



uvix·one

UV-C HIGH POWER DISINFECTING ROBOT

CREATE A NEW AND SAFER FUTURE

UVIX.ONE 24S is a proven, automated UV-C decontamination technology that is highly effective against multidrug resistant organisms and the SARS-CoV-2 virus responsible for the COVID-19 pandemic.

UVIX.ONE 24S devices deliver effective, single-cycle whole-room disinfection, increasing staff productivity through enhanced power and efficiency.

APPLICATIONS

UVIX.ONE 24S was engineered to be easy to use and safe to operate, ensuring thorough disinfection in public buildings such as hospitals, care homes, offices, airports, restaurants, gyms, schools and hotels.



OFFICES



HOSPITALS



AIRPORTS



RESTAURANTS



GYMS



CARE HOMES



SCHOOLS



HOTELS



STORES

UVIX.ONE 24S disinfects a whole room in minutes. The robot works autonomously, inactivating pathogens in both air and surfaces. The performance of UV-C Light Disinfection is scientifically proven and ensures proper airborne and surface disinfection, destroying the microorganisms ability to reproduce by decomposing their DNA structures.



FULL DISINFECTION

UVIX.ONE 24S projects a high-power UV source to disinfect all surfaces, even if shadowed from its view, to ensure full coverage in any application.



EFFECTIVE DISINFECTION

UVIX.ONE 24S projects the most uniform and effective UV radiation diagram of all disinfection robots, thanks to its UV reflective material (EPTFE).



SMART DISINFECTION

UVIX.ONE 24S uses LIDAR (Light Detection and Ranging) technology to assess room size and characteristics. It automatically adjusts lamp usage and runtime as required for each application. The energy-efficient UV cluster can be partially disabled based on object proximity to lower running costs and improve lamp lifetime.



LARGE COVERAGE

UVIX.ONE 24S features high-output omnidirectional UV lamps that are able to disinfect rooms up to 100m² in a single cycle. Coverage can be increased beyond 100m² through multiple placements.



EASY TO OPERATE

UVIX.ONE 24S is easy to transport and use, ideal for any facility and application. Operation is remote-controlled using tablets and smartphones via an intuitive interface. The smart capabilities that assess room size and characteristics require the operator to simply select the desired disinfection level.



SAFE TO USE

Four built-in 360° motion sensors constantly monitor the room during operation, combined with a safety auto-stop function to avoid human UV light exposure. UVIX.ONE 24S is compliant with the ISO 15858:2016 safety standard (UV-C Devices - Safety Information - Permissible human exposure).



NON-TOXIC AND CHEMICAL FREE

UV-C radiation is a chemical-free, non-toxic electromagnetic projection that eliminates both airborne and surface pathogens by decomposing their DNA. This process does not require ventilation or downtime before the room can be used, since no aerosol or harsh chemicals are used during disinfection.



BUILT-IN DATA LOGGING

UVIX.ONE 24S records realtime operation data that is stored to a secure cloud platform for reporting purposes.



ECOLOGICAL

UVIX.ONE 24S was designed to save energy and lamp lifetime by making careful use of its powerful projection. The lamp cluster features 4 individually switchable sections, allowing runtime to be reduced where objects are in closer proximity, without compromising effectiveness.

EFFICIENT UV-C DISINFECTING ROBOT

Airborne Disinfection

According to several studies, the sensitivity to UV-C of pathogens is much higher in the air than in surfaces and consequently their inactivation much faster in the air. Therefore, in addition to surface disinfection, air disinfection is also carried out by UVIX.ONE 24S

FAST AND EFFECTIVE DISINFECTION

The UVIX.ONE 24S uses LIDAR technology to automatically sense room size and characteristics to calibrate the appropriate runtime and the right dose of radiation to effectively deactivate, at the desired level, pathogens in both air and surfaces. User selects the desired percentage (or LOG) of disinfection and the device does all the disinfection work.

