

Cognituv

Intelligent UV-C Disinfection Solutions



SOLUTIONS CATALOG



Intelligent UV-C Disinfection Solutions

The world's thought leader in providing comprehensive disinfection solutions for key industries such as healthcare, food/agriculture, commercial, residential, and industrial facilities. Our solutions are developed by harnessing decades of peer-reviewed science, the latest technology, and aligning it with our customers' specific needs, ensuring sustainable, clean, and healthy environments across various sectors.

Cognituv recognizes the importance of biosecurity risk reduction for our clients. Our widely-adopted UV-C solutions offer numerous benefits, including enhanced cleanliness, increased yields, odor reduction, and energy savings, effectively safeguarding people, products, and reputations.

We provide robust product offerings tailored to the diverse disinfection needs of various industries. Our scientifically proven and reliable UV-C solutions, manufactured in the USA under strict regulations and guidelines, instill confidence in your disinfection strategies and elevate your facility's overall quality standards.

Discover our innovative and effective UV-C solutions designed to improve air quality, surface cleanliness, water purity, and fluid integrity.

Our commitment to treating you like family ensures world-class solutions that protect your assets, create value, and deliver a sustainable future.

Cognituv, LLC

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CONTACT FORM

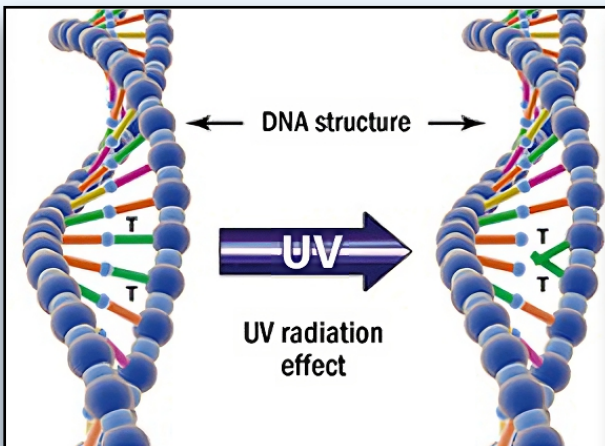
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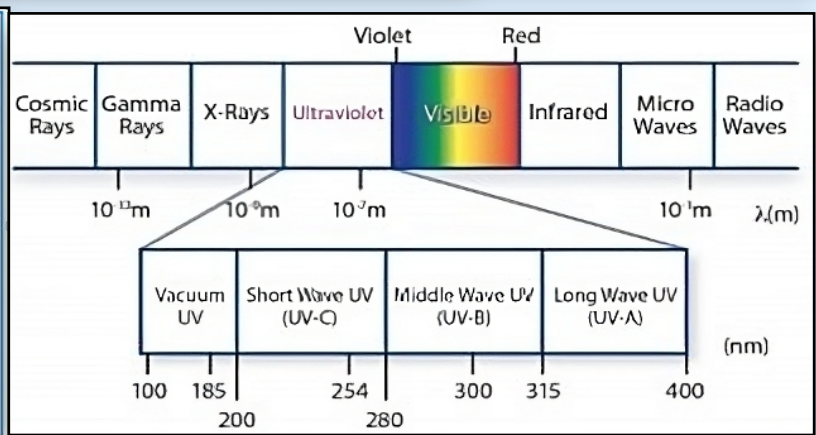
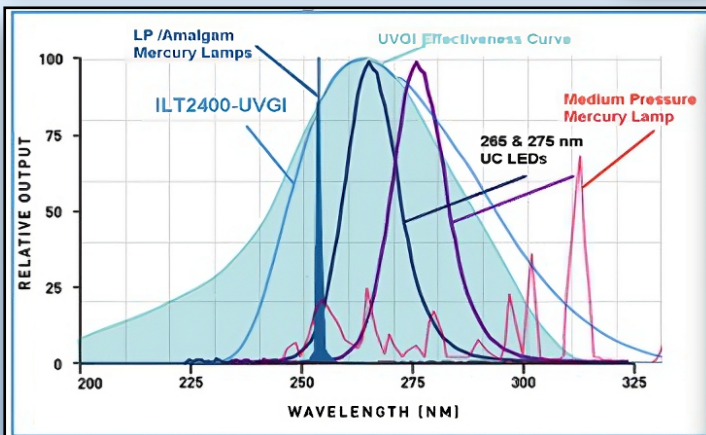
What is UV-C?

This short wavelength of Light carries the amount of energy necessary to inactivate microorganisms by destroying nucleic acids and disrupting their DNA, leaving them unable to perform vital cellular functions. UV-C is used in a variety of applications, such as food, surface, air, and water purification.



History of UV-C

- 1903: Finsen's Nobel Prize for UV germicidal properties
- 1930s: Low-pressure mercury vapor lamps developed
 - 1960s: UV-C adoption in water treatment plants
- 1980s-1990s: UV-C air disinfection in healthcare settings
 - Early 2000s: UV-C usage expands across industries
- 2020-2021: COVID-19 pandemic boosts UV-C technology demand



Industry Adopters of UV-C technology

Healthcare	Water Treatment	Wastewater Treatment	Food and Beverage	HVAC and Air Purification
Public transportation	Pharmaceutical	Biotechnology	Aquaculture and Agriculture	Electronics Manufacturing
Labs	Maritime	Residential	Commercial Office	Education

UV-C Solutions for

Air Disinfection (IAQ)	Improve indoor air quality and safeguard against airborne pathogens
Surface Disinfection	Ensure cleaner and safer environments by minimizing the risk of surface-transmitted
Water Disinfection	Enhance public health with sustainable water management and chemical-free treatment, reducing waterborne diseases.
Fluid Disinfection	Maintain hygiene standards and reduce contamination risks in food and beverage manufacturing, ensuring product quality and safety.
Odor Reduction	Reduce odors in your space continuously without all of the fragrances/aromatics.
VOC Reduction	Promote better air quality and well-being by mitigating health risks associated with volatile organic compounds in indoor environments.
Food Preservation	Support a sustainable food supply chain by extending the shelf life of perishable goods and reducing food waste.
Pollution Control	Benefit public health and the environment by mitigating indoor pollution and contributing to cleaner air.
Chemical Reduction	Minimize the use of harmful chemicals in disinfection processes for a safer and more sustainable approach to cleanliness.
Energy Reduction	Lower energy bills and contribute to greener operations by enhancing the efficiency of HVAC systems and other equipment.
Mold and Other Microorganism Reduction	Create healthier indoor spaces and reduce the risk of structural damage by combating mold growth in residential and commercial buildings.
Maintenance Reduction	Decrease maintenance costs and extend the lifespan of equipment with efficient, easy-to-implement solutions.
HVAC Coil Cleaning	Improve indoor air quality and boost energy efficiency and performance of HVAC systems while reducing maintenance costs.
Increasing Yield	Ensure a sustainable food supply chain by providing cleaner environments for Food/Ag production, boosting agricultural productivity.

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Removes Odors, Purifies Air

Our CGUV-FreshFilter system is intended for any HVAC's duct, return, or supply to freshen the air by removing odors and VOC's. We can adapt our system to fit any size in the market.

- Improve facility indoor air quality (IAQ).
- Reduces volatile organic compounds (VOC).
- Low pressure drop.
- Options for building management systems, air quality monitoring, controls.
- One door to complete any maintenance.



Reduce
Bio-organisms



Reduce
VOC's



Low
Pressure Drop



Reduce
Odors



Improve
Air Quality



Need custom sizing or
electronics?

Contact us to find out more at www.cognituv.com

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Tech
Specs



Removes Bio-Film, Purifies Air

Our CGUV-GRID system is intended for air handler units (AHU's) from small systems to large walk-in units. We can adapt our system to any size in the market.

- Improve facility indoor air quality (IAQ).
- Reduces energy and maintenance costs.
- Quick clamping vertical expanding mounting poles.
- Options for building management systems, air quality monitoring, controls. UV-C sensors
- Wet rated, ruggedized, and corrosive resistant materials.



