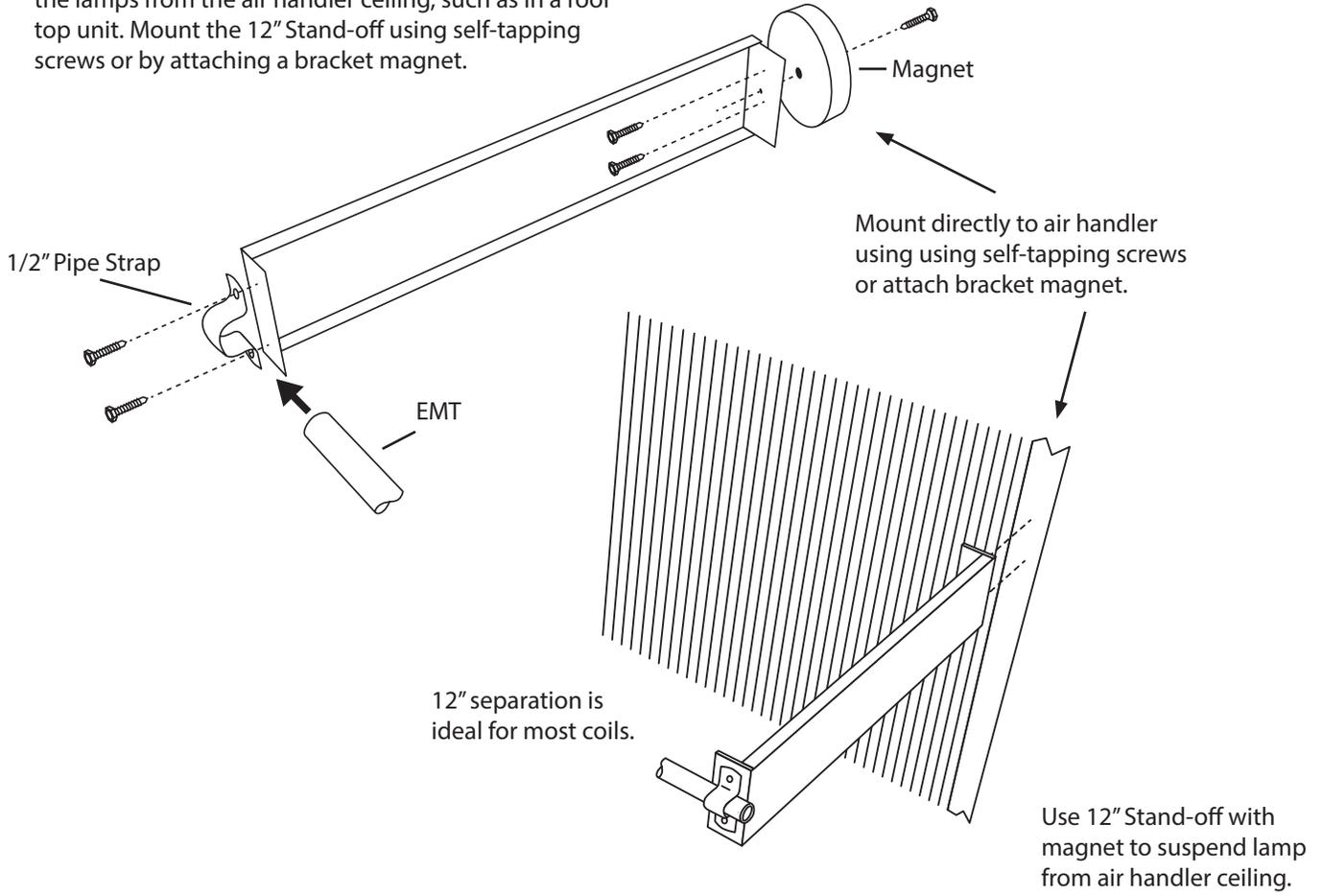
## 4 Connect Lamps & Cables

Arrange cables as needed for installation. When UV lamps, power supplies, and cables are in place join the lamp and power supply cables by aligning the electrical pins and flanges on the rubber connectors and pushing them firmly together.