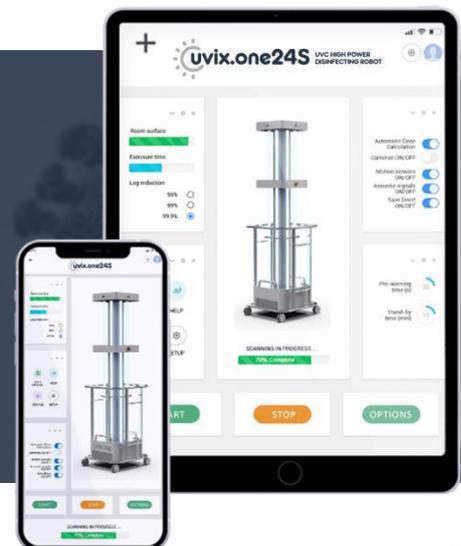
Typically used values are 99% (LOG 2) and 99,9% (LOG 3)

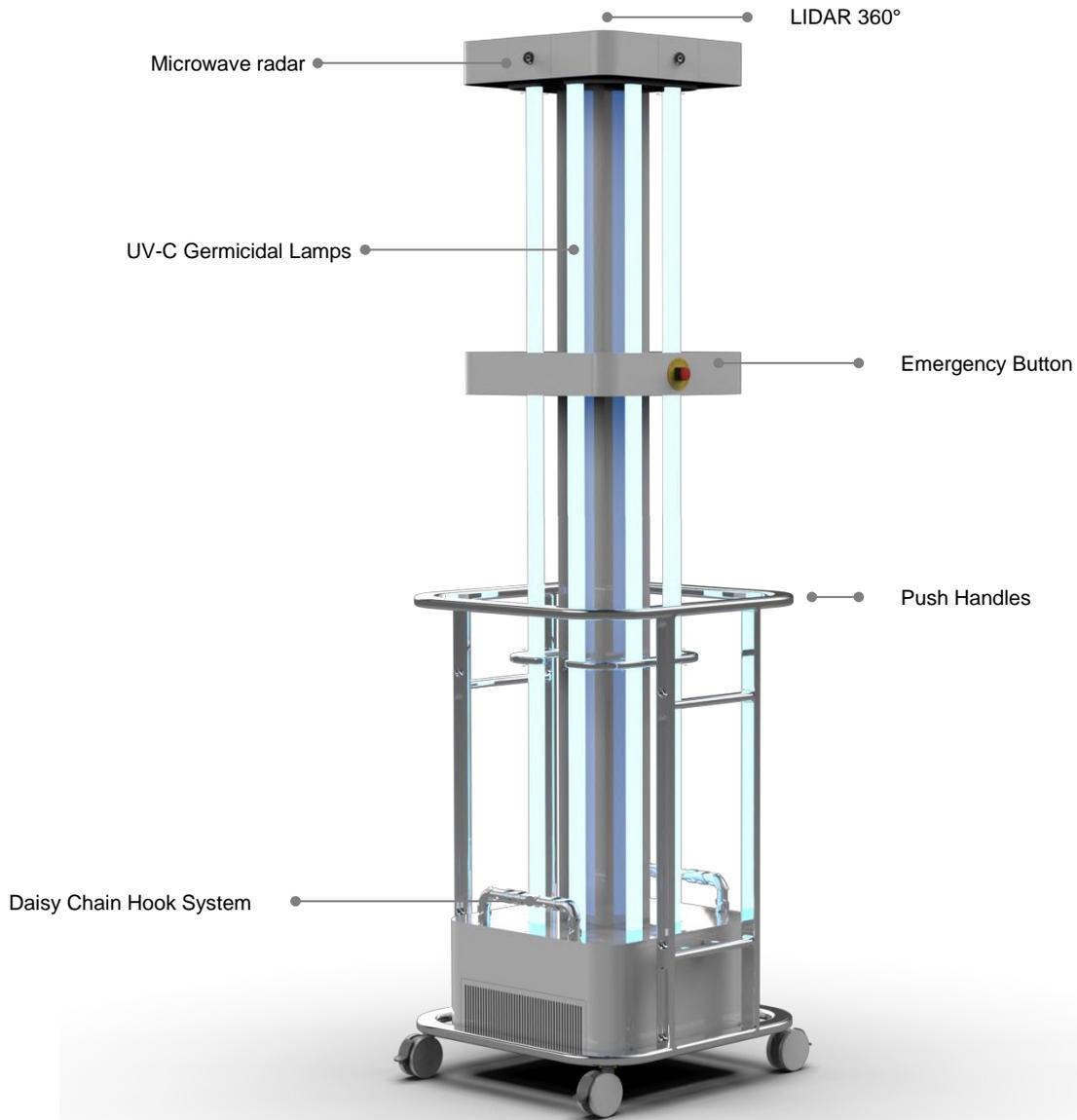
Room Area	Log 2 disinfection	Log 3 disinfection
30m ²	2.5 min	4 min
50m ²	4 min	7 min
100m ²	8 min	13 min
200m ²	15 min	22 min

EASY TO OPERATE

Controlled by tablet

UVIX.ONE 24S is supplied with a tablet form where the user can operate the device. The device generates its own WiFi network so can wirelessly and remotely be controlled. Our app provides access to all functions, configurations and user manual.