Reduce Bio-organisms



Reduce Energy



Reduce Maintenance



Reduce Chemicals

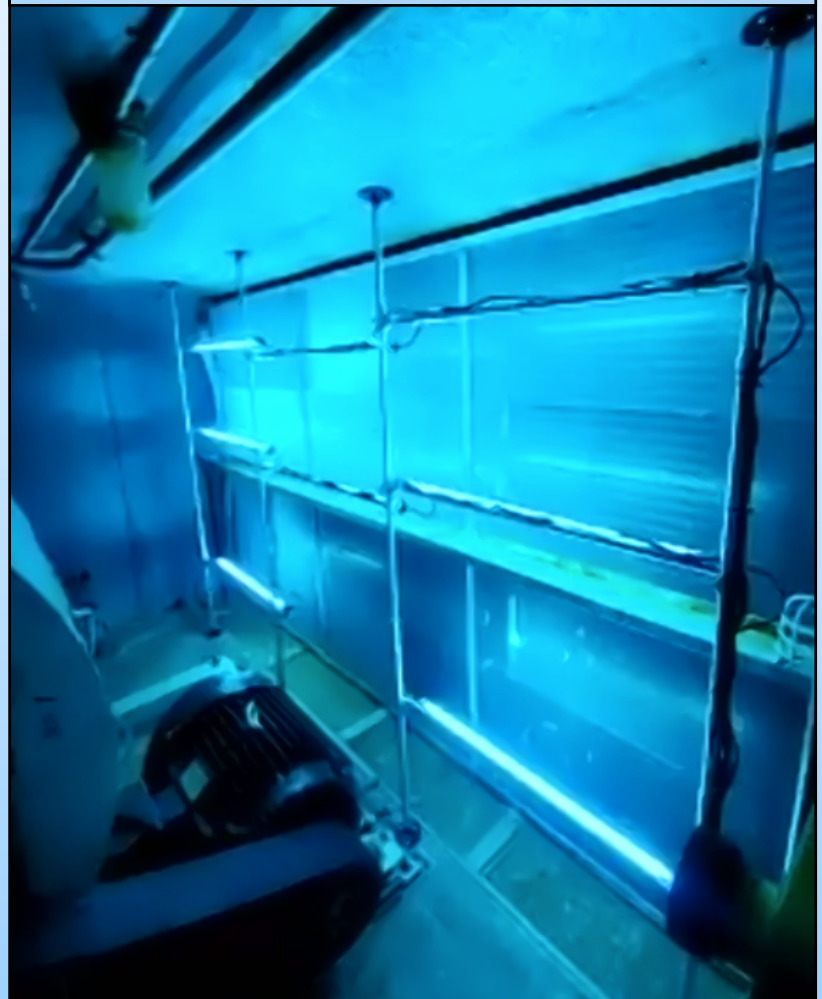


Improve Air Quality

A Fowled Coil Contaminates Indoor Air and Increases Your Energy Costs



Improved Indoor Air Quality and Decreased Energy Costs



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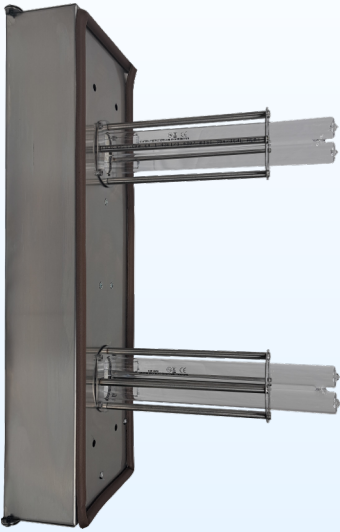
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Drill n' Fill Air Cleaning



Our CGUV-DUCT system is intended for duct units to be mounted on the side. There are 3 standard sizes with the ability to customize.

- Improve facility indoor air quality (IAQ).
- Reduces energy and maintenance costs.
- Quick mounting on side of unit.
- Options for building management systems, air quality monitoring, controls.
- Moisture rated, ruggedized, and corrosive resistant materials.



Reduce
Bio-organisms



Reduce
Energy



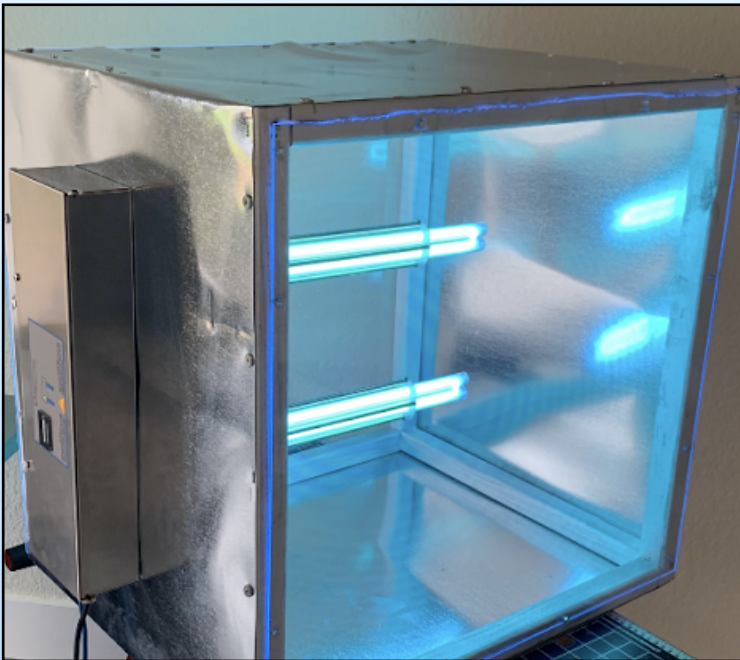
Reduce
Maintenance



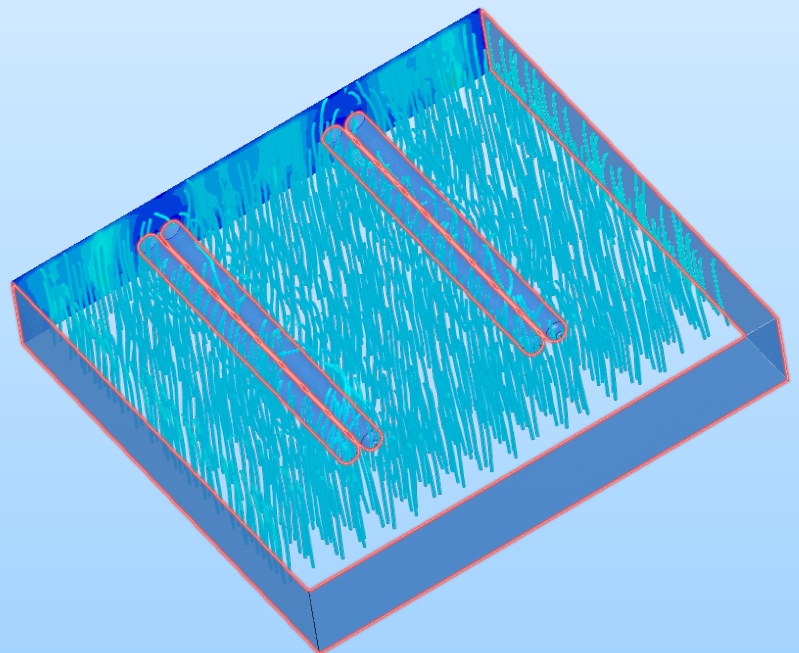
Reduce
Chemicals



Improve
Air Quality



Ideal placement is on the main
supply plenum



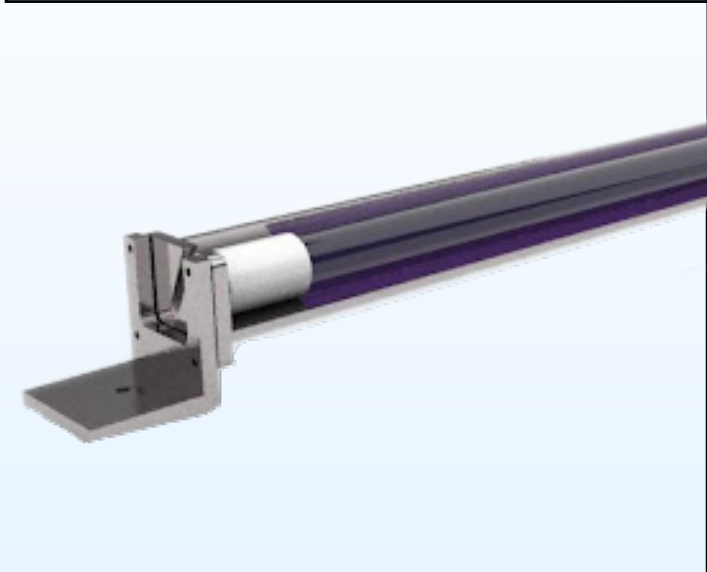
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Tech
Specs

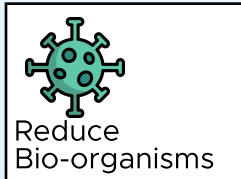
Shielded, Simplified




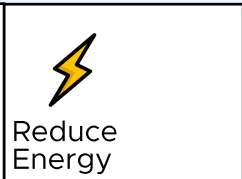
Our CGUV-VENT is designed for floor standing units to quickly mount with magnets to disinfect the air.

