

**DLX-N™ High Output Dual Lamp NEMA 4 UV-C Fixture**  
**GENERAL INSTALLATION INSTRUCTIONS**  
**57806550**

 **CAUTION! Never Expose Eyes or Skin to UV-C - Read all Materials before Starting**

**SAFETY CONSIDERATIONS**

Improper installation, adjustment, alteration, service, maintenance, or use can cause fire, electrical shock, or other conditions which may cause personal injury or property damage. Consult a qualified installer, service agency, or your supplier for information or assistance. The qualified installer or agency must use factory kits or accessories when installing this product. Refer to the individual instructions packaged with kits or accessories when installing them. Follow all safety codes, wear safety glasses and work gloves. Read all instructions thoroughly and follow any warnings or cautions attached to any accessed area. Consult local building codes and the National Electrical Code (NEC) for special requirements.

Understand the signal words **DANGER, WARNING or CAUTION**. These words are universally used for overall safety. **DANGER** identifies the most serious hazards, which will result in severe personal injury or death. **WARNING** signifies hazards, which could result in personal injury or death. **CAUTION** is used to identify unsafe practices, which would result in minor personal injury or product and property damage.



**WARNING:** Before installing or servicing this unit, turn off or disconnect all power, there may be more than one (1) switch.



**CAUTION-UV Exposure Precautions:**

1. Doors, covers, lamp mounting brackets, access panels, and removable components that give direct access to Ultraviolet (UV) lamp systems shall be equipped with an interlocking mechanism that removes power from the Ultraviolet (UV) lamp system
2. There should be no openings, holes or joints that allow UV light leakage.
3. Drain pans shall be metallic
4. Some UV installations may require protective barriers (not supplied) to protect users, service personnel and non-metallic parts from UV energy.

**Barriers** (if required, not supplied):

- a. Barrier should be constructed of a material that will not be affected by UV energy (e.g. metal)
- b. Non-Metallic materials may be protected by directly attached barriers such as aluminum coated tape.
- c. Both the unit inlet and outlet should be considered as possible Ultraviolet (UV) radiation paths when determining barrier locations.
- d. The unit filters are not considered Ultraviolet (UV) radiation barriers.

*Removable barriers shall be marked with the words "Caution" and the following or equivalent: "UV LIGHT SOURCE - KEEP PROTECTIVE BARRIER IN PLACE"*



**CAUTION-Material Exposure / degradation:**

1. Any non-metallic parts exposed to UV shall be shielded  
Note: Metallic barriers, and aluminum tape are appropriate means of shielding. Non-metallic parts include, but not limited to, conductors, connectors, enclosures, housings, drain pans, support pieces, gaskets and filters.
2. Protective materials can include barriers (referenced above), conduit, aluminum tape, etc. Please reference ASHRAE® 2020-Systems and Equipment handbook for additional information<sup>1</sup>.
3. Inorganic materials such as glass, glass fibers, and metal are not affected by UV-C exposure<sup>123</sup>.
4. Shield all organic material components within 5 ft (1.5 m) of the UV lamp<sup>1</sup>

<sup>1</sup> ASHRAE-2020. UV-C Photodegradation of Materials. Systems and Equipment Handbook. 17.6

<sup>2</sup> Kaufman, R.E. 2017. Study the HVAC System Photodegradation Caused by the Low Level UVC Light Irradiance Used for Coil Maintenance and Air Stream Disinfection. ASHRAE Research Project 1724, Final Report

<sup>3</sup> Kauffman, R. 2011. Study the degradation of typical HVAC materials, filters and components irradiated by UVC energy. ASHRAE Research Project RP-1509, Final Report.

### **Power Ratings:**

The DLX-N (NEMA 4) is rated for 120-277Vac 50-60Hz, single phase. NOTE: Grounding should be neutral-to-ground.

