

A modern office interior with large windows overlooking a city skyline. The room features a high ceiling with exposed ductwork and several long, linear UV lighting fixtures. In the foreground, there are blue armchairs and a small table. The overall atmosphere is professional and contemporary.

# THE GUIDE TO DISINFECTANT UV LIGHTING

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# WHAT IS UV LIGHT?

ULTRAVIOLET LIGHT is not exactly light, but instead electromagnetic radiation. UV Light is outside of the visible light spectrum. Although we cannot see UV light, we can experience its effects through things like sunburns on our skin.

## A BRIEF HISTORY

Believe it or not, we have been using UV light radiation as a tool for disinfection for over 100 years. UV light was initially discovered and used for surface disinfection in 1877.

In 1900, UV-C was discovered to be most effective at disinfection. Soon after, a Danish Professor named Niels Finsen used concentrated UV-C light to treat lupus on patients' skin (image).

UV lighting was later used in the early 20th century for both air and water.



## WHAT IS GERMICIDAL UV?

Germicidal UV (GUV) refers to the process of using ultraviolet radiation to kill bacteria, mold spores, and inactivate viruses. Germicidal ultraviolet is short-wavelength ultraviolet “light” that has been proven to kill bacteria. Wavelengths in this spectrum that have shown to be the most effective for disinfection are UV-C (200-280 nanometers).

## CAN GERMICIDAL UV EFFECTIVELY INACTIVATE THE SARS-CoV-2 VIRUS?

If the virus is directly illuminated by UV-C with the effective dosage, it can be effectively inactivated. The term “inactivate” is key. UV-C is able to kill living bacteria and viruses are not technically living organisms. UV-C photochemically interacts with RNA & DNA molecules in a virus to render them non-infectious. “The GUV radiant energy causes mutations that prevent replication, leading to the death of virtually all bacteria and inactivation of all viruses (both RNA and DNA types).” Thus, successfully disinfecting surfaces and air.

# UV APPLICATION TYPES

## AIR DISINFECTION

### HVAC

UV lighting disinfection for HVAC systems includes In-duct disinfection and coiling coil disinfection. Typically these systems serve a dual purpose for both surface disinfection and air disinfection.

### UPPER-ROOM / UPPER-AIR

UVC germicidal fixtures for Upper Room/Upper Air confine UVC rays to a narrow beam, directed across the upper portion of the room. This allows the fixtures to be used in occupied spaces with proper installation. These systems continuously clean upper air in rooms, preventing airborne transmission of viruses and bacteria.

### AIR RECIRCULATION

UV re-circulation units are stand-alone units for use in occupied spaces. They consist of UV lamps (sometimes paired with general illumination lighting) in a housing containing a blower and a filter to keep the lamps dust-free.

## SURFACE DISINFECTION

### WHOLE ROOM

Whole Room / Area Disinfection UV lighting systems are usually used after-hours to disinfect all surfaces within a space. This includes walls, floors, tabletops, and equipment. These systems use continuous or intermittent exposure to UV-C light, during periods when spaces are unoccupied.

### DOOR BARRIER

Door Barrier germicidal fixtures create a “curtain” of germicidal UV rays that control the air-borne transmission of microorganisms between rooms/spaces.

