O/E LAND INC.
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[OEDSS-100]

COVID-19 Disinfection System
Based on Ultraviolet Pulsed Fiber Laser
(for surface pollutants)

Features:

- For disinfection of all kinds of viruses, bacteria, germs, including coronaviruses (COVID-19),
  disposed on surfaces and objects
- For general sterilization of objects
- Unique design using high-power pulse fiber laser beam
- Fast and highly efficient action
- Continuous scanning of the designated area for optimal results
- Automated operation with user software
- Turn-key solution
- Easy to use, maintenance-free, cost effective
- Non-toxic, chemical-free, eco-friendly

Applications:

- Regular disinfection and sanitation
- Customized installation for optimal exposure the designated area
- For sterilization of objects
- Hospital, schools, factories, office, retail stores, restaurant, bus and train, etc.
- Where regular sterilization and disinfection is required

Product description:

The new COVID-19 Disinfection System from O/E Land Inc. is designed to reduce indoor pollutants, both airborne and on surfaces, by inactivating pathogens and microorganisms like mold, bacteria, and viruses, with the help of short-wave high-power ultraviolet light (UV-C light).

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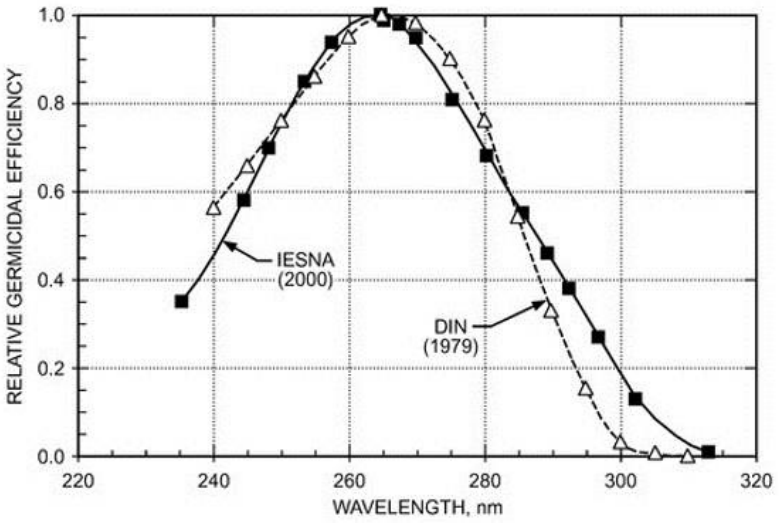
Our COVID-19 Disinfection System uses a high-power pulsed laser, working at 265 nm (UV-C light). Its high peak power laser beam can kill various microorganisms, such as bacteria, viruses (including coronavirus), and protozoa in few seconds, compared in 10's minutes with a regular UV-C lamp. UV-C pulse laser beam can destroy their DNA shell like a bullet, causing them to lose their ability to reproduce and therefore die, achieving the effect of disinfection and sterilization.

According to the National Health Commission and the Centers for Disease Control and Prevention (CDC), most of the viruses are sensitive to light and heat. Therefore, a combination of a traditional alcohol-based cleaning material and a UV-C light purification system can offer maximum protection and disinfection. Although its direct effect on COVID-19 is still being confirmed, UV-C light is proven to kill coronaviruses like SARS.

Some previous studies already have showed that the peak of germicidal effectiveness occurs at light wavelength of 265 nm, so our Disinfection System is proven to have maximum efficiency. This, combined with more than 1000 times higher peak power than regular UV-C lamp and a small powerful laser beam size, provide a fast and highly efficient solution for purification and disinfection purposes.



2019 *ASHRAE Handbook—HVAC Applications*, Ch. 62, Fig. 3

Our own study, conducted in a certified laboratory in July 2022, shows that in a high-level of bacterial contamination, which is not likely to occur in normal indoor environment, our system is able to achieve 98% bacterial reduction after an exposure of only 120 seconds. And since, the bacteria are more resistant than the viruses in terms of decontamination, we can expect that the effect of the system on viruses, including coronavirus, will be at least same, or even better. A new study, ordered by our company, will be soon underway to confirm the effectiveness on viruses like MS2 phage, a surrogate to coronavirus.

Another important conclusion of the study is that our high-power laser beam system does not appear to damage surfaces, like synthetic materials, fabrics, cardboard, or skin, for the time they are being exposed.

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The COVID-19 Disinfection System consists of a laser module, and a scanner. The laser module is a high-power picosecond UV fiber laser, which has high energy efficiency. It is responsible for delivering the laser beam with the necessary power and wavelength. The scanner installation can be customized to achieve optimal coverage of the designated area to be disinfected.

Compared to the regular UVC LED lamps, our ultra-fast laser has thousands to millions of times higher peak power, and thus it can kill the viruses and bacteria in a matter of minutes. This system is modular, and it can be installed in any room and facility. The size and the shape of the scanned area can be adjusted, depending on the customer's needs. The designated area is continuously scanned by the high-power laser beam, which is enough to disinfect and sterilize by means of germicidal irradiation in matter of minutes. When the scanning speed and pattern is precisely adjusted, the system can easily inactivate most of the microorganisms, disposed on the surface, or on the objects.

The Disinfection System can be controlled either manually, or with the provided software. Both options have timed operation of the laser, but the software also allows fully automated operation, including some ON/OFF and time-duration scheduling for even further convenience for the user.

Product specifications:

Parameter	Unit	Value
Wavelength Range	nm	265
Output power	mW	500
Laser module, LxWxH	cm	60x50x40
Scanning area, LxW (room installation) *	m	1.5x1.5
Power supply	-	AC 110-240V/50-60Hz
Timed operation	-	Yes (manual)
Automated operation (ON/OFF; timer; schedule)	-	Yes (software)
Operating temperature	°C	5 - 45

* Dimension of the scanning area depends on the room size and height. Values for standard room height of 2.4 m (8 feet).

Installation options:

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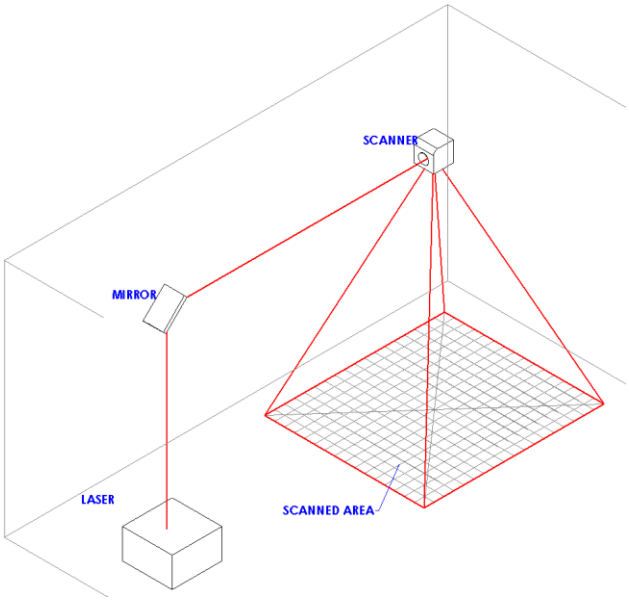

In a room: for air/surface disinfection

UV Pulse Fiber Laser module