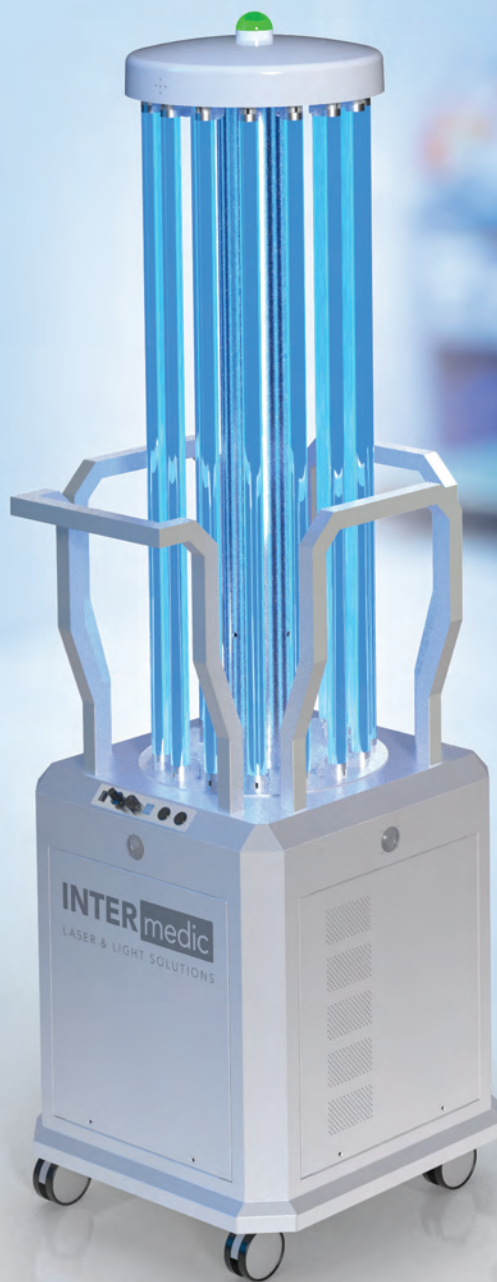


INTERmedic

LASER & LIGHT SOLUTIONS



COMBAT
DUO₃
Ultraviolet light & ozone treatment

UVC + O₃ Dual Disinfection System

Inactivation of viruses, bacteria and fungi from surfaces and environments

COMVAT DUO₃ is the new combined disinfection system for hospitals, clinics, health centers, residences and other sanitary spaces, that need to strengthen its disinfection and **COVID-19 inactivation** strategy.



COVID-19

Isolation rooms in hospitals have been temporarily converted into a potentially infectious environments. By thoroughly disinfecting the area, the virus inactivation occurs, prevention is reinforced and, the transmission chain is broken.

A permanent problem

Multiple studies have shown that **less than 50% of room surfaces** in hospitals are thoroughly cleaned and disinfected when chemical germicides are used.¹



Automated cleaning methods

Automated devices for the disinfection of spaces through germicidal **light and/or ozone** have demonstrated superior **decontamination in surfaces** and other objects.²

Why reinforce the disinfection process?

- Several studies show that the risk of contracting MRSA, VRE, Acinetobacter, *Pseudomonas* or *C. difficile* is increased when a new hospital admission occurs in a room previously occupied by a patient infected with one of these pathogens. Such pathogens can survive on surfaces for days, which increases the risk of infection for patients, **unless the cleaning process eliminates them.**²
- The **European Centre for Disease Control** estimates that **3.8 million people** acquire a healthcare-associated infection each year in acute care hospitals in EU countries.³
- On average across EU countries (weighted), **5.5% of patients** acquired an infection during their hospital stay in 2016-17.³






INTERmedic puts the new COMVAT DUO₃ at the service of health disinfection.

Dual disinfection system by **UVC light and ozone**, are two reference technologies in non-contact disinfection, that can be used independently or sequentially for the inactivation of **of viruses, bacteria and fungi** from both **environments and surfaces**.

Dual disinfection system

COMVAT DUO₃ allows you to choose up to **3 disinfection modes** based on the existing level of contamination, viral load and time available. With the **360 Shadowless** mode, the user obtains a full disinfection process of the most difficult spaces, compensating for any small shadow or low exposure area to the UVC light.