**\*\*\*Note: Use only "800mA" (high output) T5 diameter, 4-pin single ended (4PSE) lamps – sizes 12" to 31" with this product\*\*\***

### **Compliance:**



Underwriter Laboratories (UL) ABQK, Accessories, Air Duct Mounted. Tested in accordance with ANSI/UL 1995, ANSI/UL 153, ANSI/UL 1598 and ANSI/UL 867. The health aspects associated with the use of this product and its ability to aid in disinfection of environmental air have not been investigated by UL.

Les aspects sanitaires liés à l'utilisation de ce produit et sa capacité à contribuer à la désinfection de l'air ambiant n'ont pas été étudiés par UL.

**EPA™** Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), EPA Establishment No. 92627

**WARNING:** Eye damage may result from directly viewing the light produced by these lamps. To reduce the risk of exposure to UV radiation, take UV-radiation protective measures for personnel during servicing.

#### **AVERTISSEMENT:**

Le fait de regarder directement la lumière produite par ces lampes peut provoquer des lésions aux yeux. Pour réduire le risque d'exposition aux rayons UV, prenez des mesures de protection du personnel contre les rayons UV lors de la maintenance.

**WARNING:** This fixture is designed for use with germicidal UV-C lamps and must be installed in compliance with competent technical directions so that user's eyes and bare skin will not be subjected to injurious rays.

#### **AVERTISSEMENT:**

Cet appareil est conçu pour être utilisé avec des lampes UV-C germicides et doit être installé conformément aux instructions techniques en vigueur de sorte que les yeux et la peau nue de l'utilisateur ne soient pas soumis à des rayons nocifs.

**WARNING:** There shall not be any supply or return air openings or any other openings that are in direct line of sight of the UV bulb.

#### **AVERTISSEMENT:**

Il ne doit pas y avoir d'ouvertures d'alimentation en air ou de retour dans les conduits ni d'autres ouvertures directement visibles de la lampe UV

**WARNING:** There shall not be any openings in the duct that would emit light.

**AVERTISSEMENT:** Il ne doit y avoir aucune ouverture dans le conduit émettant de la lumière

**WARNING:** UV Light Hazard. To prevent exposure to ultraviolet light, be sure the ultraviolet air treatment system is disconnected before servicing any part of the HVAC system or removing any access panel or the equivalent.

#### **AVERTISSEMENT:**

Risque de rayons UV. Pour éviter toute exposition aux rayons ultraviolets, assurez-vous que le système de traitement d'air par ultraviolets est débranché avant de procéder à toute opération de maintenance ou de retirer tout panneau d'accès ou l'équivalent.

**CAUTION:** Personal Injury Hazard. Power supply can cause electrical shock. Disconnect power supply before servicing or beginning installation.

**ATTENTION:** Risque de blessure corporelle. L'alimentation peut provoquer un choc électrique. Débranchez l'alimentation avant de réparer ou de commencer l'installation.

**CAUTION:** Risk of exposure to excessive ultraviolet (UV) radiation - Do not operate without complete lamp enclosure in place or if sight lens is damaged.

#### **MISE EN GARDE:**

Risque d'exposition à un rayonnement ultraviolet (UV) excessif - Ne pas utiliser sans la protection complète de la lampe ou si la lentille est endommagée.

**Power Consumption:**

**\*\*NOTE: Each DLX-N Fixture uses two (2) lamps – Watts and Amps in below table are for the TWO lamp fixture\*\*\***

<u>MODEL #</u>	<u>Electrical Watts*</u>	<u>Amps at 120V</u>	<u>Max °F</u>	<u>Fixture Lamp Watts (2 lamps)</u>
DLX-12-T5O8-HO-EL	55	0.46	150°F	26W x 2 = 52W
DLX-16-T5O8-HO-EL	86	0.72	150°F	40W x 2 = 80W
DLX-20-T5O8-HO-EL	104	0.87	150°F	48W x 2 = 96W
DLX-24-T5O8-HO-EL	124	1.03	150°F	58W x 2 = 116W
DLX-31-T5O8-HO-EL	156	1.30	150°F	72W x 2 = 144W

\*To calculate amps, divide electrical watts by supplied voltage (120-277Vac 50-60Hz, single phase)