- Improve facility indoor air quality (IAQ).
- Shielding to prevent light leakage into room.
- Magnets to attach for quick install.
- Options for building management systems, air quality monitoring, controls.
- Safety switch for door on every device.

- Improve facility indoor air quality (IAQ).
- Shielding to prevent light leakage into room.
- Magnets to attach for quick install.
- Options for building management systems, air quality monitoring, controls.
- Safety switch for door on every device.




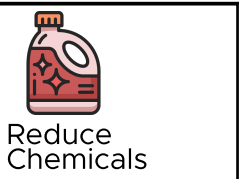
Reduce
Bio-organisms



Reduce
Energy



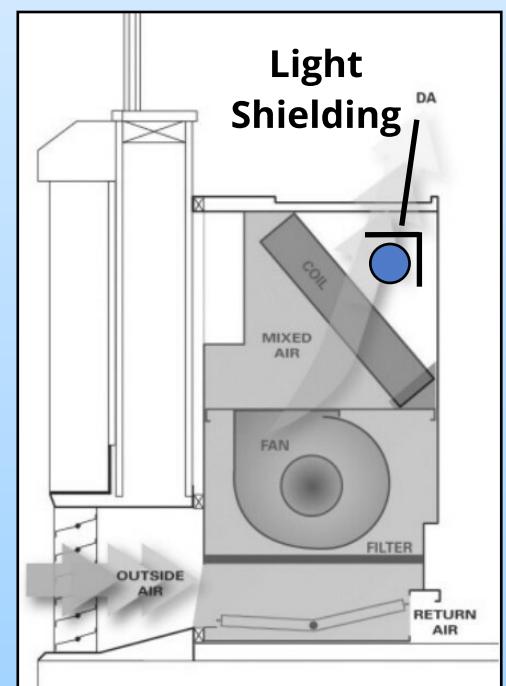
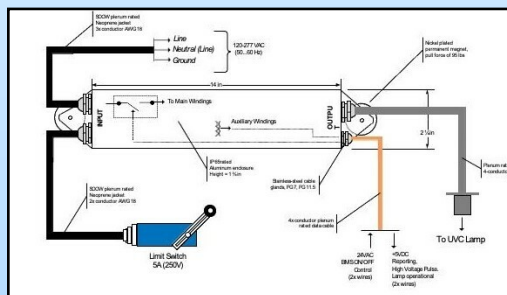
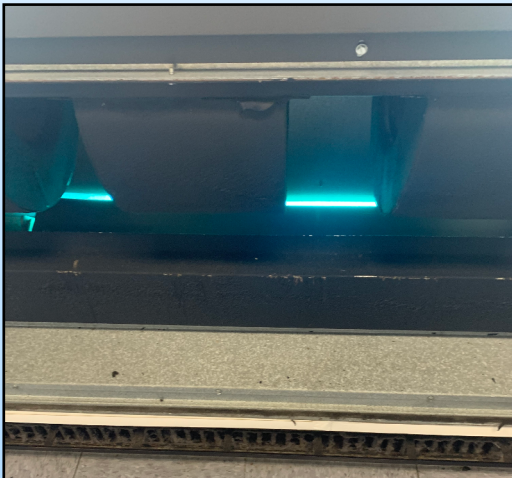
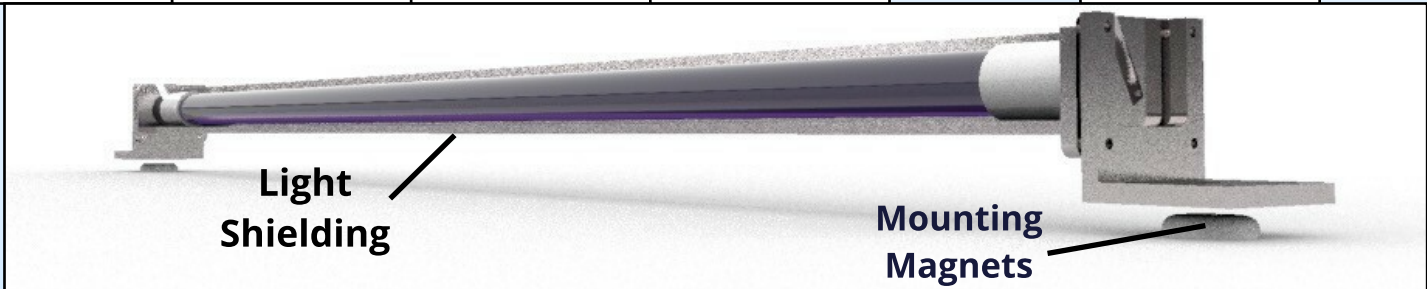
Reduce Maintenance



Reduce
Chemicals



Improve
Air Quality



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  Tech Specs

9

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  Tech Specs

9



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  Tech Specs

9

Minimal Footprint, Purifies Air

Our CGUV-SABER-M, made for tight spaces, needs one hole to insert the lamp, and a detached ballast to place wherever. CGUV-SABER-T is a lay in product for HVAC drip trays with an IP68 bushing to remove mold.

- Improve facility indoor air quality (IAQ).
- Separate wet rated ballast.
- Options for building management systems, air quality monitoring, controls.
- Wet rated, ruggedized, and corrosive resistant materials.



Reduce Bio-organisms



Reduce Energy



Reduce Maintenance

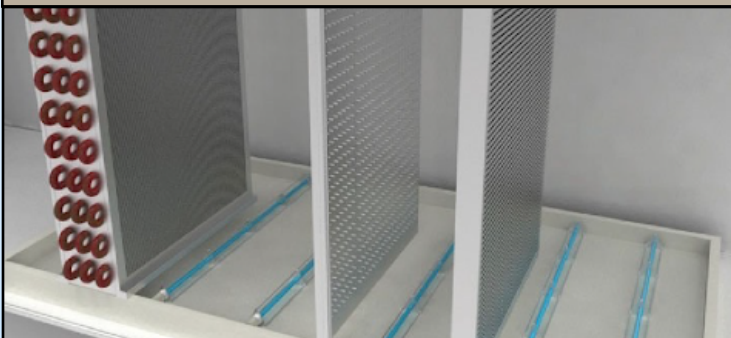


Reduce Chemicals

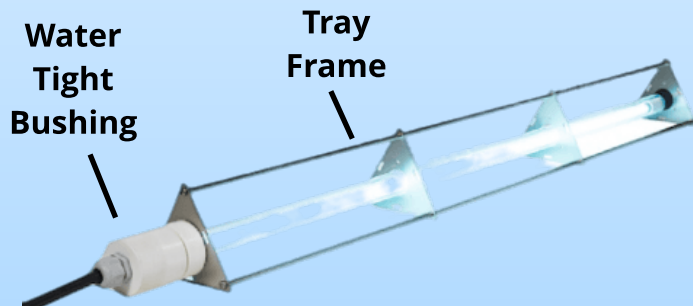
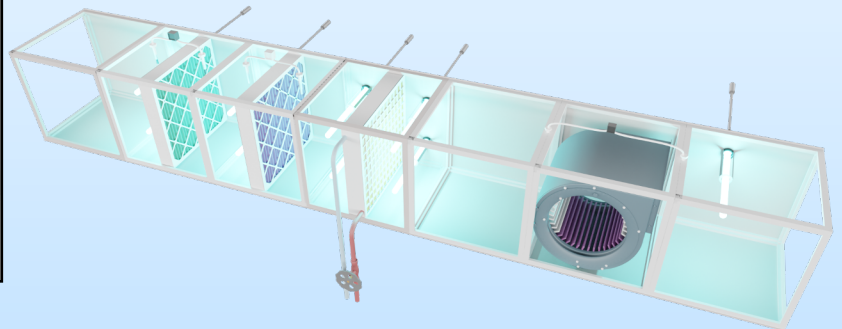