	UVC mode Light disinfection	Disinfection for frequent use between patients	6-11 min
	O₃ mode Ozone disinfection	Thorough disinfection on-time use	50 min*
	360 mode UVC disinfection + ozone	Rigorous disinfection. Ideal for high risk spaces and hidden corners	6-11 min + 50 min*



*Additional 50 minutes are needed for air recombination

COMVAT DUO₃ has been conceived for the disinfection of sanitary spaces and has multiple applications

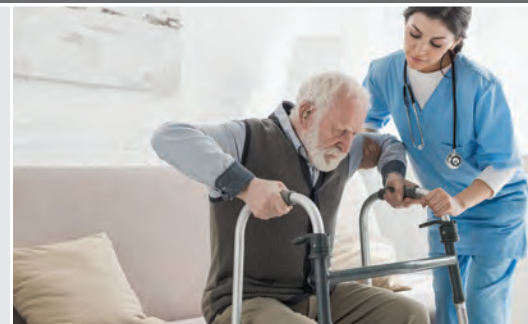
OPERATING ROOMS

It prevents patients from acquiring healthcare-associated infections. Reinforces and complements existing cleaning and space disinfection procedures.



CARE & RETIREMENT HOMES

System fit for care and nursing homes that require a profound level of disinfection.



WAITING ROOMS

Prevents infections by contact with surfaces in waiting rooms.



BOXES

Ideal for disinfection between patients. Reinforce and complement usual daily cleaning.



LOCKER ROOMS

Suitable for areas with a high turnout of people. COMVAT DUO₃ is effective on all type of surfaces, including metallic, wooden, plastic, among others.



BATHROOMS

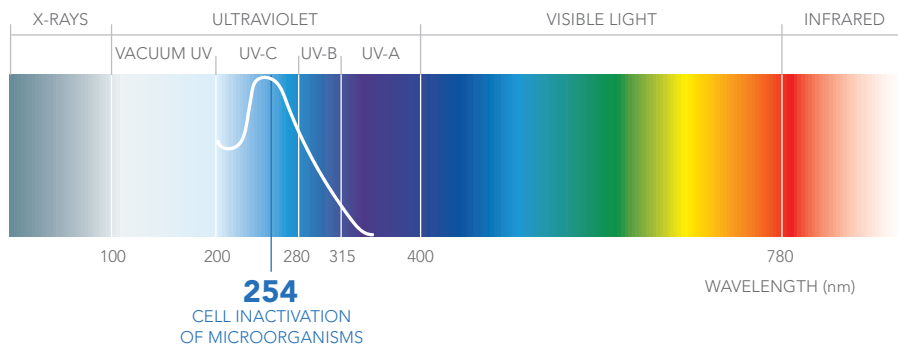
The design of COMVAT DUO₃ makes it accessible to bathrooms and other patient service spaces. It is effective throughout all type of surfaces, including metallic, ceramic, plastic, among others.



Ultraviolet germicidal irradiation, at a wavelength of **254nm**, inactivates microorganisms.

Ultraviolet germicidal irradiation (UVGI) is an electromagnetic radiation that destroys the ability of microorganisms to reproduce by causing photochemical changes in their nucleic acids (DNA and RNA).⁴