**When adding lamp extensions, 20 ft. is the maximum distance from power supply to the lamp.**

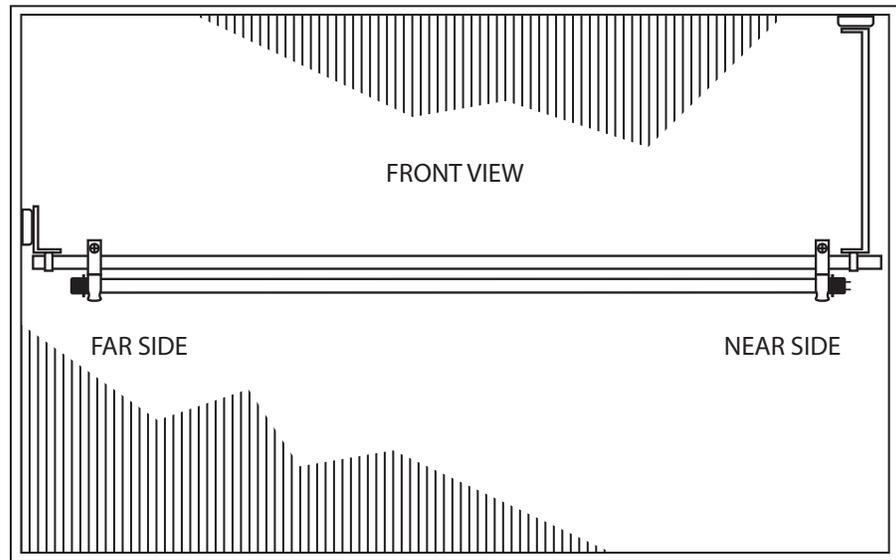
### Assemble Conduit Framework cont.

3. When needed, use the 12" Stand-off on the near side to create separation between lamps and coil or to suspend the lamps from the air handler ceiling, such as in a roof top unit. Mount the 12" Stand-off using self-tapping screws or by attaching a bracket magnet.



Typical RTU installation

Use an L-Bracket (mounted with magnet or screws) to secure the assembly to the air handler far side wall.





## 5 Sight Glass Installation

1. The sight glass allows safe viewing of the UV light system when in operation. Find a suitable location such as a door to the HVAC system for the sight glass.
2. Drill a 1" hole and press the base of the sight glass through it.

## 6 Power-up System

**Caution: UVC light** that can cause **Serious Eye Burns** and **Temporary Blindness**, Ensure all access panels have been replaced and doors closed before powering-up the system.

Turn on the main power then switch on the UV light power supply(s). Use the sight glass to confirm that the UV Lamp(s) is operating.

## 7 UV System Maintenance

Periodically wipe the UV lamps with a clean cloth or alcohol swab to remove any accumulated dust or dirt. This should be performed at least every 6-9 months or during routine maintenance intervals. Fouling could occur if lamps are installed under chilled water lines. Wipe clean or install optional shield.

## 8 UV Lamp Replacement

Blue-Tube XL high output lamps are rated for two years germicidal effectiveness. The lamps will continue to glow after they have passed their rated life span but their germ-killing effectiveness diminishes with time so they must be replaced on schedule for the system to function properly.

**Contact your local dealer for replacement lamps.**

Part# TUVCL-232HO	32" High Output 2 Year Lamp
Part# TUVCL-246HO	46" High Output 2 Year Lamp
Part# TUVCL-260HO	60" High Output 2 Year Lamp

**Important!** Use only Fresh-Aire UV® replacement lamps. Use of replacement lamps from other manufacturers voids the warranty.