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UV-C HIGH POWER DISINFECTING ROBOT

UVIX.ONE 24S is an innovative robot that sheds UV-C light in the 254 nm germicidal range, overcoming the rising threat of pathogens such as viruses, bacteria, and fungi.

360° LIDAR

A Light Detection and Ranging system to conduct measurement of the dimensions of the room, providing information to the microprocessor to calculate optimal UV-C dose and exposure timing.

LED LIGHTS & ACOUSTIC

A multicolor LED omnidirectional light provides color-codes for extra safety and information about the operation of the UVIX ONE robot. Acoustic signal brings extra information to the robot user.

STABILITY

A square base with 4 wheels ensures robot stability and easy access to rooms through standard doorways.

CCTV (OPTIONAL)

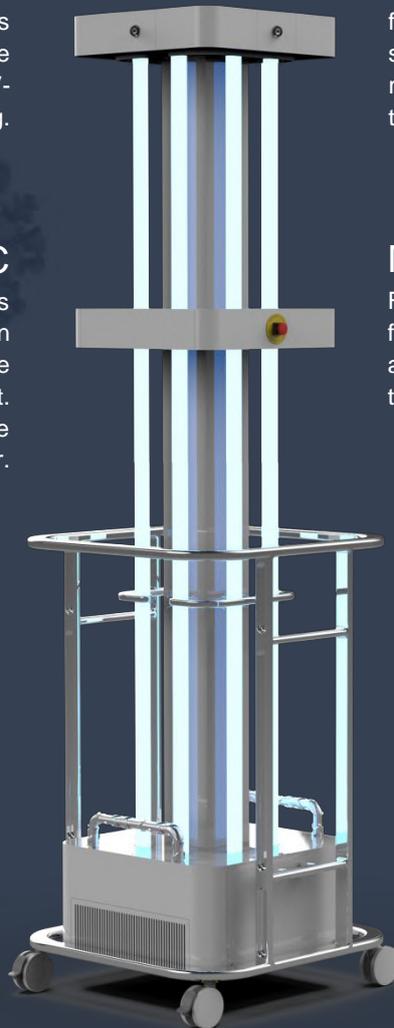
To provide a 360° field of view of the room. Extra safety features and event image recording for supervisor traceability.

MOTION SENSORS.

Four embedded motion sensors for a 360° auto-stop safety function, avoiding unprogrammed light exposures to operators.

HI-POWER UV-C LAMPS

Use of 24 shorter lamps that ensure greater uniformity in radiated UV power.



TECHNICAL SPECIFICATIONS

UVIX.ONE 24S

Technical Specifications

UV-C Light Source

UV light source: Hi-Power Mercury Lamps
 UV-C peak wavelength: 254 nm (nanometers)
 Lamp Lifetime: 11,000 h

Physical

Dimensions (LxWxH): 580 x 580 x 1995 mm
 Total Weight: 45 kg
 Material: Stainless steel and aluminium chassis
 Support: 4 heavy-duty castor wheels

Connectivity

WI-FI connectivity: Dual band 2.4 GHz & 5 GHz
 Mode: AP & STA

Safety & Sensors

Auto-stop function: Yes, using motion sensors
 Visual alarms: Yes, RGB LED strip with blinking indicator