Electromagnetic spectrum of light radiation (nm) 254

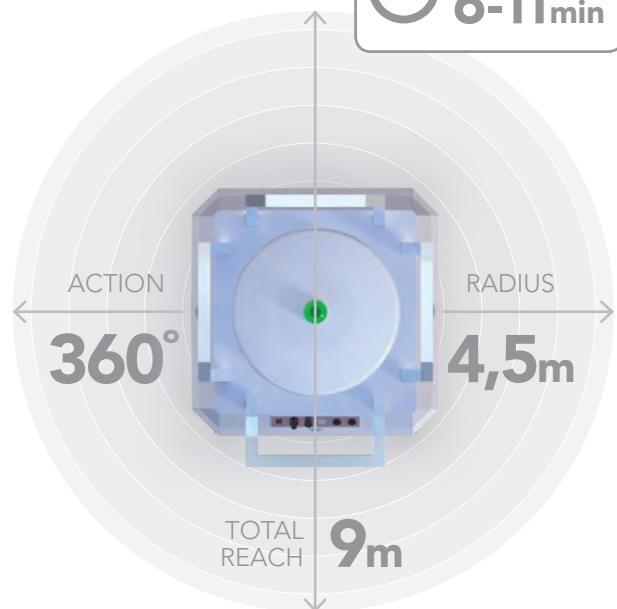


The **15 high-performance lamps** with a power of 55W each, guarantee a **high-power density** capable of eradicating any microorganism in **6 minutes** in a space of up to **60m²**.

INTERmedic guarantees the necessary supply of luminous energy for the eradication of microorganisms, following the power densities in **major academic studies and international publications**.

Its real time UVC radiation monitoring system will ensure that it remains on the threshold of efficacy.

CYCLES DISINFECTION
6-11min



UVC equipment without enough power does not guarantee effective disinfection, leaving the user notably exposed by reducing contagion precautions and increasing exposure level.

UV light, specifically between 200-280 nm⁵ inactivates two other coronaviruses:

- SARS-CoV⁶
- MERS-CoV^{7,8}

COVID-19 infections can be caused by **contact with contaminated surfaces** followed by facial self-touch⁴. Minimizing this risk is key as the COVID-19 virus can live in plastic and steel surfaces for **up to 3 days**.⁹

The union of UVC + O₃ in a safe and controlled way, acts in the virus inactivation (prevention) and limits the transmission chain.



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OZONE MODE

Up to 15g / hour

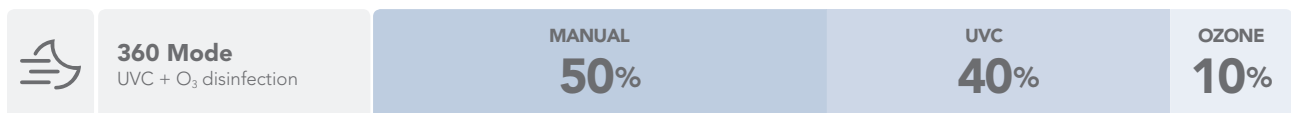
Ozone used in low concentrations is a **powerful disinfectant** against viruses in the air.¹⁰



Ozonation phases with COMVAT DUO₃

- 1 DISINFECTION** of contaminants and pollutants through the oxidation process of microorganisms suspended on surfaces.
- 2 DEODORIZATION** by destroying all microorganism by oxidation, ozone makes their smells disappear turning the rarefied air into perfectly healthy, with a deodorization process taking place.
- 3 RECOMBINATION** of air after the disinfection phase O₃ molecules must be left to naturally recombine for about 50 minutes until they descend to a user-safe level.

Global disinfection process



With the application of ozone, a 360 disinfection process is achieved, covering any area where light and manual processes have not disinfected.



“COMVAT DUO₃ supplies up to 15g/h O₃ ensuring efficient decontamination of rooms.”

1. Weber, D., & Rutala, W. (2013). Understanding and Preventing Transmission of Healthcare-Associated Pathogens Due to the Contaminated Hospital Environment. *Infection Control & Hospital Epidemiology*, 34(5), 449-452. doi:10.1086/670223. 2. <https://wiki.ecdc.europa.eu/fem/Pages/Hospital%20cleaning%20and%20decontamination.aspx>. 3. https://www.oecdilibrary.org/docserver/health_glance_eur-201845enpdf?expires=1588527173&id=id&acname=guest&checksum=2AC9E407DBFF879E901A1A8C9654EEF. 4. Kowalski, Wladyslaw. (2009). *Ultraviolet Germicidal Irradiation Handbook*. 10.1007/978-3-642-01999-9_2. 5. "Miscellaneous Inactivating Agents -Guideline for Disinfection and Sterilization in Healthcare Facilities (2008);" Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Division of Healthcare Quality Promotion (DHQP) (<https://www.cdc.gov/infectioncontrol/guidelines/disinfection/disinfection-methods/miscellaneous.html>). 6. "Large-scale preparation of UV-inactivated SARS coronavirus virions for vaccine antigen," Tsunetsugu-Yokota Y et al. *Methods Mol Biol*. 2008;454:119-26. doi: 10.1007/978-1-59745-181-9_11. 7. "Efficacy of an Automated Multiple Emitter Whole-Room Ultraviolet-C Disinfection System Against Coronaviruses MHV and MERS-CoV," Bedell K et al. *ICHE* 2016 May;37(5):598-9. doi:10.1017/ice.2015.348. Epub 2016 Jan 28. 8. "Focus on Surface Disinfection When Fighting COVID-19"; William A. Rutala, PhD, MPH, CIC, David J. Weber, MD, MPH; *Infection Control Today*, March 20, 2020 (<https://www.infectioncontroldiscovery.com/covid-19/focus-surface-disinfection-when-fighting-covid-19>). 9. "Preventing the Spread of Coronavirus Disease 2019 in Homes and Residential Communities"; National Center for Immunization and Respiratory Diseases (NCIRD), Div. of Viral Diseases (<https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-prevent-spread.html>). 10. Marie-Eve Dubuis, et All. Ozone efficacy for the control of airborne viruses: Bacteriophage and norovirus models. April, 10. (2020)

