



Airborne Virus Inactivation UV-C Atmospheric Circulation Type Air Sterilization System

Z-CURE®

The world's fastest level of virus inactivation proven in real space!

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Dainichi Industry Co. Ltd (Manufacturing and Quality Control)

Influenza A type virus was sprayed in a 23 m³ test room
to evaluate the virus inactivation ability!

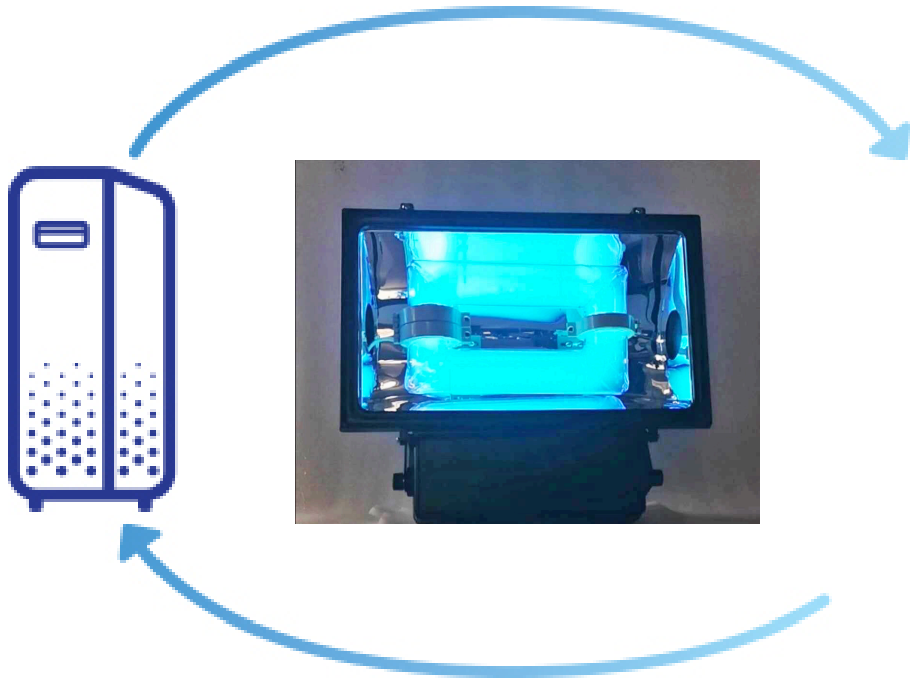
May, 2022



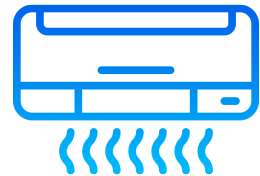
(Please refer to the next page for details)

What is the principle behind the ability to inactivate viruses in an atmospheric circulation system?

How does it differ from air conditioning?



Powerful deep ultraviolet light and special air chamber technology quickly inactivate (reduce infectivity = titer) airborne viruses in the room air, gradually, while circulating the air in the room. The room air is constantly sterilized through continuous circulation, so the air is always safe. The sterilizing action is performed by the **world's most powerful electrodeless deep ultraviolet radiation lamps** built into the device.



*The features of this device can be further enhanced when **used in conjunction with an air conditioner** installed in the room.
Note: This unit does not have a heating / cooling / dehumidification function!

What makes Z-CURE® so special?

The determined group of professionals who made the impossible possible



The development goal sought by the "light" professionals was nearly impossible to achieve!

- **Main wavelength deep UV 254nm:** scientifically proven worldwide
- **Power :** UV intensity of 10mW/cm² - 30mW/cm² ensured
- **Long Lamp life:** Average lamp life of 50,000 hours or more
- **Mercury content:** In compliance with the Minamata Convention on Mercury
(Lamps containing more than 5 mg of mercury will be discontinued worldwide in 2020.)

No such light source exists! However in 2020, a group of "light" professionals
developed a lamp that meets all the requirements!

Combination of optical craftsmanship and fluid analysis technology



Z-CURE® wants to offer the users a peace of mind!

- World-class powerful deep ultraviolet radiation @ 254nm
- Excellent optical design for maximum utilization of deep ultraviolet radiation energy!
- Hybrid design combining fluid dynamics and optical technology!
- Hybrid structure that prevents powerful ultraviolet rays from leaking outside

Air is smoothly sucked in, inactivated, and circulated in the room, while deep ultraviolet light, which is harmful to the human body, is absorbed into the device and does not leak outside!

Where Z-CURE® is similar to other air disinfection devices

- Commercial air sterilizers using deep ultraviolet lamps have a short life span with an average life span of 3000 to 9000 hours!
- The air in the room is sucked in, and viruses, etc. contained in the sucked air are inactivated by UV-C ultraviolet radiation, while the air is circulated back into the room.
- Many facilities in Europe, the U.S., and Japan are already using such devices, and the technology has been scientifically proven.



Let's take a closer look at why you need Z-CURE®!

Advantage 1

High-power UV-C for large spaces (aerosol infection control)



- Nursery school infection → cluster infection in family → social infection outbreak
- Nursing home → staff and outside visitors → cluster infection outbreak
- Emergency shelters → Living in shelters due to natural disasters → Infection risk

This air circulation type air sterilizer is effective against aerosol infection, which is a concern for teachers in daycare centers, caregivers and staff in nursing homes, and is a strong ally as a countermeasure against invisible viruses.

