LARSON ELECTRONICS

FAR UV

CATALOG 2020

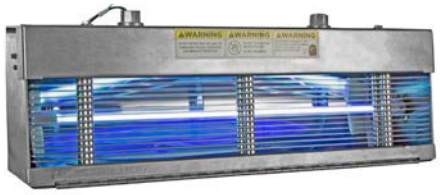
Portable



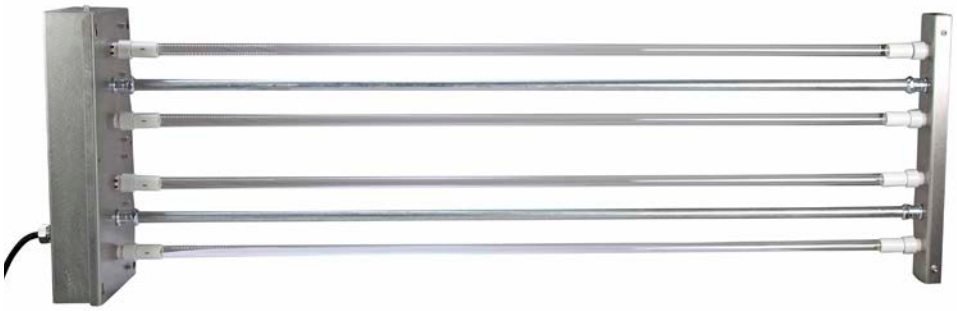
Material Handling



Air Handling



HVAC



Far-UV sanitation lights from Larson Electronics are ultraviolet (UV) devices for disinfecting surfaces, equipment and the air. These units emit far-UV 222 nm light, which is capable of eliminating up to 99% of viruses, bacteria, mold and spores. Far-UV 222 nm light is considered to be eye and skin safe for humans. Long-term use of far-UV lamps does not cause inflammation, redness or irritation. This time-saving solution does not require rooms or spaces to be empty prior to UV treatment. Unlike conventional UV 254 nm bands that can cause burns on the skin and corneal damage, far-UV wavelengths also do not require personal protective equipment during sanitation (see Far-UV Fact Sheet for more information). As a result, the far-UV disinfection products in this catalog are recommended for use in the following: occupied areas, industrial, businesses, commercial locations, transit areas, schools, daycares, senior-care facilities, healthcare establishments, hospitals, offices and more.

These cleaning devices are equipped with ozone-free excimer lamps or compact microplasma boards that generate far-UV 222 nm bands. Direct contact with contaminated surfaces is not required when using these products. Compared to traditional sanitation with abrasive liquid-based cleaning solutions, far-UV lights do not aggressively degrade equipment or surfaces. Heavy-duty aluminum or stainless steel construction allows Larson Electronics sanitation equipment to be used for long periods of time, as well as in rugged locations. Customers can choose from portable or permanent-mount equipment to suit specific cleaning requirements. A combination of both is recommended for an all-encompassing approach to sanitation.

This catalog starts with a selection of portable far-UV disinfection equipment. Rechargeable, handheld units with top-located handles are designed for direct surface sanitation. Powered by lithium-ion batteries, wireless functionality eliminates the need for managing messy cords. Large spaces ranging between 500-8,000 square feet can be thoroughly sanitized with our line of far-UV sanitation carts. Offered in multiple lamp configurations, this type of equipment has four wheels at the base for mobility around occupied areas, as well as a center rail for guidance.

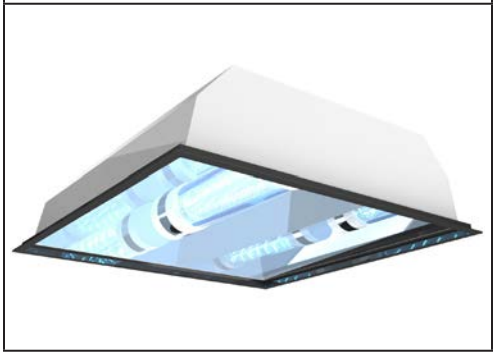
As this technology is safe to use in occupied areas, the catalog includes several types of permanent mount UV disinfection fixtures. Far-UV portals are designed for no-contact disinfection at entry/exit points of buildings, transit areas, schools, airports, lobbies and more. This device can be deployed as a temporary “sanitation station” in busy locations. For doorways, we offer a far-UV door barrier that eliminates viruses and harmful microbes as people pass through the area.