-Fixture will not operate unless both lamps are installed or if one lamp fails

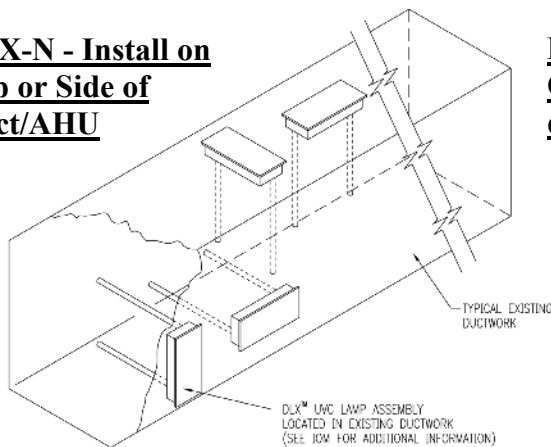
-Fixture will not operate if one lamp fails

**What's included:**

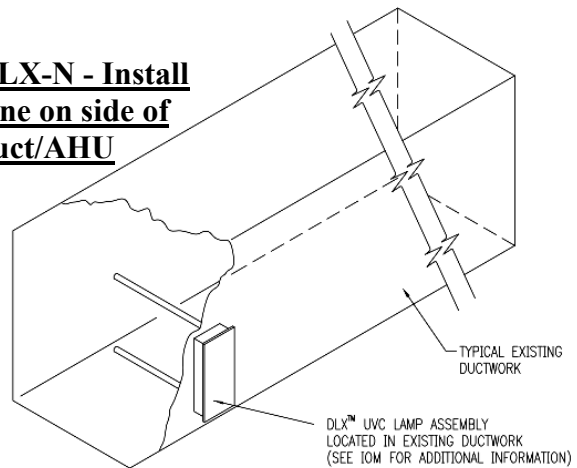
- DLX-N Fixture
- DLX-N installation Kit:
  - Installation Operation Manual (IOM)
  - Door Warning Label (English)
  - Self-Drilling Mounting Screws (x6)
  - Wire nuts (x2)

**Installation Configuration Options:**

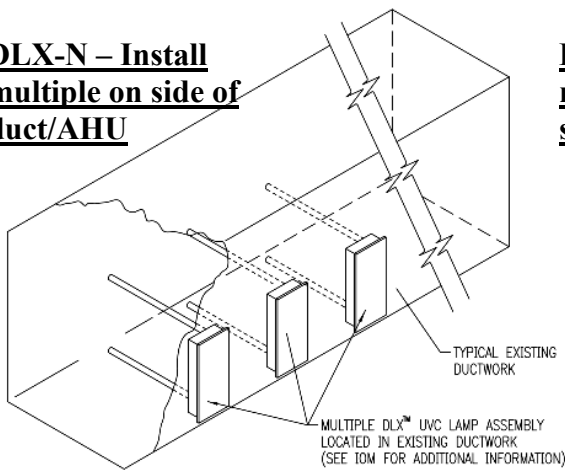
**DLX-N - Install on  
Top or Side of  
Duct/AHU**



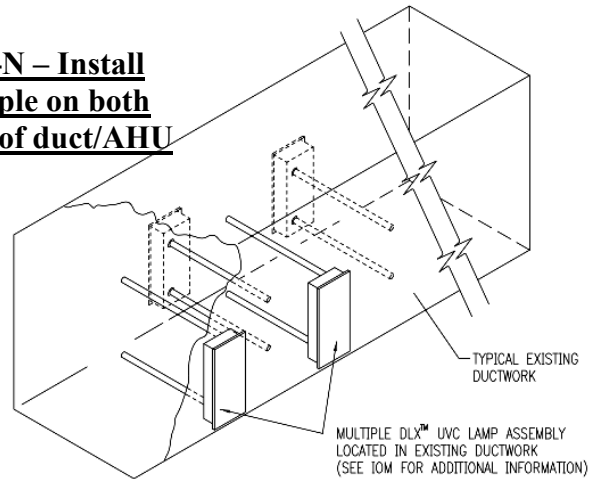
**DLX-N - Install  
One on side of  
duct/AHU**