Improve Air Quality

A Fowled Coil Contaminates Indoor Air and Increases Energy Costs



Improved Indoor Air Quality and Decreased Energy Costs



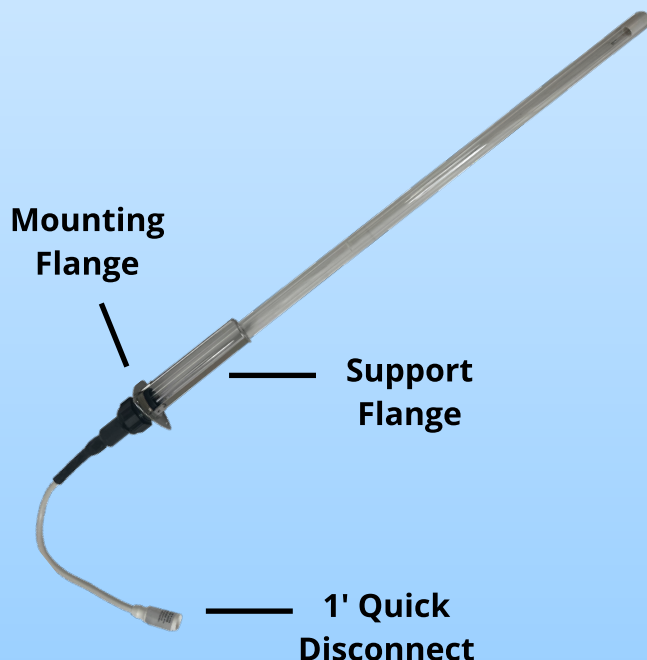
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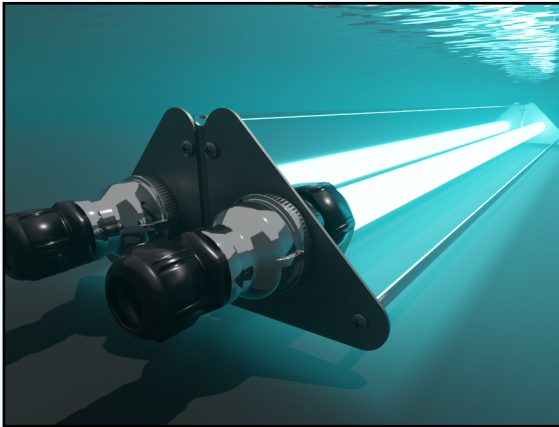


Tech Specs

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Treating Wet Areas Chemical Free



Our CGUV-Basins system is intended for air handler units (AHU's) from small systems to large walk-in units. We can adapt our system to any size in the market.

- Improve facility indoor air quality (IAQ).
- Reduces energy, chemical, and maintenance costs.
- Twice the power in a single lay in unit.
- Options for building management systems, air quality monitoring, controls.
- Wet rated, ruggedized, and corrosive resistant materials.



Reduce
Bio-organisms



Reduce
Energy



Reduce
Maintenance



Reduce
Chemicals

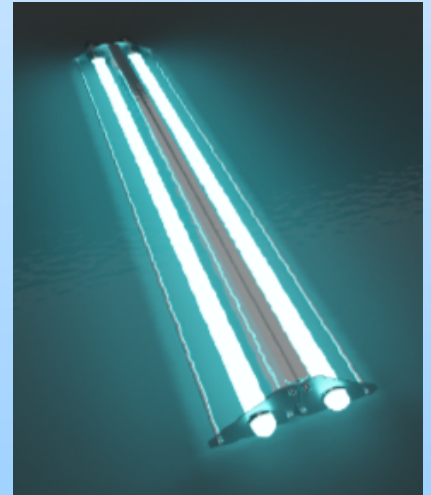
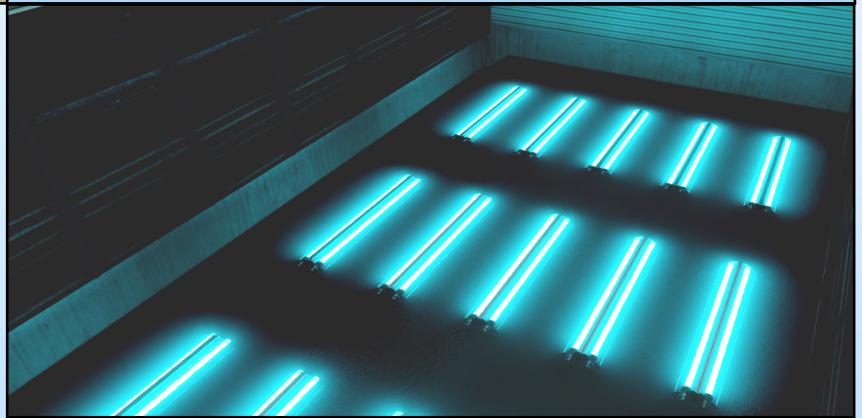


Improve
Air Quality

Fowled Water Contaminates Indoor Air
and Increases Maintenance Costs



Improved Indoor Water and Air Quality and
Decreased Maintenance Costs



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electronics?

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Tech
Specs

Bring in Fresh Air from the Inside



Our CGUV-2x2 is designed for drop tile ceilings to purify and freshen the air. Integrate with an IAQ sensor and dashboard for full control.

- Reduces harmful VOCs: Improved air quality
- Quiet at 220 CFM:Max 46 dB
- Building management options available: Customization controls
- Covers 1100 sq/ft: Spacious coverage area
- Disinfection of pathogens: Germ-free environment
- IoT enabled options for IAQ -Real-time tracking



Reduce Bio-organisms



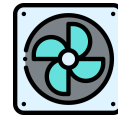
Reduce VOC's



Low Noise



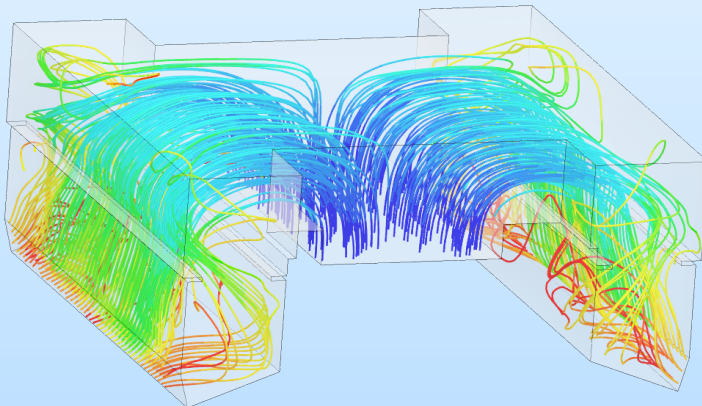
Reduce Odors



Increase Air Exchanges



Improve Air Quality



Need custom colors or electronics?

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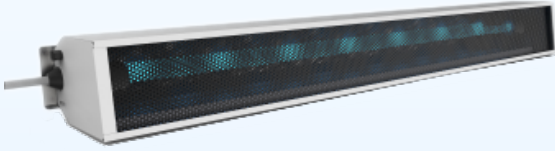
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Tech Specs

Blends into your facility.

Continuously Clean Air in Your Space



Our CGUV-MASS is designed to increase air quality using natural air currents in the room.

- Improve facility indoor air quality (IAQ).
- UV-C is pointed up away from people.
- Doesn't use floor space, silent operation.
- Options for building management systems, air quality monitoring, controls.
- Plug and Play ready.