Motion Sensors

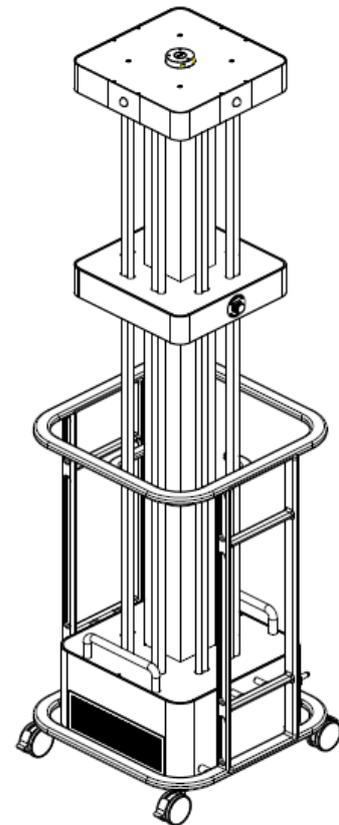
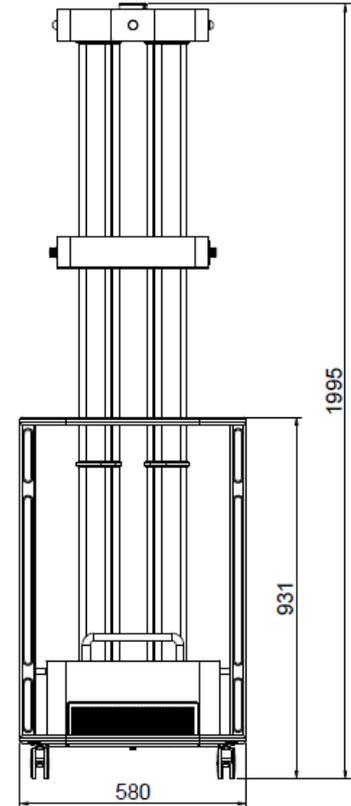
Number of sensors: 4 @ 90°
 Type: Microwave Radar
 Eye-safe: Yes
 Measurement range: 4 m

Power requirements

Voltage: 230 V/50 Hz
 Mains requirement: Std. Schuko wall socket

Power Supply

Voltage: 220 V
 Power: 2400 W
 Mains requirement: Std. Schuko wall socket



APPLICATIONS

As a result of the COVID-19 pandemic, Incredible Vanguard has created a solution through our expertise in engineering, product design and vertically integrated manufacturing. UVIX.ONE 24S was engineered to be easy and safe to operate in hospitals, care homes, hotels, restaurants, shops, offices, gyms and many other places.

EFFICIENT UV-C DESINFECTION FOR HOSPITALS



EFFICIENT UV-C DESINFECTION FOR HOTELS AND RESTAURANTS





EFFICIENT UV-C DESINFECTION FOR
PUBLIC TRANSPORTATION



EFFICIENT UV-C DESINFECTION FOR
GYMS



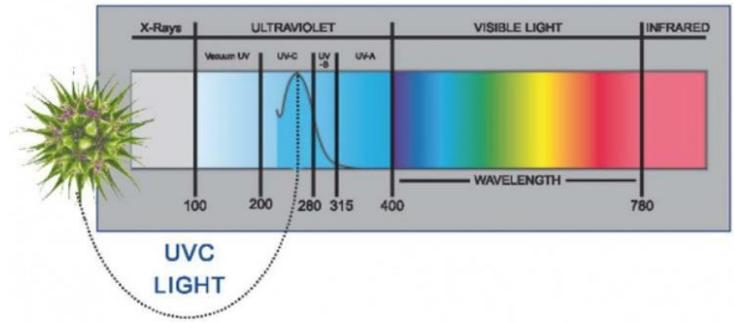
EFFICIENT UV-C DESINFECTION FOR
**SCHOOLS AND TRAINING
CENTRES**



EFFICIENT UV-C DESINFECTION FOR
RETAIL STORES

ABOUT UV

Ultraviolet (UV) light is one form of electromagnetic energy produced naturally by the sun. UV is a spectrum of light just below the visible light and it is split into four distinct spectral areas – Vacuum UV or UVV (100 to 200 nm), UVC (200 to 280 nm), UVB (280 to 315 nm) and UVA (315 to 400 nm).

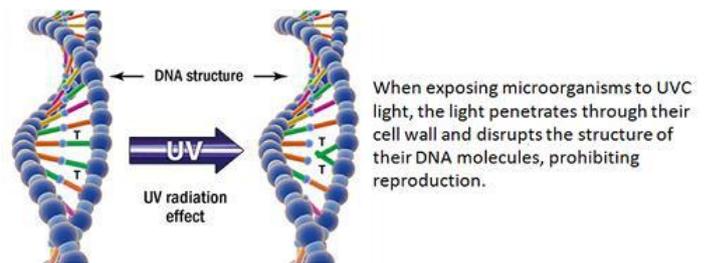


WHAT IS ULTRAVIOLET C?

The entire UV spectrum can kill or inactivate many microorganism species, preventing them from replicating. UVC energy at 253.7 nanometers provides the most germicidal effect. The application of UVC energy to inactivate microorganisms is also known as Germicidal Irradiation or UVGI.