### DLX-N – Install multiple on side of duct/AHU



### DLX-N – Install multiple on both sides of duct/AHU



### **Installation (designed for metal plenums only):**

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1. Consult all applicable codes before installing. Check fixture label(s) for the correct power requirements and supply the correct voltage from a suitable, protected (fused or breaker), and grounded power source.
  2. NOTE: Internal duct insulation (if not glass based) should be removed before DLX-N installation  
**CAUTION: Using other than labeled voltage voids product warranty and may do damage to the entire system. Fixtures should be operated continuously to avoid the growth of mold and bacteria during optimum conditions (i.e. AHU/ RTU is off).**
  3. Power must also be switched at all install access points with a properly rated, SPST interlock switch to completely de-energize the assembly when its install location is accessed. Accesses are to have signs in appropriate languages alerting maintenance personnel to the possible hazard of looking at or exposing skin to UV-C energy (English label provided).
  4. Once the mounting location is identified, use the DLX-N fixture housing as a template by removing the cover and marking lamp insertion holes on the metal surface (mounting screw holes can be marked if necessary).
  5. Drill a 7/8" lamp hole(s) using proper bit (e.g.: step drill bit). **CAUTION: Do not drill into refrigerant lines, electrical wires, fan, etc.**
  6. Align DLX-N fixture housing to lamp hole and attach to surface using 6 self-tapping/self-drilling screws (provided).
  7. **For additional protection against outdoor elements, it is recommended that the entire perimeter of the DLX-N housing be sealed with appropriate sealant (e.g. RTV silicone, not included).**

### **Connecting Power:**



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1. Read fixture label – be sure to sum the power requirements when installing more than one fixture. Wire with the proper 'wire gauge' in accordance with the NEC and local codes.
  2. Power-in must be interruptible at all UV access points using a properly rated, SPST interlock switch to completely de-energize the UV lights when their location is accessed. Using a toggle switch is also recommended.
  3. There is one electrical knockout on the "back" of the fixture for wiring inside the plenum. However, using a step-down drill bit, other electrical access points can be created where waterproof fittings can be used (not supplied).
  4. Connect the green (ground) wire to the "grounding lug" (Photo 1)
  5. Using wire nut connector (provided), connect the white wire ("neutral") to the white wire coming from the ballast. (Photo 2)
  6. Using wire nut connector (provided), connect the black wire ("hot") to the black wire coming from the ballast. (Photo 3)
  7. Apply Warning Labels on all access doors/ports/panels as indicated above (one included).



Photo 1

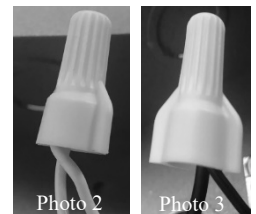


Photo 2

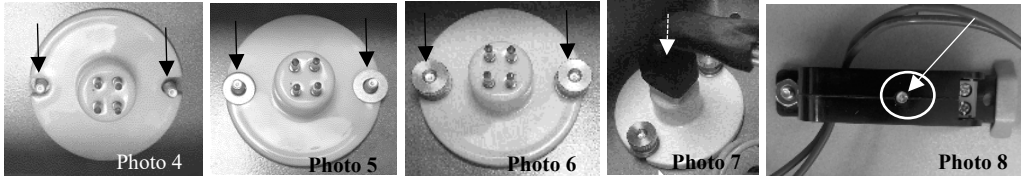


Photo 3

## **Installing lamps**

Note: The DLX-N Fixture uses EncapsuLamp™ technology (FEP coated lamps) therefore you can handle the lamp and not worry about cleaning the surface. Non-FEP coated lamps can be used as an alternative.