Reduce
Bio-organisms



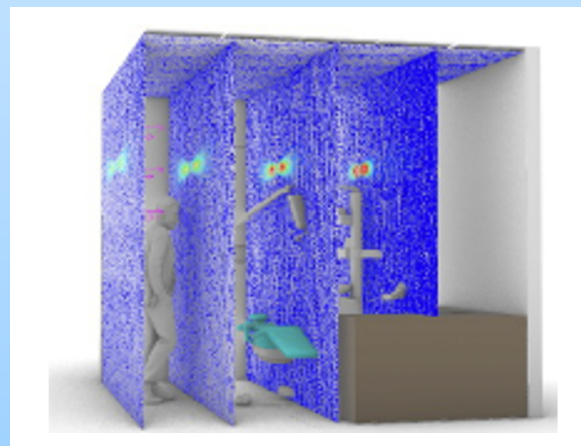
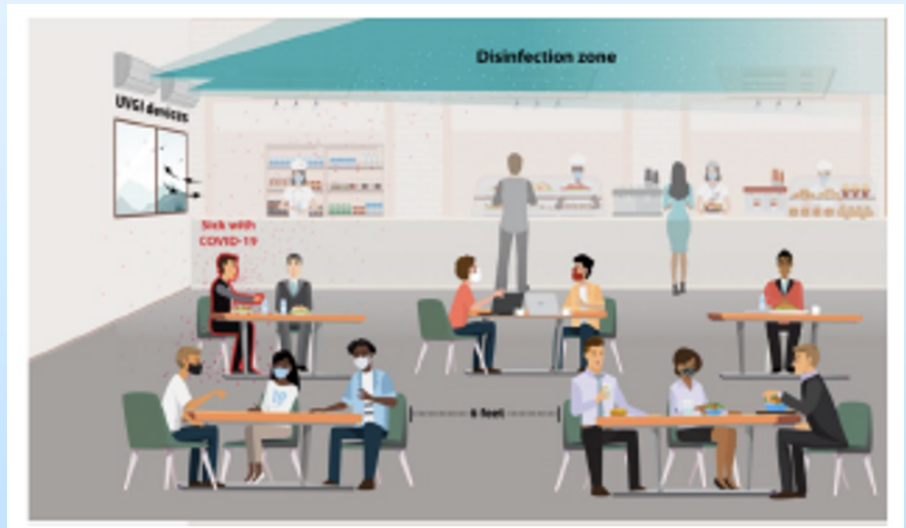
No
Noise



Low
Maintenance



Improve
Air Quality



Need custom colors or
electronics?

Contact us to find out more at www.cognituv.com

Cognituv



Tech
Specs

FAN

In Room, Air



Removes VOC's, Increase Air Exchanges

Our CGUV-FAN is made for offices, and larger rooms in a home. Available for a mobile or wall mounted version.

- Improve facility indoor air quality (IAQ).
- Reduces volatile organic compounds (VOC).
- Quiet operation with 88 CFM for 660sq ft of coverage.
- Options for a mobile base or wall mount kit.
- One on off switch on the back of the unit.



Reduce
Bio-organisms



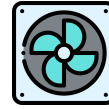
Reduce
VOC's



Low
Noise



Reduce
Odors



Increase
Air Exchanges



Improve
Air Quality



The FAN is versatile and can blend into the decor and freshen the air in office spaces, transit vehicles, living rooms, lobby's, gyms and more.



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electronics?

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Tech
Specs



Quietly Clean the Air, reduce odors

Our CGUV-FAN-XS is made for offices, and rooms in a home. Available for a mobile or wall mounted version.

- Improve facility indoor air quality (IAQ).
- Reduces volatile organic compounds (VOC).
- Quiet operation at 31dB for 390 sq ft of coverage.
- Options for a mobile base or wall mount kit.
- Plug and Play, listen to silence.



Reduce
Bio-organisms



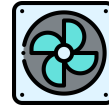
Reduce
VOC's



Low
Noise



Reduce
Odors



Increase
Air Exchanges



Improve
Air Quality

Designed for small rooms like dorms or bathrooms to freshen the air and eliminate odors.



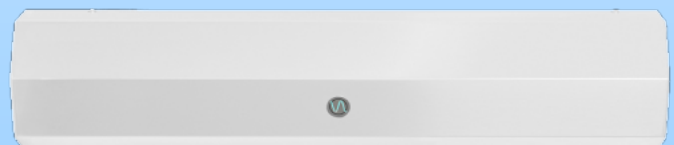
Need custom colors or
electronics?

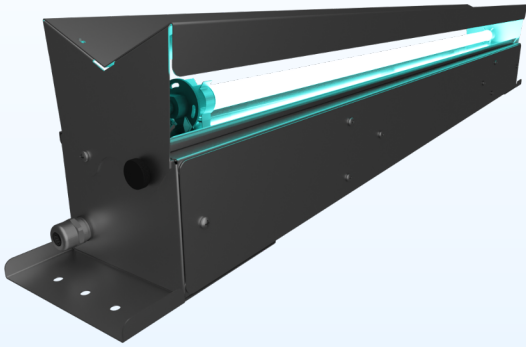
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Cognituv



Tech
Specs





Specialty Environmental Disinfection

Our CGUV-MURAL is designed for mounting on the wall or ceiling to paint the surface with UV-C, and disinfect air currents running through it, natural or forced.

- Improve facility indoor air quality (IAQ).
- No direct UV-C shining out to protect food quality.
- Mounting plate with drill spacing mounting holes.
- Options for building management systems, air quality monitoring, controls.
- Wet rated, ruggedized, 304 stainless steel.



Reduce
Bio-organisms



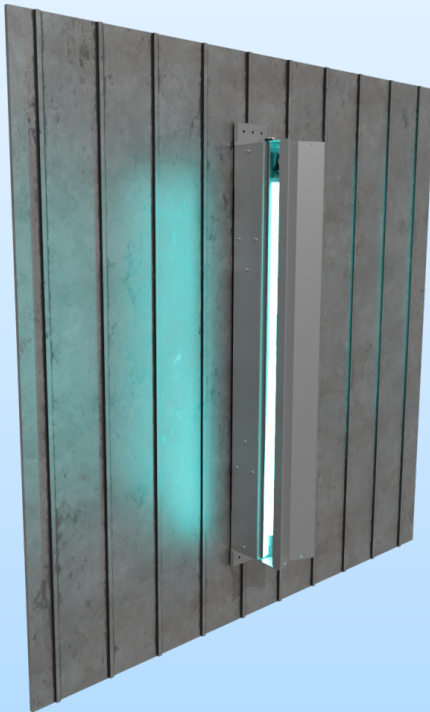
No
Noise



Low
Maintenance



Improve
Air Quality



Need custom mounting or
electronics?

Contact us to find out more at www.cognituv.com

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Tech
Specs

Disinfect Production, Adapt to Assembly Line

Our CGUV-ADAPT series is an addition to the production line to ensure the products are clean. Made to be adjusted on sight and custom dosed for the application.

- Adjustable lights for optimal dosage.
- Direct UV-C with reflective shielding.
- Emergency stops, door kill switches, warning sirens and lights.
- Options for real time quality monitoring, smart controls.
- Ruggedized, Shatter Protection Coating, Made to Order.



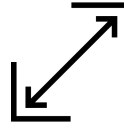
Reduce
Bio-organisms



Low
Noise



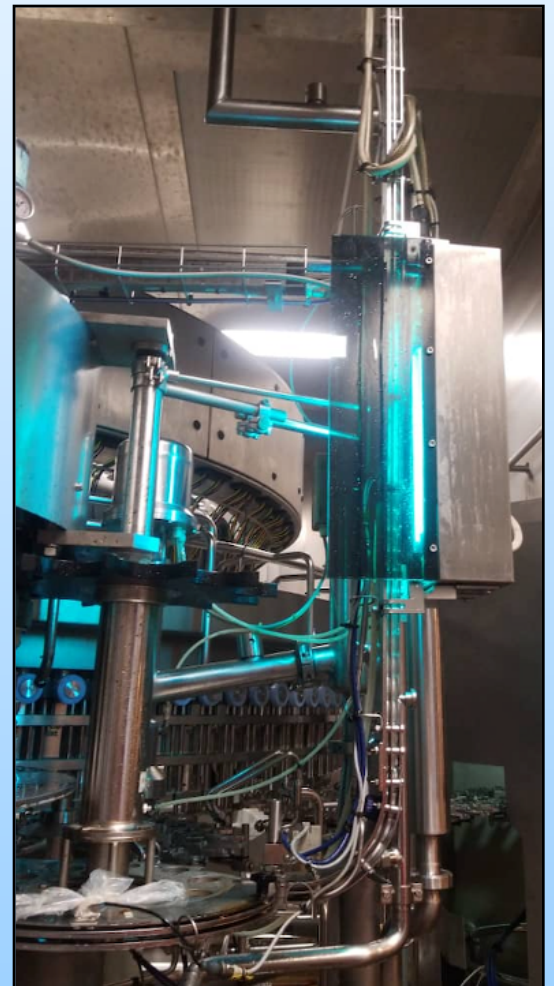
Low
Maintenance



Adjustable



Improve
Air Quality



Need custom mounting or
electronics?