Notes:

- Ultraviolet radiation is not effective in shaded areas where light does not reach.
- It is important to continue sterilization such as alcohol disinfection.



Air sterilization in large spaces requires deep ultraviolet radiation with high energy density.

High power, long life, space saving, and high energy density,
achieved only with electrodeless lamps, **make air sterilization in large spaces possible.**

Advantage 2

World's fastest level of virus inactivation protects large spaces



Demonstration using actual rooms



The following results were obtained, testing the titer at which the virus infects host cells was measured in a 23m³ experimental apparatus filled with a spray of influenza type A virus

20 minutes after start of operation: **inactivation rate 98.55%**

40 minutes after start of operation: **inactivation rate 99.68%**

*The deep UV radiation resistance of influenza viruses is 1.3 times higher than that of new coronaviruses. (See next page)

*The test method conforms to the "Virus Inactivation Test JEM 1467 Annex D Virus Spray Test" specified by the Japan Electrical Manufacturers' Association to obtain the virus infection titer by the TCID50 measurement method.



Proven Z-CURE[®] world's fastest inactivation capability!



Influenza type A viruses are **1.3 times more resistant to deep UV radiation** than the new coronaviruses! That means the **new coronaviruses are inactivated 30% faster** under the same conditions!

The light energy (wavelength 254 nm) and irradiation time* required to kill 99.9% of bacteria and viruses

(Wavelength 254 nm, GL15, 0.050 mW/cm² , irradiation distance 1.0 m)

Types of bacteria and viruses	Workload	Irradiation Time
E. coli (NBRC 3972)	9.8 mJ/cm ²	3.3 mins
Legionella spp.	7.5 mJ/cm ²	2.5 mins
Staphylococcus aureus (NBRC 12732)	9.4 mJ/cm ²	3.1 mins
Influenza virus	6.6 mJ/cm ²	2.2 mins
Cryptosporidium	12 mJ/cm ²	4.0 mins
New coronavirus	5 mJ/cm ²	1.7 mins ※99%sterilization
	(22 mJ/cm ² for 99.9999%)	

Advantage 3

Reduce the burden on those who are engaged in demanding physical activities

The hidden power of Z-CURE®



➤ **Average Lamp Life 50,000 hours!**

No need to worry about lamp burnout or lamp replacement in tough jobsites!

➤ The 5-year lease contract includes **maintenance and inspection work to check lamp energy** (calibrated UV radiation intensity measurement) during periodic air filter changes for long term use with peace of mind!

➤ Our goal is to lighten the physical and emotional burden of those working in the field, so they can focus on their primary task!

Z-CURE®'s one and only world-class performance

1. The lamp that emits the UV-C deep ultraviolet 254nm germicidal rays is electrodeless.

No electrodes = nothing to wear out → long life, 50,000 hours

Average life of other UV-C lamps with electrodes → 3,000 to 9,000 hours

2. High luminous efficiency due to electrodeless lamp

Even though the deep ultraviolet radiation is at the world's strongest level, the amount of heat generated by the Z-CURE® body is surprisingly low, about the same as room temperature. The electrodeless feature means that there are no consumable electrodes, so a long service life can be realized.



The world's most powerful UV-C induction lamp (120W) is built into a compact body, ***achieving the world's most powerful level of virus inactivation.***



Z-CURE[®] works tirelessly day and night for 5 years to control the spread of unknown viral infections

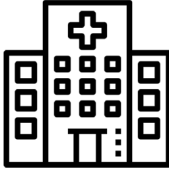
- ✓ Z-CURE[®] watches over you for **24 hours a day, 5 years in a row.**
- ✓ Rest assured that the powerful deep ultraviolet radiation **continuously inactivates and air sterilizes mutant strains and various bacteria.** Since it acts more directly on viruses than vaccines do, it is universally effective against mutant strains and bacteria.

All you have to take are the following actions:

- ① Turn switch ON/OFF
- ② Select from 3 fan speeds
- ③ Timer ON / 2 hour OFF-timer is equipped
(If the timer is not used, the system operates continuously.)

For detailed equipment specifications, please contact our sales representative, Nanatsubaki Inc., at <https://en.7tsubaki.com/>

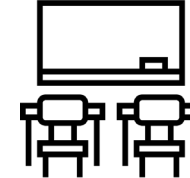
Recommended Places of Use



Hospitals; waiting rooms, patient rooms, cafeterias, various examination rooms, office rooms, nurses' stations, doctors' offices, clinics, emergency shelters, temporary housing for evacuees



Nursing homes, retirement homes, day care centers



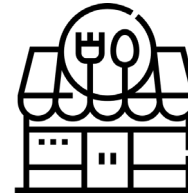
School related spaces; nursery schools, kindergartens, playrooms, corporate day care centers. Elementary schools to universities. Classrooms, staff rooms, music rooms, laboratories, school cafeterias



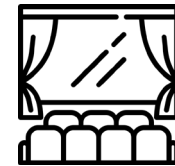
Public facilities; city hall, waiting rooms, administrative offices, banks, ATM corners, post offices, museums, airports, police stations, fire stations, etc.



Transportation; sterilization of stations, station offices, buses, trains, etc. at garages and train depots



Restaurants; restaurants, cafeterias, taverns, bar lounges, karaoke parlors, supermarkets, convenience stores



Other stores, such as movie theaters, department stores, cell phone stores, car dealerships, and relaxation facilities such as massage, skin care, facials, etc.