Technical characteristics



SOFTWARE

- The software allows the user to know the **necessary dose** of light subject to the dimensions of the room to treat.
- If necessary, the software will suggest **splitting the room** two or more treatment areas.
- Reports the remaining **application time**.
- **Pre-set room maps** specifically tailored for each center.

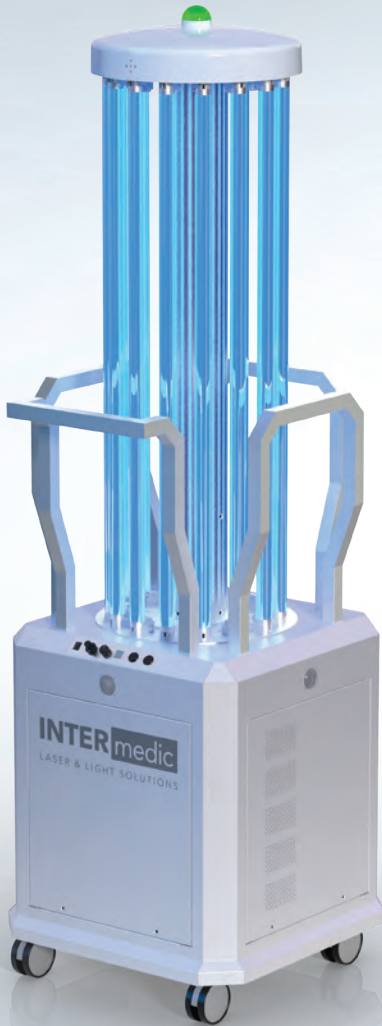


SECURITY

- **Presence sensors.** COMVAT DUO₃ interrupts the treatment immediately if it detects movement in its surroundings.
- **Ozone sensors.** Detector of O₃ ppm in the environment. Control ozone levels at all times to enable the safe entry of health and cleaning professionals after the treatment.
- **Tricolor Traffic Light.** COMVAT DUO₃ reports on the status of using a red, amber and green light.
- **Delayed activation.** Allowing staff to leave the area before the start of the procedure.

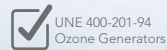


Benefits COMVAT DUO₃



- ✓ **The first and only** combined solution of **UVC + O₃**
- ✓ **Triple-layer of security:** presence detection, ozone sensor and alarm (acoustic and optical)
- ✓ **Immediate** integration into existing cleaning and disinfection processes
- ✓ **Modular** disinfection time subject to the room surface
- ✓ **Easy-to-move** system, with 4 multi-directional wheels

COMVAT DUO₃ is a product manufactured by INTERmedic, a company with **ISO13485**, (standard for the applicable quality management system for devices) and under **EN60204** and **EN61000** electric and electromagnetic compatibility that allow for use in environments Hospital.



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Valles Technology Park, Boters 8-10
08290 Cerdanyola del Vallès (Barcelona) Spain

Tel.: (+34) 932 656 661
Fax: (+34) 932 454 806
intermedic@inter-medice.net

www.inter-medice.net



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