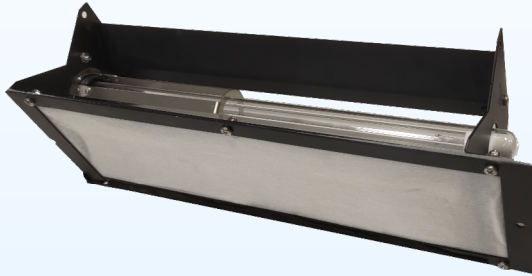
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Cognituv



Tech
Specs

Just the right dose



Our CGUV-GROW series is an addition to the production line to ensure the products are clean. Made to be adjusted on sight and custom dosed for the application.

- Adjustable lights for optimal dosage.
- Direct UV-C with reflective shielding.
- Emergency stops, door kill switches, warning sirens and lights.
- Options for real time quality monitoring, smart controls.
- Ruggedized, Shatter Protection Coating, Made to Order.



Reduce
Bio-organisms



Reduce
Chemicals



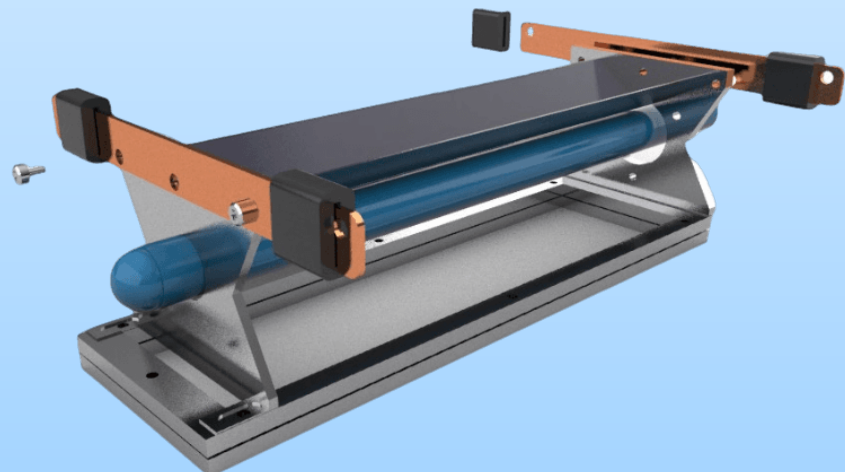
Low
Maintenance



Reduce
Bugs



Improve
Air Quality



Need custom mounting or
electronics?

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Tech
Specs

Integrated Disinfection Defense

Our CGUV-BARRICADE is a universal surface disinfection unit from on off to a mobile unit with timers. All units use a protective cage and reflector to maximize efficiency.

- Protective cage for busy environment.
- Mobile option with timers.
- Safety options like motion sensors, and light monitors.
- Options for real time quality monitoring, smart controls.
- Wet Rated, Ruggedized, Shatter Protection Coating,



Reduce
Bio-organisms



No
Noise



Low
Maintenance



Improve
Air Quality



Need custom sizing or
electronics?

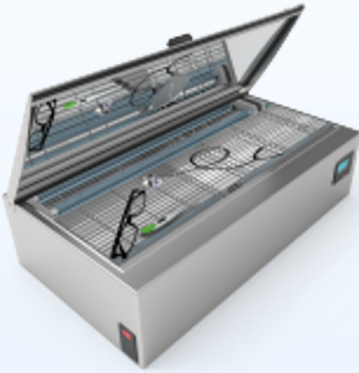
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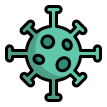
Tech
Specs

Clean your gear



Our CGUV-Box and CGUV-Cabinets are intended to disinfect the items we re-use, proper treatment times are provided at the microorganism specific level upon request.

- Digital timers
- Custom options for sizing and shape
- Custom options for additional energy treatments
- Wet Rated, Ruggedized, Intelligent capable



Reduce
Bio-organisms



No
Noise



Low
Maintenance



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electronics?

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Tech
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CONTROLS

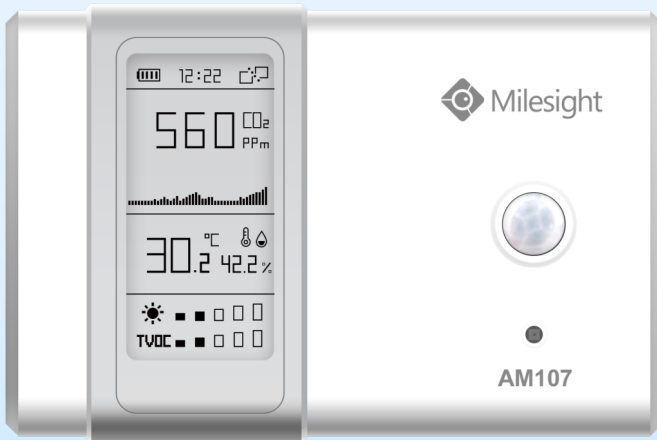
Control, Monitor



Rugged, Connected, Custom

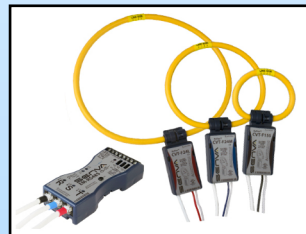
Our CGUV-CONTROL units can be adapted to any of our products to add an industrial level of controls to your system.

- Lights are Plug and Play with ballasts protected within the unit.
- Hard controls for manual operation and diagnosis.
- Adaptable to any building system or a custom dashboard.
- Integration with air sensors, lamp sensors, status indicators, and options for touch screen controls.
- Wet rated, ruggedized, user friendly.



CONTROL Combos

Products	Standard
Grid	✓
Adapt	✓
Basin	✓



Need custom electronics or communications?

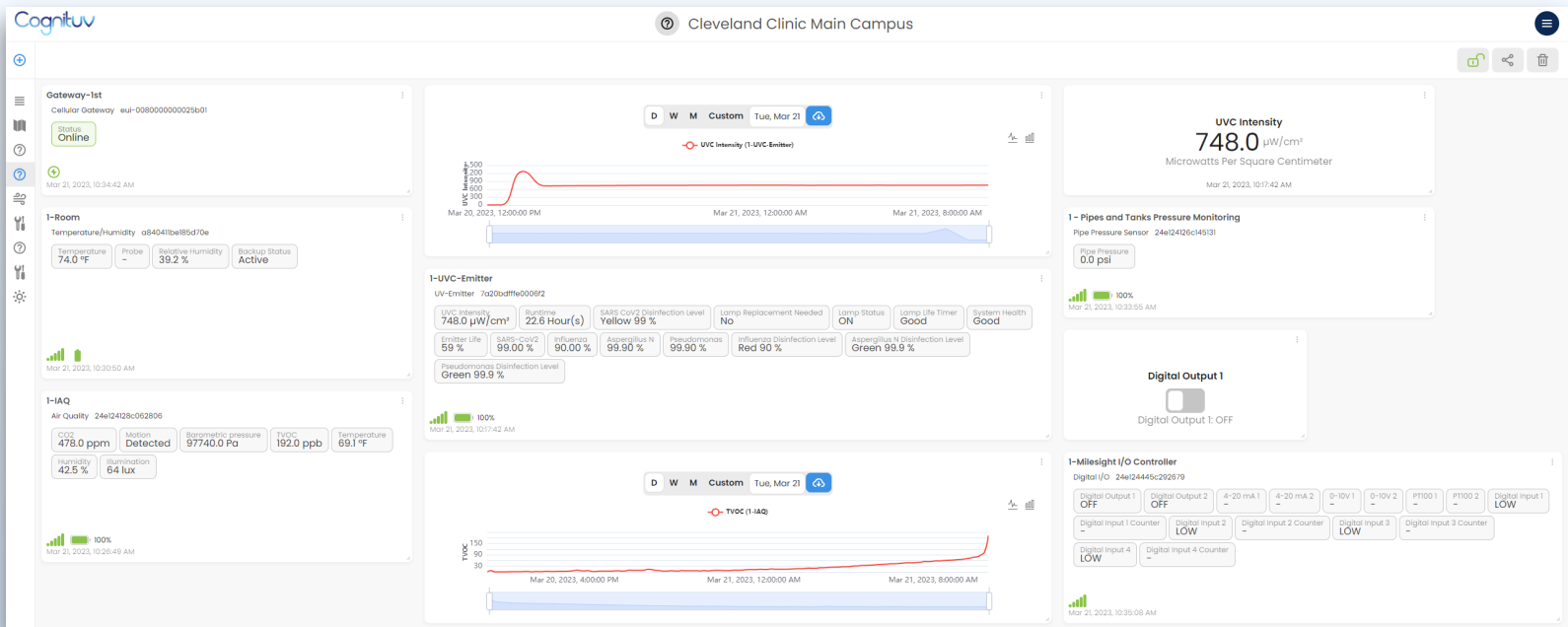
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Staying a step ahead