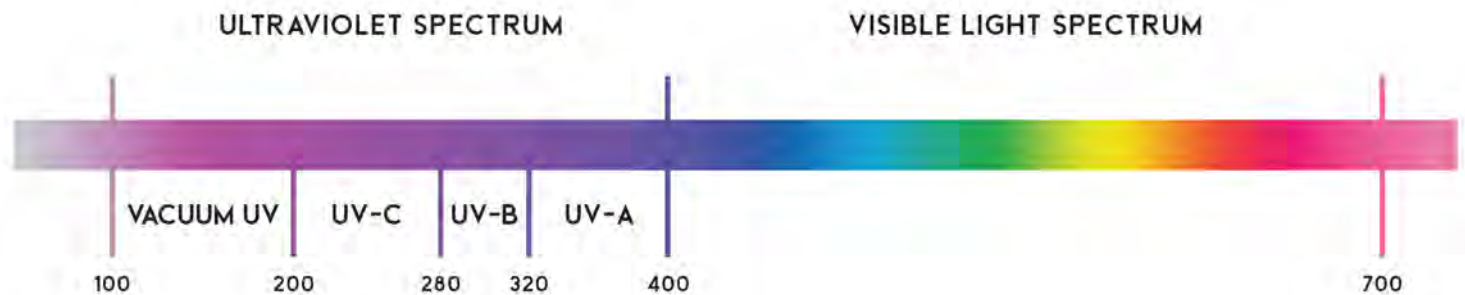
### PORTABLE / MOBILE

Portable and Mobile Systems are able to be moved into place temporarily to disinfect room.

### PPE / EQUIPMENT

# TYPES OF UV LIGHTING

There are three types of UV within the ultraviolet spectrum that are used in disinfection lighting products and applications: UV-A, UV-B, and UV-C.



## UV-C

UV-C is the most successful form of germicidal light for disinfection and sterilization of air and surfaces. It can kill pathogens including viruses, bacteria, fungi and mold. Germicidal UV is highly effective (99.9%) when it's used in the right applications with the right amount of dosage. UV-C is short-wave UV.

## FAR UV-C

Far UV-C is a smaller portion within the UV-C spectrum (205-225 nm) and like UV-C it falls within the most effective range of germicidal light for disinfection. Studies have shown that Far UV-C is safe for use in human occupied spaces with no harmful effects to skin.

## UV-B

UV-B is considered an effective germicidal source, but unhealthy exposure risks are high if not used properly. There is high risk for severe sunburns under exposure. Effects can be delayed ultimately causing damage to the skin and eyes.

UV-B is naturally occurring in our environment from the sun's rays. UV-B effects outer portion of human skin causing sunburn, wrinkles, and aging.

## UV-A

UV-A is not as effective as a germicidal source but can still kill bacteria when used in high dosages. UV-A is not recommended for protecting against viruses. UV-A is used in the medical industry for protecting against bacterial risks.

UV-A is naturally occurring in our environment from the sun's rays. UV-A penetrates our skin more deeply than UV-B, ultimately increasing risk to skin cancer.



# WHAT TO KNOW

## TYPES OF UV WITHIN LIGHTING PRODUCTS

Ultraviolet lighting manufacturers use different types of UV within their products to achieve a variety of desired disinfection results. With each type of UV spectrum used, there's valuable reward to be gained but also important cautions to consider.

### GERMICIDAL UV-C

Germicidal UV-C kills bacteria, mold spores, and inactivates viruses. Studies have been done proving that germicidal UV-C effectively inactivates some of the most resilient viruses.

**PRECAUTION** | The UV-C spectrum is not safe for humans, usage should be limited to unoccupied spaces or enclosed applications.



### BROAD-SPECTRUM UV

Broad-Spectrum UV can include UV-A, UV-B, and/or UV-C. Broad spectrum UV is great for fighting all types of germs, bacteria, and viruses.

**PRECAUTION** | Since this broad UV spectrum is not safe for humans, usage should be limited to unoccupied spaces or enclosed applications.



### FAR-UV-C

Far UV-C are effective against fighting bacteria and viruses. It is proving to be safe for humans, therefore creating the ability to run these products in occupied spaces.

**PRECAUTION** | Far UV-C research and studies are still new and ongoing. Some products are known to cause temporary eye damage depending on the glass envelope of the product.



### NEAR-UV-A

Near UV-A is commonly used in medical and hospital environments for its ability to disinfect spaces for bacteria, therefore lowering risks of infection.

**DOWNSIDE** | UV-A is strictly anti-bacterial and does not kill viruses.



# DISINFECTION PRODUCT GUIDE

## AIR DISINFECTION: HVAC



### PURO Helo F1 and F2

60W or 125W disinfecting UV fixture with broad spectrum UV-C, UV-B and UV-A. Can be installed in drop-in grid ceiling, recessed, surface/wall mounted, or used as a portable, table top unit. Lab verified to kill 99.9% pathogens @ 2m/6.6ft in 30 minutes. Only safe to use within unoccupied spaces.