## 9 Trouble Shooting

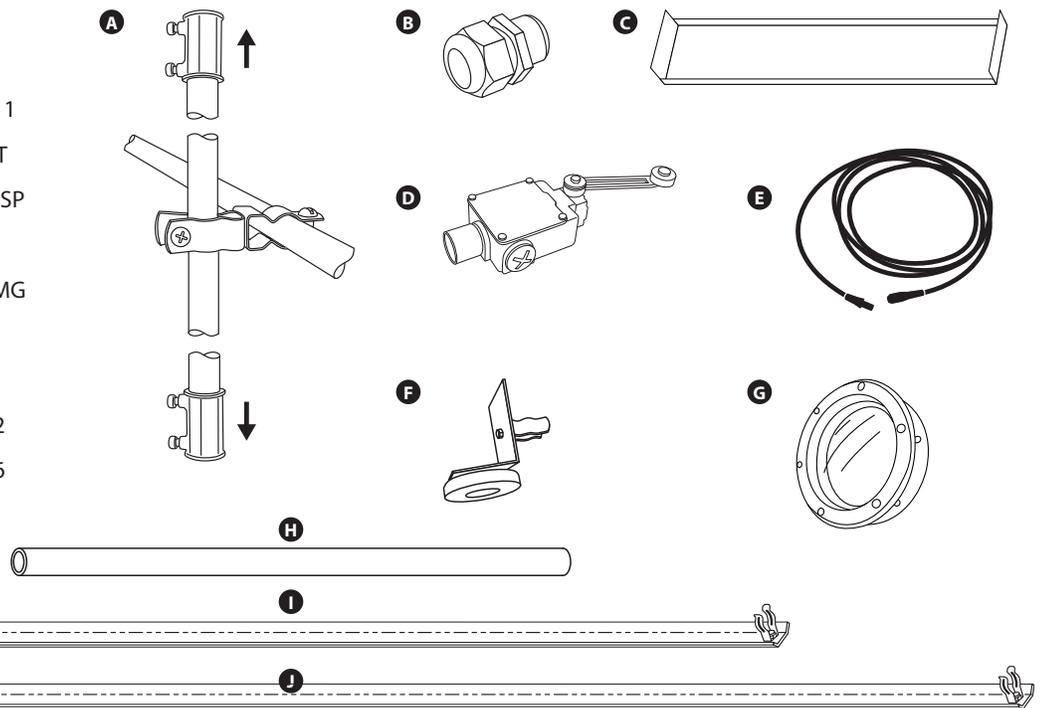
Problem	Solution
UV Lamp(s) Not Lighting	<ol style="list-style-type: none"> <li>1. Check that power is applied.</li> <li>2. Check that the unit is turned ON.</li> <li>3. Ensure the remote lamp cables are properly connected.</li> <li>4. Check the fuse. Replace only with same size and type.</li> <li>5. Reset power switch on power supply (off then on).</li> <li>6. Install New UV Lamp(s).</li> <li>7. Consult Factory.</li> </ol>
UV Lamp(s) Flickering	<ol style="list-style-type: none"> <li>1. UV Lamp(s) have reached end of effective service life. Install new lamp(s) of same type.</li> <li>2. If unit is new, check remote cables to ensure they are properly connected.</li> <li>3. Reset power switch on power supply (off then on).</li> <li>4. If new lamps still flicker, consult factory.</li> </ol>
UV Lamps Have burned Out Prematurely	<ol style="list-style-type: none"> <li>1. Consult Factory.</li> </ol>
Power Supply Will Not Light UV Lamps even after new lamps are installed	<ol style="list-style-type: none"> <li>1. Consult Factory.</li> <li>2. External power suppressor may be needed if power surges occur.</li> </ol>

## Fresh-Aire UV® Commercial Series Accessories

Customize your UVGI installation with genuine Fresh-Aire UV® Commercial Series Accessories. Available where you purchased your BLUE-TUBE XL™.