Evaluate Performance metrics: Energy savings, Pathogen Reduction.

- Asset Tracking
- Real Time Monitoring/Analytics
- On Demand Capabilities
- Warranty Registration
- Alarms/Notifications
- Lamp Life Tracking/Estimation
- Service Manuals/Video Tutorials
- Calculated Convection
- Viral / Bacterial Effectiveness

Customize your data, generate daily reports, and automate preventive maintenance schedules.

- Admin Authorization User Groups
- User Generated Reports
- Commissioning
- Scheduling
- Consultation (Ask the Expert)
- Preventative Maintenance
- IFU's
- Indoor Air Quality Data
- Integrate various sensors

Find out how we can make commissioning easy for you.

Contact us to find out more at www.cognituv.com



Tech Specs

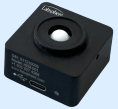


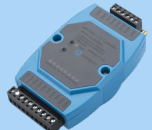


Keep track of
consumables,
schedules,
and maintenance
in one place.

Continuous Validation

Our systems can be fitted with any sensor to ensure your products are working effectively and safely.

- Radiometers ensure your lights are hitting your target dose.
- Temperature sensors to warn of overheating components.
- Power monitors to compare energy usage over time.
- Air sensors validate the air is being cleaned to your specification.
- Connected via hard wire or wireless, ruggedized to your environment.



Sensor	Location	Solutions For	Photo
Irradiance	Facility Production, HVAC, Near Plant/Food	In-Duct Validation Food Line Validation Bystander Safety	
Air Quality	HVAC, Duct	Indoor Air Quality: Temperature, Humidity, CO2, TVOC, O3, CO, and more.	
Environment	Indoor, Wall	Indoor Air Quality: Temperature, Humidity, CO2, TVOC, O3, CO, and more.	
Controller	HVAC, Water Storage	Connecting multiple sensors for one system to be sent to a single gateway.	
Energy	HVAC, Drip Tray	Monitor power on lamps or the unit for efficiency. Check power status for device.	
Building	In Unit	Integrate with a pre-existing building management system.	

Need custom electronics or
communications?

Contact us to find out more at www.cognituv.com

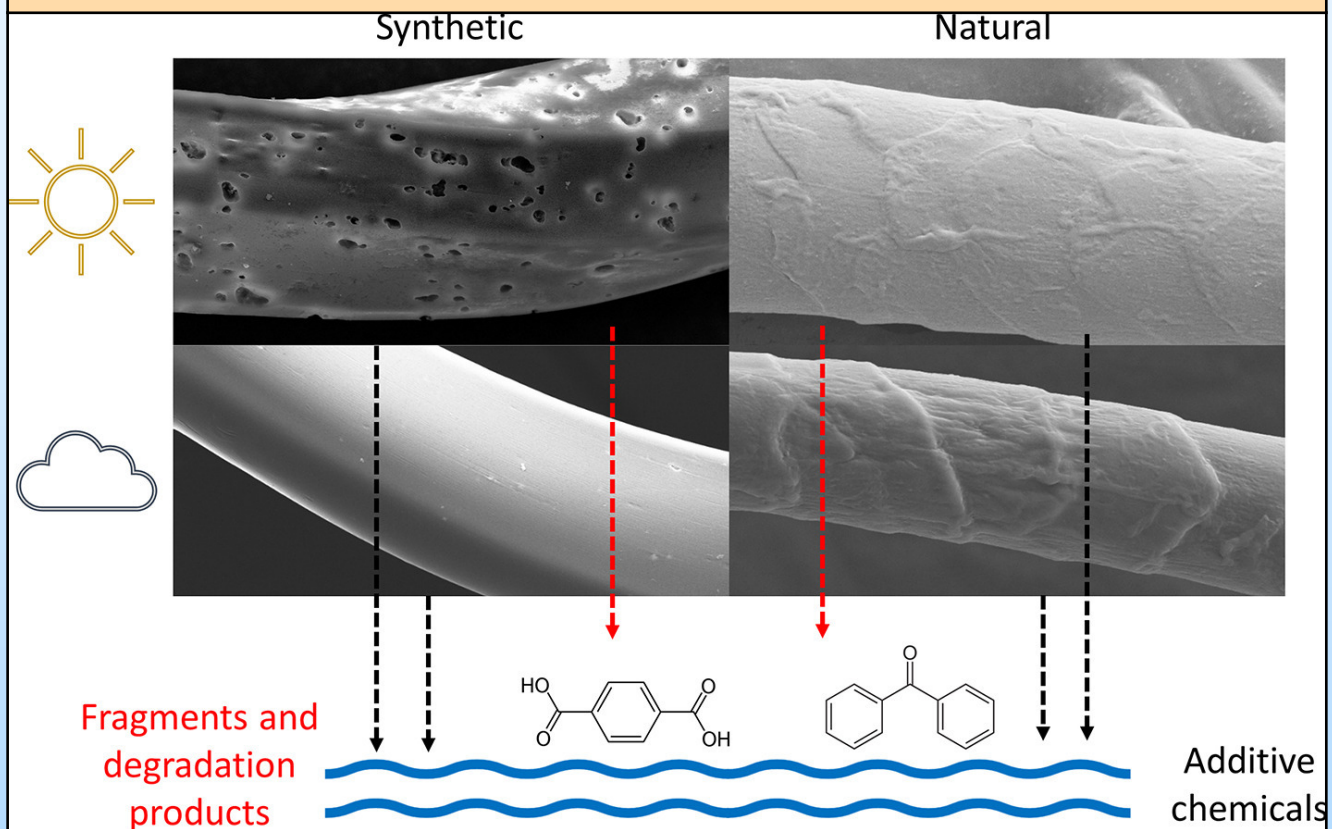




Effective, UV-C Safe

- Synthetic materials used for air filters such as Polyolefin, polypropylene, foam and other synthetic materials can deteriorate over a short period of time.
- Deteriorating materials can discolor, weaken, or even crumble!
- Filters need to be UV-C resistant to prevent damage to the unit and UV-C lamps.

Degraded synthetic materials can release toxic byproducts into the air and into the water system via drip pan drainage.



Need UV-C safe filters, custom sizes?

Contact us to find out more at www.cognituv.com



Gold Standard, Tried and True Efficiency

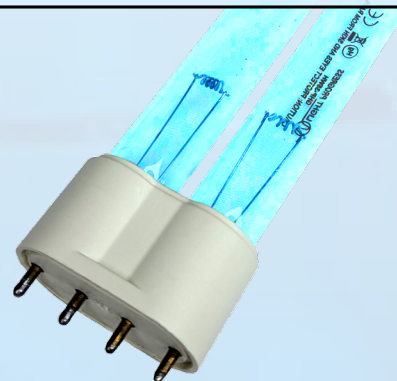
A4



A22



A4G



- Single End 4 Pin (Rectangle)

- Lengths:

- 18"
- 24"
- 36"

- No-Ozone

- FEP Coating Available

- Quartz Sleeve Available

- Single End 4 Pin (Rectangle)

- Lengths:

- 18"
- 24"
- 36"

- No-Ozone

- FEP Coating Available

- Single End 4 Pin (Flat)

- Lengths:

- 9"
- 16"
- 21"

- No-Ozone

- FEP Coating Available

Unsure which lamp you might need?

