

Germicidal UV Disinfection Modules for Controlling Infectious Airborne Pathogens



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Designed to Optimize UVGI Dosage

Abatement Technologies offers several Germicidal UV Modules, equipped with the very latest in high-performance UVGI technology. These modules feature four ultra-high intensity UVGI lamps, rated for up to 9,000 hours (1 year) of operation, with minimal loss of performance.

Internal air baffles slow down the air as it flows through the module, to increase exposure time, and funnels it close to the lamps. Intensity in the "kill zone" exceeds 4,000 microwatts per square centimeter per lamp.

Other features include: unit on/off switch; an electrical interlock that automatically deactivates the lamps the instant the module access door is opened, to protect against any possibility of worker exposure to UV radiation; a power cord with grounded plug; and, ETL/ETLC electrical safety certification.

Ceiling/Duct-Mounted UV Modules

These modules suspend into a 2-foot by 2-foot T-grid drop ceiling panel, completely out of the way, and come equipped for direct connection into the exhaust air or supply air ducts for a room. Both feature fast and convenient room-side lamp replacement, by simply opening the hinged lamp compartment, which is electrically interlocked, and swinging it down into the room. Two models are available.

UV400C-PT Ceiling Module

This model is designed primarily for use in patient isolation rooms, in tandem with our ceiling-mounted HEPA-CARE filtration systems, to provide an extra level of protection against highly toxic microbial pathogens.

Applications:

- Negative Pressure All Rooms: Filtered air from the HEPA unit is ducted into one side of the UV module and then ducted out the other side and exhausted from the room.
- Positive-pressure PE: HVAC supply air is ducted into the UV module, then into an HC400C-PP HEPA-CARE unit, then fed into the room.

UV400C Ceiling Module

Applications for this model include patient waiting areas, ER, outpatient clinics, surgical centers, and physician offices. In this mode, it is designed to function as a standalone return air grill or supply air diffuser, in rooms and other areas where air disinfection can be beneficial, but HEPA filtration is not required.

The UV400C can also be used in either of two ways in combination with a ceiling-mounted HEPA-CARE system. In the "closed loop" recirculation mode, both units are located within the same room, and air is continuously HEPA-filtered, irradiated, and fed back into the room. In the negative pressure mode, the HEPA unit located within the room would exhaust HEPA-filtered air into a UV400C module mounted in another room, or in a corridor.



UV800F Portable UV Module

The UV800F is designed strictly for irradiating the HEPA-filtered air exhausted from an HC800F portable HEPA-CARE model. The two units together provide a state-of-the-art one-two punch against airborne pathogens.

The UV800F module installs easily onto the HC800F in just a few minutes. Simply slide it into the offset tabs located on either of the clean air exhaust grills, and secure it in place with the included sheet metal screws. Once installed, there is typically no need to remove it.

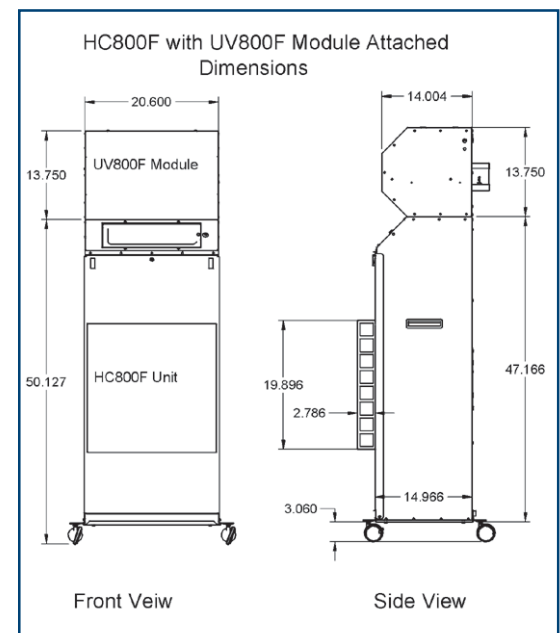
This combination of HEPA filtration, negative pressure and UVGI disinfection is ideal for isolation rooms, or ER, when isolating patients during responses to potential bioterrorism incidents or infectious illness outbreaks, or during normal use. Negative pressure is established by exhausting the irradiated air through 8-inch diameter ducting connected to the UV800F outlet grill.

When not in use for patient isolation, the HC800F-UV800F combination can also fulfill numerous other air purification and recirculation requirements.

Applications include:

- Air disinfection in areas such as patient waiting rooms, where the infectious status of patients may be unknown;
- Disinfecting isolation room or treatment room air between patients; and,
- Removal of airborne contaminants and odors from air exhausted from areas such as patient rooms, laboratories, autopsy and morgue.

A special safety feature in this model deactivates the lamps instantly if airflow through the module is interrupted, or if the module is removed from the HC800F unit without first turning it off.



Germicidal UV Technology

UVGI lamps are designed to emit UV light energy in the C band portion (UV-C) of the ultraviolet light spectrum. These lamps have been widely used for many years in healthcare, pharmaceutical, and food processing facilities for destroying airborne bacteria, viruses and fungi, and neutralizing unpleasant odors.

Because of the new potential threats that facilities may face from previously unknown infectious diseases such as SARS, and the potential use of airborne pathogens as weapons of terrorism, UVGI disinfection is playing an increasingly prominent infection control role.

2003 CDC Guidelines

According to the ***Guidelines for Environmental Infection Control in Health-Care Facilities*** issued by CDC in 2003, *"As a supplemental air-cleaning measure, UVGI is effective in reducing the transmission of airborne bacterial and viral infections in hospitals, military housing, and classrooms."*

For airborne infectious isolation rooms (AII), the 2003 guidelines specifically recommend installing UVGI fixtures either in the exhaust air ducts of the HVAC system, to supplement HEPA filtration, or on or near the ceiling, to irradiate upper room air.

Using UVGI for Air Disinfection

UVGI inactivates pathogens by destroying their DNA. UVGI dosage, the term used to measure UVGI exposure, is primarily dependent on the intensity of the UVGI source, typically measured in microwatts per square centimeter, and the duration of the exposure, or dwell time. For infection control, there is no such thing as too much dosage – the higher the better.

Intensity is determined by the amount of UVGI energy produced by the energy source, and the distance between the source and the pathogen. In moving air streams, proximity to the source is especially important, because intensity drops off by the distance squared. In other words, if the dosage at 1-inch away is X, it is X/16 at 4 inches away, and X/144 at 12 inches away.