**Application:** Area Surface Disinfection, HVAC Coil Disinfection, Cleanroom/PPE Disinfection  
**Industry:** Commercial, Office, Retail, Schools, Medical, Industrial, Restaurants, Hotels, Casinos, Transportation

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### American Ultraviolet CC Series

Individual HVAC UV air purifiers ideal for large installations. Perfect for non-standard coil configurations. Can be mounted in various configurations to irradiate colling coils and drain pans, and for optimum pass-by UV air sterilization. For use within unoccupied spaces only.

**Application:** Area Surface Disinfection, HVAC Cooling Coils, Cleanroom/PPE Disinfection  
**Industry:** Commercial, Office, Retail, Schools, Healthcare, Industrial, Restaurants, Hotels, Casinos, Multi-Family

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### American Ultraviolet CK Series

Modular UV-C system for air handling units. Closure enclosure drives up to (16) high output UV-C lamps. BMS mounting option for lamp monitoring via Building Management Systems. Only safe to use within unoccupied spaces.

**Application:** Area Surface Disinfection, HVAC Coil Disinfection  
**Industry:** Commercial, Office, Retail, Schools, Healthcare, Industrial, Restaurants, Hotels, Casinos

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### American Ultraviolet Eco Pure

Economical choice for on-coil use in both smaller commercial and residential HVAC systems.

**Application:** Area Surface Disinfection, HVAC Coil Disinfection  
**Industry:** Office, Retail, Medical Office, Restaurants, Multi-Family, Residential

# DISINFECTION PRODUCT GUIDE

## AIR DISINFECTION: HVAC



### American Ultraviolet ICR Series

High-output rack mount UV-C germicidal system to disinfect pass-thru air. Ideal for large air handling systems in commercial buildings. They are ready to install framed structures that can be easily mounted in duct systems and on coils.

**Application:** Pass-Through Air Disinfection for Larger AHU's, Coil Cleaning & Disinfection  
**Industry:** Commercial, Office, Retail, Schools, Healthcare, Industrial, Restaurants, Hotels, Casinos

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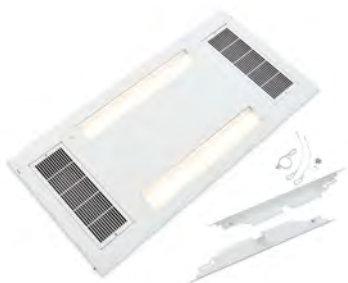
### American Ultraviolet DC Series

High-output HVAC UV-C germicidal air duct system. 2-lamp or 4-lamp configuration. Allows lamp maintenance without needing to un-mount the fixture from ducts.

**Application:** In-Duct Pass-Through Air Disinfection  
**Industry:** Office, Retail, Schools, Healthcare, Industrial, Restaurants, Multi-Family

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## AIR DISINFECTION: RECIRCULATION



### Healthe Cleanse Troffer

Air sanitizing 2'x4' troffer retrofit. Provides 800 sq.ft. of sanitizing coverage. Conducts 4 air changes per hour for a 10 x 10 x 8 space. For use in occupied spaces.

**Application:** Air Recirculation Disinfection for Smaller Spaces  
**Industry:** Office, Retail, Schools, Healthcare, Industrial, Restaurants, Multi-Family, Student Housing

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### American Ultraviolet RAM

Linear wall mount tamper-proof UV-C upper room fixture. Comes in 14" and 36" sizes. Includes 2 fans and 2 filters for proper airflow and filtration. Louvers safely direct UV-C energy above contact level in occupied spaces.

**Application:** Air Recirculation Disinfection for Smaller Spaces  
**Industry:** Office, Retail, Schools, Healthcare, Industrial, Restaurants, Multi-Family, Student Housing

# DISINFECTION PRODUCT GUIDE

## AIR DISINFECTION: UPPER ROOM



### American Ultraviolet TB

Linear wall mount upper room GUV fixture with adjustable louvers. Comes in 12", 24", and 36" sizes to cover 100, 200 or 300 square feet of space. Louvers safely direct UV-C energy above contact level in occupied spaces.