Standard far-UV linear and high bay disinfection fixtures in this catalog can be used to clean rooms and indoor locations continuously, alongside non-UV lamps. Customers can choose from recessed far-UV models, as well as a combination of far-UV + LED fixtures. Restaurants, lobbies and hotels that require a sleek and modern sanitation fixture could utilize our far-UV scone lights, shoebox fixtures or wall-mount units to complement contemporary lighting systems.

Larson Electronics offers a line of far-UV disinfection lights for occupied areas in outdoor locations. These products, which come in linear, wall packs, flood lights, bollards and rail lighting, are effective for keeping busy sections of sites, buildings and properties germ-free. Install these far-UV outdoor disinfection lights over pathways, decks and common areas where people congregate frequently for continuous sanitation of the location.

For aerial sanitation inside buildings, our indirect air disinfection fixtures can get the job done. These units mount to the upper area of rooms and do not take up space on the ground. As “dirty” air flows through the fixture, the sanitation device eliminates

Permanent Indoor



Permanent Outdoor

Specialty Products



Wearables



Lamp Kits



microorganisms and releases “clean” air back to the environment. This process is continuous and quiet. We also offer far-UV disinfection lights for mounting inside air ducts and HVAC systems. Compared to conventional systems that utilize UV 254nm lamps, these units ensure quick and safe maintenance (no need to disconnect the light or use protective gear prior to access). Our far-UV HVAC disinfection lights come in multiple lamp configurations and sizes to accommodate a wide range of systems.

Larson Electronics far-UV lamp kits are excimer lights or microplasma boards that can be incorporated with existing systems, devices or specific projects. These kits come with a ballast and are suitable for light-based disinfection systems in emergency vehicles (ambulances), labs, medical centers and more. Next, our line of far-UV sanitation products extends to material handling units that clean small devices, equipment, tools, handheld electronics, packages, keys and phones. Desktop disinfection with sturdy base can be setup on work stations, tables and other accessible areas, while enclosed sanitation boxes function as standalone cleaning units.

Preventing the spread of viruses and bacteria starts with personal sanitation. With this in mind, our far-UV wearables can reduce the presence of harmful microbes on clothing, skin and surrounding environments. These rechargeable, battery-powered and wireless devices attach onto hats or can be worn as a watch (depending on selected model).

As a one-stop shop for all of your UV sanitation needs, Larson Electronics caters to custom fabrication and rapid engineering for far-UV products at an additional cost. We also offer additional features and system components, such as multiple lamp configurations, powder coated finishes, specific cord lengths or type, voltage, switches and more. Contact us today at 1-800-369-6671 for more information.

All products in this catalog are equipped with far-UV 222 nm lamps, which can inactivate 99% viruses, bacteria, mold and spores. According to experts from University of British Columbia, University of Alberta, University of Colorado-Boulder and Trojan Technologies, UV-C light is capable of killing tuberculosis, e.coli, methicillin-resistant S. aureus (MRSA) and more. This sanitation method relies on the UV-C spectrum, i.e. UV-C rays within the range of 200 nm to 280 nm, to deactivate the cellular ribonucleic acid (RNA) and deoxyribonucleic acid (DNA), as well as the reproductive capabilities of microorganisms. This results in eradication of the microbe, as it cannot multiply and infect other hosts.

What are the benefits of far-UV sanitation over traditional cleaning methods?

Compared to mainstream sanitation methods, cleaning surfaces with UV light does not require any liquids. The chemical-free process is also considered to be safer, as individuals do not need to come in direct contact with the surface or object. For locations that contain or host sensitive equipment, far-UV sanitation imposes less degrading effects on surfaces than abrasive cleaning liquids. Another benefit over traditional cleaning methods is efficiency. There is no waiting period associated with UV treatment (unlike liquid cleaners that must be dry or aired out from the area). The far-UV permanent-mount and air disinfection fixtures in this catalog are designed for continuous, 24/7 sanitation. These units can be left on all day and do not generate noise.

From a business perspective, the benefits above translate to streamlined productivity and increased workplace safety. These sanitation products may also help establishments comply with new sanitation standards and practices.

How safe is far-UV 222 nm light for sanitation in occupied areas compared to conventional UV 254 nm?

Far-UV 222 nm light contains effective germicidal properties that are significantly safer to humans, compared to other penetrative UV wavelengths, as the bands are not cytotoxic or mutagenic to mammalian cells. By comparison, UV rays in the 254 nm spectrum can penetrate the stratum corneum of the skin, capable of reaching as far as the stratum spinosum, and damage basal cells. For humans, exposure to this range of UV light is harmful. Direct exposure can lead to skin burns and damage the cornea. Human cells attempt to repair DNA damage when exposed to UV-C 254 nm. Failure to repair the damage can result in tumor growth.