1. Remove the “thumb nuts” and washers from the lamp mounting studs.
2. Insert lamp through hole into plenum until lamp base is aligned with mounting studs (Photo 4).
3. Replace the washers and thumb nuts, finger tighten snug (Photo 5 & 6). DO NOT OVER TIGHTEN
4. Repeat with second lamp.
5. Align lamp connector with pins on lamp and push until pins are completely inserted into connector (Photo 7).
6. CU2™ (Photo 8) provides lamp/ballast status and can be used to communicate with a building management system (See CU2 manual for additional information)
7. Replace fixture lid with 6 screws and tighten to insure tight fit.
8. Energize the system.



## **Replacing Lamps**

Ultraviolet lamps should be replaced annually if operated continuously (recommended) or after 9,000 hours of use if operated intermittently. Replacement lamps must be the specific size and wattage as originally supplied from the factory. **Note:** Although the lamps may continue to generate a characteristic blue glow beyond 9,000 operating hours, the ultraviolet radiation emitted by the lamp(s) degrades over time and will no longer provide the intended benefit.

## **Maintenance:**

The intensity of the ultraviolet energy emitted from the UV lamps is dependent on the cleanliness and lamp age. The surface of the lamp should be kept as clean as possible for optimum intensity. Depending on the filtration level of the HVAC system and the general hygiene of the building, periodic cleaning may be necessary. Before attempting any maintenance procedures, always follow all warnings and cautions as detailed in this maintenance section.

## **Cleaning Lamps**

Note: If lamps are found to be broken, see the proper warning and cautions below regarding broken lamps and hazardous vapors.

1. Disconnect all electrical power to the unit and the UV lamps.
2. Wearing soft cloth gloves and safety glasses remove lamp from DLX-N
3. Wipe down each lamp with a clean cloth and isopropyl alcohol. Avoid touching lamp glass with hands as skin oils can accelerate lamp degradation. (If lamps are coated with Teflon they can be touched with bare hands).

## **Lamp Disposal:**

UV lamps should be treated the same as other mercury-containing devices, such as fluorescent bulbs, according to local regulations. Most lamps must be treated as hazardous waste and cannot be discarded with regular waste. Low-mercury bulbs often can be discarded as regular waste; however, some states and local jurisdictions classify these lamps as hazardous waste. The U.S. EPA's universal waste regulations allow users to treat mercury lamps as regular waste for the purpose of transporting to a recycling facility. The National Electrical Manufacturers Association (NEMA) maintains a list of companies claiming to recycle or handle used mercury lamps at [www.lamprecycle.org](http://www.lamprecycle.org)

## EQUIPMENT WARRANTY

UV Resources™ (UVR) warrants to the original buyer that its Products shall be free from defects in material or workmanship under normal use and service for the periods of time set forth below. This warranty is contingent upon proper use of Products and will not apply if adjustment, repair or parts replacement is required because of an accident, unusual physical, electrical or electro-mechanical stress, neglect, misuse, failure of electric power, humidity control, transportation, unauthorized repair actions, or not installed or maintained in accordance with UVRs' specifications hereunder, or where Product serial numbers have been altered, defaced, or removed. UVRs' obligation under this warranty shall not arise until the Purchaser of the Product returns the defective part to UVR. This warranty is limited to the repair and/or replacement of parts. This warranty does not cover any labor or subsequent damage incurred as the result of Product failure or indirectly arising from the design, construction, installation, servicing, or operation of Products. UVR and its resellers' liability under this warranty shall in no event exceed the cost of goods sold under the original sale contract.

Under the conditions specified above, UV Resources warrants all DLX fixtures for a period of three (3) years from date of purchase and all lamps for a period of 12 months from date of installation provided lamps are installed within 3 months from date of purchase. Buyer must provide proof of purchase. This is UVRs' sole warranty. No warranties are extended beyond those described herein and it is expressly agreed that this warranty will be in lieu of all warranties of fitness and merchantability. UVR neither assumes, nor authorizes any person to assume for it, any obligation in connection with the Products. Buyer shall not return to UVR any allegedly defective goods without UVRs' prior written authorization. This warranty may not be assigned or transferred.



The Leader in UV-C Disinfection and HVAC Efficiency

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