**Application:** Upper Air Disinfection for Occupied Spaces  
**Industry:** Commercial, Office, Schools, Healthcare, Retail, Food Courts, Industrial, Restaurants, Hotels, Casinos, Multi-Family

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### American Ultraviolet CM

Corner mount upper room GUV fixture with adjustable louvers. A single unit can cover 75-100 square feet of space. Louvers safely direct UV-C energy above contact level in occupied spaces.

**Application:** Upper Air Disinfection for Occupied Spaces  
**Industry:** Commercial, Office, Schools, Healthcare, Retail, Food Courts, Industrial, Restaurants, Hotels, Casinos, Multi-Family

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### American Ultraviolet RAM

Linear wall mount tamper-proof GUV upper room fixture. Comes in 14" and 36" sizes. Includes 2 fans and 2 filters for proper airflow and filtration. Louvers safely direct UV-C energy above contact level in occupied spaces.

**Application:** Air Recirculation Disinfection for Smaller Spaces  
**Industry:** Office, Retail, Schools, Healthcare, Industrial, Restaurants, Multi-Family, Student Housing

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## AIR DISINFECTION: DOOR BARRIER



### American Ultraviolet DB

Door barrier fixture for use in a halways or pass-thru room. Complete body and eye protection is required for any passing through.

**Application:** Disinfection Barriers to Eliminate Outside Pathogens  
**Industry:** Healthcare, Restaurants, Food-Processing

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# DISINFECTION PRODUCT GUIDE

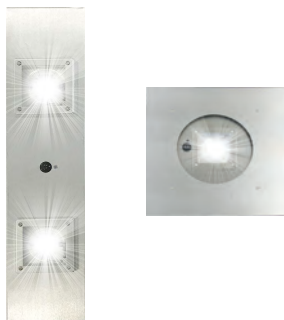
## SURFACE DISINFECTION: WHOLE ROOM



### Healthe Cleanse Downlight

6" retrofit downlight with UV sanitization using Far UV-C (222nm). 2-in1 solution integrating passive and continuous sanitization with general illumination for occupied spaces. Great for area of high foot traffic.

**Application:** Area Surface Disinfection & General Illumination for Occupied Spaces  
**Industry:** Commercial, Office, Retail, Schools, Healthcare, Industrial, Restaurants, Hotels, Casinos



### PURO Helo F1 and F2

60W or 125W disinfecting UV fixture with broad spectrum UV-C, UV-B and UV-A. Can be installed in drop-in grid ceiling, recessed, surface/wall mounted, or used as a portable, table top unit. Lab verified to kill 99.9% pathogens @ 2m/6.6ft in 30 minutes. Only safe to use within unoccupied spaces.

**Application:** Area Surface Disinfection, HVAC Cooling Coils, Cleanroom/PPE Disinfection  
**Industry:** Commercial, Office, Retail, School, Medical, Industrial, Restaurants, Hotels, Casinos, Transportation



### American Ultraviolet SM Series

Surface mount UV fixture available in 15 different configurations. Can mount to ceilings, under counters, and walls. Used to disinfect rooms during nightly hours when spaces are unoccupied.

**Application:** Area Surface Disinfection for Restrooms, Medical Offices, Operating Rooms, Locker/Weight Rooms, Weight Rooms, Commercial Kitchens, Retail Stores  
**Industry:** Schools, Medical, Industrial, Restaurants, Hotels, Casinos



### American Ultraviolet UF Series

UV fixtures with reflectors that help direct/confine UV rays for specific applications. Can be surface mounted or suspended. Available in lengths of 17" to 37".