UVC exposure inactivates microbial organisms such as bacteria and viruses by altering the structure and the molecular bonds of their DNA (Deoxyribonucleic acid). DNA is a “blue print” these organisms use to develop, function and reproduce. By destroying the organism’s ability to reproduce, it becomes harmless since it cannot colonize. After UVC exposure, the organism dies off leaving no offspring, and the population of the microorganism diminishes rapidly.

Ultraviolet germicidal lamps provide a much more powerful and concentrated effect of ultraviolet energy than can be found naturally. Germicidal UV provides a highly effective method of destroying microorganisms.



UVC DISINFECTION: BACKED BY SCIENCE

Studying UVC as a way to kill bacteria and other organisms dates back to as early as 1845, when it became known that microorganisms respond to light.

However, it was in 1877, when Downes and Blunt observed that exposing test tubes containing Pasteur’s solution to sunlight prevented the growth of microorganisms inside the tube and, upon increased exposure durations, the test tubes remained bacteria-free for several months.

These early investigations pointed to key factors that influence ultraviolet germicidal irradiation (UVGI):

Inactivation of a given fraction of organisms is dependent on the dose of radiation received.

Dose is the product of intensity and exposure duration.

Inactivation is also dependent on the wavelength of received radiation.

Later, in 1980, Koch proved the lethal effect of sunlight on tuberculosis, which was an early indicator of the modern use of UV to combat TB infections.

Later, between 1933-1935 William F Wells shows droplet nuclei expectoration and shows that they can be killed in the air with UVC. Further, between 1937-1941, Wells later shows that upper room ultraviolet germicidal irradiation prevented measles spread in public schools. However, there has been difficulty replicating these findings.

These early findings laid the foundation for further research and scientific data on UVC disinfection.

Different pathogens have unique resistances to UV light - some are very susceptible, while others require more UVC exposure for complete inactivation. A correct UV dose is critical to thoroughly deactivate the intended microbes.

UV dose, also called UV fluence, is calculated using the following equation:

UV Dose = UV Intensity (I) x Exposure time (t)

In other words, UV Dose = I x T, where:

- UV dose is measured in joules per meter squared (J/m²) or millijoules per centimeter squared (mJ/cm²)
- UV Intensity (also called UV irradiance) is measured in milliwatts per centimeter squared (mW/cm²)
- Exposure time is measured in seconds

The predictable amount of dosage required for a specific degree of disinfection is referred to as a “log reduction” (i.e. logarithmic reduction). Log reduction relates to the percentage of microorganisms physically removed or inactivated by a given process. For example, a 1 log reduction will see the pathogen of interest reduced by 90% from the influent level before UV disinfection. The microbe count is reduced by a factor of 10 - or 1 log. Thus, a 2 log reduction will see a 99% reduction, or microbe reduction by a factor of 100, and so on and so forth.

Log Reduction	Reduction Factor	Percent Reduced
1	10	90%
2	100	99%
3	1000	99.9%
4	10.000	99.99%
5	100.000	99.999%
6	1.000.000	99.9999%

DISINFECTION TIMES FOR SARS-COV-2

Room Area	Log 2 disinfection	Log 3 disinfection
30m ²	2.5 min	4 min
50m ²	4 min	7 min
100m ²	8 min	13 min
200m ²	15 min	22 min

According to Biasin, M., Bianco, A., Pareschi, G. et al. UV-C irradiation is highly effective in inactivating SARS-CoV-2 replication. *Sci Rep* 11, 6260 (2021). <https://www.nature.com/articles/s41598-021-85425-w>, a dose of just 3,7 mJ/cm² was sufficient to achieve a more than 3-Log inactivation without any sign of viral replication. Moreover, a complete inactivation at all viral concentrations was observed with 16.9 mJ/cm².

Another study by the University of Chicago¹ concluded that a fluence of 22mJ/cm² was sufficient to obtain a 5-log inactivation of SARS-CoV-2.

We assume a very conservative value of 20 mJ/cm² as expected to inactivate 99,9% (Log-3 reduction) in surfaces.

¹ (https://www.researchgate.net/publication/348033750_Rapid_and_complete_inactivation_of_SARS-CoV-2_by_ultraviolet-C_irradiation/link/5fed5ca7a6fdcccb81b0010/download)



DEVELOPED BY



INCREDIBLE VANGUARD
YOU HAVE THE IDEA, WE MAKE IT REAL

Incredible Vanguard Lda
Rua Elísio Filinto Feio Nº5 - 1º Direito
3800-265 Aveiro
Portugal

info@incrediblevanguard.com

www.uvix.one

uvix.one