Far-UV 222 nm is considered to be safe on human eyes, as suggested by leading research groups. This specific UV band cannot penetrate the thick barrier protecting the cornea. Taking this information into consideration, far-UV 222 nm lights can be used in occupied areas, busy sites and around people. Extensive protective gear is not required when using these lights. Additionally, the room or space does not have to be empty during UV treatment.

What types of far-UV 222 nm lights are used in these products?

Artificial light sources that generate far-UV 222 nm light and are found in the sanitation products in this catalog include excimer lamps and microplasma boards.

Spectral-selective excimer lamps are the artificial light source of choice when generating far-UV 222 nm light for sanitation. The term “excimer” is short for excited dimer, which refers to the presence of dimeric molecules with nanosecond-lifespans in an excited state. The specific working excimer molecule is closely associated with the UV wavelength that the lamp emits, as well as the light’s use and application. In the case of 222 nm excimer lights, the working exciplex molecule is KrCl. The compound consists of one atom of krypton (Kr) and one atom of chlorine (Cl).

Excimer lights are non-toxic, mercury-free and do not contain fluid. Excimer lights feature instant on and off capabilities, reaching 100 percent output in less than a second. This artificial light source can be toggled and deployed in locations within a temperature range of 0°C to 100°C. Compared to conventional UV 254 nm light sources, excimer lamps offer high power density.

Microplasma boards are low-wattage far-UV units with an expected lifespan of 6,000+ hours. This type of far-UV light is capable of achieving up to 3 log (99.9%) cumulative disinfection per day.

How do I maintain far-UV 222 nm disinfection lights?

Periodically check the UV lamp before and after use for damage (especially when experiencing light flicker). If the lamp becomes too hot to touch, allow it to cool down before inspection. Do not handle broken or cracked UV bulbs with bare hands.

Protection from infectious viruses and bacteria should be top priority during UV sanitation.Wearing respiratory masks while performing UV disinfection is an effective way to avoid breathing in harmful microbes and chemicals (such as concentrated cleaning solutions). It also reduces direct contact with skin, when touching the face and mouth.



Portable Far-UV

Larson Electronics portable far-UV sanitation products disinfect surfaces and rooms in occupied areas using 222 nm light, which falls within the germicidal UV-C range of 200 nm to 280 nm. The devices in this series are capable of inactivating up to 99.9% of viruses, bacteria, mold and spores. Powered by ozone-free excimer lamps, the disinfection units are considered to be eye and skin safe for humans, allowing the equipment to be used without extensive protective gear. Handheld, battery-powered cleaning devices in this series are suitable for direct surface sanitation and cleaning everyday tools or equipment. This wireless solution promotes mobility during UV treatment and ensures quick disinfection. Portable carts equipped with several far-UV lamps are available for cleaning 500-8,000 square feet rooms. A sturdy, wheeled base facilitates seamless transportation and movement around occupied areas.

Portable far-UV cleaning devices are suitable for the following: offices, industrial work sites, manufacturing, processing plants, warehouses, commercial buildings, transit areas, retail, restaurants, schools, healthcare, labs and more.

BENEFITS

- **Far-UV 222 nm sanitation in occupied areas**
- **Eye and skin safe for humans**
- **Handheld, wireless and battery-powered models available**
- **Portable carts with wheeled base promote mobility**
- **Multiple lamp configurations available**



Portable far-UV handheld units:

The Larson Electronics IND-RL-HDB-FUVC-EX rechargeable far-UV handheld surface sanitizer provides direct, no-contact sanitation inside occupied areas and spaces. This device features one far-UV 222 nm excimer lamp, which is protected by an aluminum housing. A top-located, portable handle allows operators to hold the unit close to contaminated surfaces or objects during UV treatment. The surface sanitizer is lightweight, weighing less than 5 lbs. This disinfection unit is powered by a lithium-ion battery that offers 60 minutes of use per charge.



Portable far-UV cart units:

Larson Electronics portable far-UV carts are powerful and mobile sanitation units for cleaning large occupied areas and rooms. Equipped with 222 nm excimer lights, these carts are offered in multiple lamp configurations and designed for 500-8,000 square feet spaces. Portable features include a sturdy base with four wheels and a center rail for guidance during transportation. These sanitation carts come with long power cords, which enables deployment in hard-to-reach sections of rooms and around bulky machines or equipment. Models with digital timers cater to set exposure times in order to meet the desired duration for effective UV treatment. A built-in, 1-minute and 30-second delay provides allowance for the operator to leave the area before activation.

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