**Application:** Upper Air / Area Surface Disinfection for Restrooms, Medical Offices, Operating Rooms, Locker/Weight Rooms, Commercial Kitchens, Retail Stores  
**Industry:** Schools, Medical, Industrial, Retail, Restaurants, Hotels, Casinos

# DISINFECTION PRODUCT GUIDE

## SURFACE DISINFECTION: WHOLE ROOM



### American Ultraviolet RT

2'x4' Recessed Troffer UV Fixtures that come in two versions: (1) 2 or 4 GUV lamps only (2) 2 GUV lamps and 2 white fluorescent lamps in one fixture with individual ballasting for selective switching.

**Application:** Area Surface Disinfection for Restrooms, Medical Offices, Operating Rooms, Locker / Weight Rooms, Commercial Kitchens  
**Industry:** Commercial, Schools, Medical, Industrial, Restaurants, Hotels, Casinos

## SURFACE DISINFECTION: PPE / EQUIPMENT



### Healthe Cleanse Cabinet

On-site disinfection station that offers sanitization of personal items and shared equipment. The cabinet has a quick 5-minute sanitization process that destroys microbes.

**Application:** Equipment & PPE Surface Disinfection  
**Industry:** Office, Retail, Hospitality, Healthcare, Industrial, Manufacturing



### Clearwin UV Handrail Sterilizer

Self-powering UV-C escalator handrail sanitizer. Easy-to-install, no drilling required, converts rotational motion of escalator into electricity to power the device.

**Application:** Equipment Surface Disinfection, Escalator Handrails  
**Industry:** Office, Retail, Hospitality, Healthcare, Industrial, Restaurants



### UVC Cabinets

Large UV-C Cabinets designed to hold and disinfect items like clothing and linens. Small UV-C Cabinets designed to hold and disinfect tools, utensils, mobile devices, etc.

**Application:** Equipment & PPE Surface Disinfection  
**Industry:** Office, Retail, Hospitality, Healthcare, Industrial, Manufacturing

# DISINFECTION PRODUCT GUIDE

## SURFACE DISINFECTION: MOBILE / PORTABLE



### American Ultraviolet Blade

Handheld and portable UV-C disinfection device with oversized handle designed to maximize grip comfort. Shatterproof high output lamp that weighs less than 5lbs.

**Application:** Portable Surface Disinfection  
**Industry:** Office, Retail, Schools, Industrial, Restaurants, Hospitality, Hotels, Casinos, Transportation

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### American Ultraviolet Artz 2.0

Mobile germicidal UV-C unit. Disinfects high touch non-critical surfaces from pathogens in minutes. With 360 degree motion sensors, the unit automatically shuts off if the space becomes occupied. For use in unoccupied spaces.

**Application:** Portable Surface Disinfection  
**Industry:** Office, Retail, Schools, Healthcare, Industrial, Restaurants, Hotels, Casinos, Transportation

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### American Ultraviolet MRS45

Mobile UV disinfection unit featuring twelve UV-C lamps for maximum intensity. Touchscreen controls are located directly on the unit for easy operation. Comes with 3 programmed disinfection cycle times with the ability to manually set custom cycle times. For use in unoccupied spaces.

**Application:** Portable Surface Disinfection  
**Industry:** Office, Retail, Schools, Healthcare, Industrial, Restaurants, Hotels, Casinos, Transportation

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### UVC Sterilization Robot

Mobile UV-C disinfection robot that can disinfect 376 sq. ft. within 3 minutes. The robot can identify the whole room environment that needs to be disinfected and plan the path to automatically disinfect the space. 99.9% disinfection efficiency. For use in unoccupied spaces.

**Application:** Portable Surface Disinfection  
**Industry:** Office, Retail, Schools, Healthcare, Industrial, Restaurants, Hotels, Casinos, Transportation

# LET'S DO IT

Disinfectant UV products are a relatively new topic to many of us. Because it's so important to make sure the products are used properly, please reach out to us with any product questions.

UV lighting products reduce and inactivate various pathogens that can lead to infection and disease. Germicidal UV lighting products can increase the life of your HVAC system, create healthier air, and improve the wellness of occupants within buildings.

## SHOP DISINFECTANT UV PRODUCTS



UWM



UM12



UADG



UPT



UAL



UAC

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