### Optional Parts

	Part #
<b>A</b> Vertical Support Kit	TUVC-VS
<b>B</b> Cable Strain Relief	TUVC-SR $\frac{1}{2}$ , $\frac{3}{4}$ , 1
<b>C</b> 12" Stand-off	TUVC-CMBRKT
<b>D</b> Door Interlock Switch	TUVC-INTLCK-SP
<b>E</b> Cable Extensions	TUVC-BL5, 10
<b>F</b> Mounting Magnet	TUVC-LBRKT-MG
<b>G</b> Large Round View Port	TUVC-VP-O
<b>H</b> Stainless Steel Tubing	TUVC-SST $\frac{3}{4}$
<b>I</b> UV Shield	TUV-SHIELD32
<b>J</b> UV Shield	TUV-SHIELD46



### Manufacturer's Warranty:

This warranty supersedes and replaces any warranty statements orally made by the Sales Person, Distributor or Dealer or contained in the written instructions or other Brochures or informational documents in relation to this product. This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.

**What Does This Warranty Cover?** This lifetime limited manufacturer warranty covers any defects or malfunctions in material and workmanship under the normal use and service when operated and maintained in strict accordance with manufacturer's instructions for the Lifetime of the equipment.

**How Long Does The Coverage Last?** 1) Fresh-Aire UV Power Supply: For as long as you own the real property where the product is installed. 2) TUVCL-1XX Series Ultraviolet Lamp is warranted for germicidal output for one-year from the date of installation. 3) TUVCL-2XX Series Ultraviolet Lamp is warranted for germicidal output for two (2) years from the date of installation. This warranty is not transferable.

**What Will Triatomic Environmental, Inc. Do?** Triatomic Environmental, Inc. will replace any defective or malfunctioning part at no charge. You must pay any labor charges and shipping charges of defective product to our warranty department.

**What Does This Warranty Not Cover?** THIS PRODUCT IS NOT INTENDED TO BE PURCHASED AND INSTALLED BY UNLICENSED HVAC OR ELECTRICAL CONTRACTORS. This warranty does not cover products or parts purchased from any source other than licensed HVAC or electrical contractors. This warranty does not cover parts installed by unlicensed HVAC or electrical contractors. This warranty does not cover parts damaged as a result of misuse, abuse, or any use other than its intended use, accident, acts of god, neglect, or from improper operation, maintenance, installation, modification or adjustments. Triatomic Environmental, Inc. shall have no responsibility for charges incurred by the customer for installation or removal of warranted items.

This warranty does not cover parts or equipment used with the Fresh-Aire system that are not manufactured by Triatomic Environmental, Inc.

**\*\*This warranty shall be void if UV lamps from manufacturer's other than Triatomic Environmental, Inc. are used with this equipment.**

Consequential and incidental damages are not recoverable under this warranty. Manufacturer assumes no liability for any harm, which may occur as a result of the use of the equipment herein and shall not be liable for consequential or any other damages whether or not caused by manufacturer's negligence or resulting from any express or implied warranty or breach thereof. Consequential damages for the purpose of this warranty shall include, but not be limited to, loss of use, income or profit, or loss of or damages to property or injury or death to persons or animals occasioned by or arising out of operation, use, the operation, installation, repair or replacement of the equipment or otherwise. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

There are no Warranties which extend beyond the description of the face hereof.

**How Do You Get Service?** In order to be eligible for service under this warranty you MUST return the warranty registration card or register online at [www.freshaireuv.com](http://www.freshaireuv.com). If something is wrong with your product, call your installing contractor to receive a Return Merchandise Authorization (RMA) and instructions for returning the product to a licensed distributor in your area or the manufacturer.

Once the product is returned, we will inspect your product and contact you within 10 business days of our receipt of the product to give the results of our inspection. If we determine that the product is covered under this warranty, we will ship to you at no additional cost a replacement part. Replacement parts may be refurbished. If we determine that the product is not covered under this warranty, or that this warranty is void, the product will be returned to you COD. There is no charge for inspection.

**How Does State Law Apply?** This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

# WWW.FRESHAIREUV.COM

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DESIGNED &  
ASSEMBLED  
IN THE U.S.A.