Contact us to find out more at www.cognituv.com

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Tech
Specs

- Lamp Life: 16,000 Hours
- Wavelength: 253.7nm
- Validated Irradiance
- High Efficiency
- Safety Sheet and Data Sheet Available

UV-C LED

Consumables

Controllable, Mercury Free Dosage

Bars

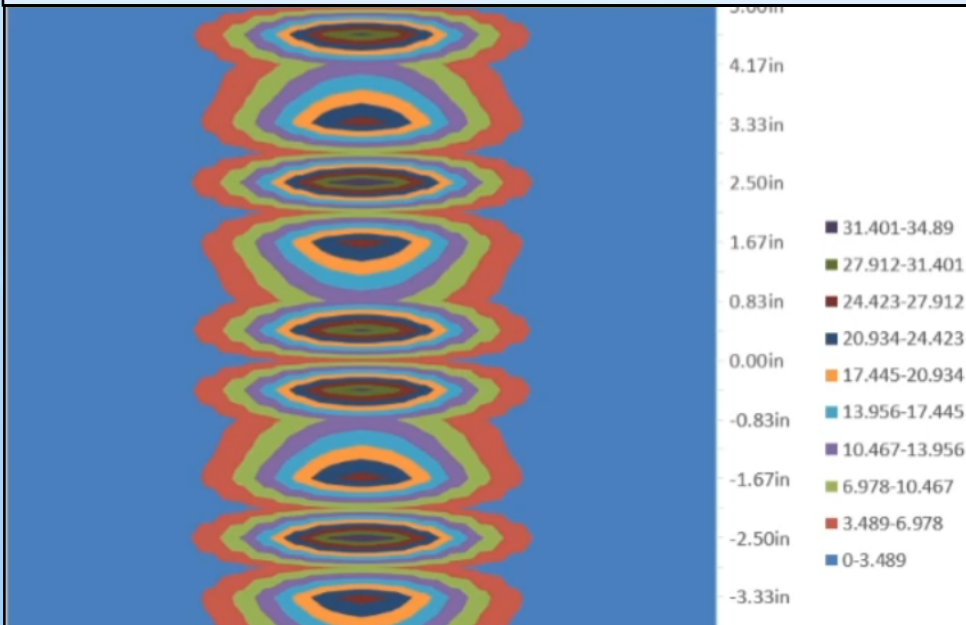
Cluster

Point



Custom Dosing Consultation and Design

Custom Lens



Unsure which lamp you might need?

Contact us to find out more at www.cognituv.com

Cognituv



Tech
Specs

26

- Light Life: Up to 16,000 Hours (application dependent)
- Wavelength: 265-280nm
- Dosage Calculations
- Custom Cooling
- Safety Sheet and Data Sheets Available

Custom Solutions: Our Process

Identify

We start by gathering information about your facility and technical requirements, we work together to develop a list of deliverables of the project and try to answer any unknown constraints our team may have.

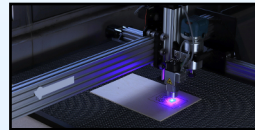
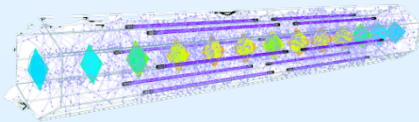


Prescribe

Our team consults the latest peer-review literature to ensure we offer you the most effective solution for your industry and application. We then offer preliminary options for the optimal disinfection solution.

Design

We confirm the evidenced based dosage of UV-C needed for your application, we design a solution that will deliver the appropriate disinfection while meeting all of your technical requirements.

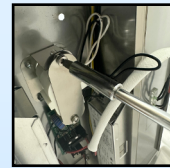
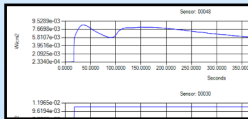


Build

Using our in-house machining, tooling, and electrical capabilities we build your solution. For more complex solutions, we have an established partner network to assist in building your UV-C solution in a timely and cost-effective manner.

Validate

After your solution has been built, we perform a rigorous testing procedure, with the help of NIST Traceable Calibrated sensors and industry-leading UV-C software, to validate the efficacy of your UV-C solution.



Install

After validation of your solution, we create an installation manual, user guide, and preventive maintenance routine for your unique setup.

Monitor

Using sensors, control units, and an IoT dashboard, you can monitor, control, manage, and control your solution in real time and gain insight into the benefits of the solution.



Maintain

Using our Cognituv Connect, we will provide a schedule with alerts for your equipment. All of our custom solutions include free lifetime technical support calls to help troubleshoot any problems or questions you may have with your custom UV-C solution.

Preventative Maintenance Supply

for more information on setting up the proper supply chain, email us at Team@cognituv.com

UV-C Safety Best Practices

Safety is always a priority when discussing UV-C installations.

While the UV-C bandwidth is versatile in eliminating bio-organisms, it can also be harmful to our soft tissues. The light can penetrate through the outer protective layers of our eyes and skin, and can damage various cells in our body. Think of it like extra intense sun light; you don't look at, and you don't want to be exposed to it without proper protection.

Here are a few ways to reduce risk:

Face shields and long plastic sleeves should be worn if exposed to UV-C while working.	Switches to stop UV-C when access panels are opened.	Cloth gloves should be used while handling UV-C lamps to reduce oil buildup.
	 	
Motion sensor with Direct irradiation in occupied spaces	Poly-carbonate panels to shield light from within machines for bystanders.	Proper labeling and Safety declarations.
		

For information on proper disposal of lamps refer to your local municipalities or visit Epa.gov

References for Products & Processes

Cognituv is the world leader in science-based, data-driven UV products and practices. Our goal is to help every organization improve the safety, quality, and sustainability of their people, products, and environments,

1. Guidelines & Best Practices

- a. UV light in addition to standard of care disinfection techniques decreases infection rates. "The incidence of target organisms among exposed patients was significantly lower after adding UV to standard cleaning strategies"¹.
- b. Effective sterilization should be a consideration in ethically managing the Personal Envelope. CDC guidelines² allow us to use national benchmarks combined with EPA and FDA approved technology to meet and exceed governmental safety demands.
- c. UV light is safe to use in the work environment, with effective safety programs encouraged³.

2. Solution Strategy

- a. UV light is an effective solution in ventilation and air management⁴.
- b. UV light may be considered a new standard during the COVID crisis and should be part of every discussion⁵.
- c. Effective throughput process, utilizing a thoughtful and evidence-based product axis with an evidence base enables a unique product pathway to market⁶.
- d. Expansion beyond infection control to include management of indoor air VOCs is key to healthy environments⁷.
- e. Application of proven and efficient technology in innovative applications expands potential partnership opportunities in public health, utility, and industrial verticals⁸.

3. Product Configuration

- a. Surface Disinfection
 - i. Our surface application of UV technology is based on quantified benchmarks for effective sterilization⁹.
 - ii. Pulse Zenon technology is inferior to our continuous UV-C lamp output as demonstrated in a trial (2 acute care hospitals) that showed the PX and UV were effective at surface sterilizations. However, "Continuous UV-C achieved significantly greater log10CFU reductions than PX-UV irradiation on glass carriers."¹⁰
 - iii. Surface sterilization is of key importance during the COVID era^{11 12}.

¹ Enhanced terminal room disinfection and acquisition and infection caused by multidrug-resistant organisms and *Clostridium difficile* (the Benefits of Enhanced Terminal Room Disinfection study): a cluster-randomized, multicenter, crossover study. Anderson et al LANCET 2017; v. 389; p. 805-14.

² www.cdc.gov

³ Ultraviolet Radiation and the Work Environment (Revised. See: 74-121)," The National Institute for Occupational Safety and Health (NIOSH), Page last reviewed: March 29, 2017

⁴ ACGIH, 1992, Industrial Ventilation, 21st ed., p. 2-2. Cincinnati, Ohio; Am. Conf. Govern. Industrial Hygienists. (Anecdote)

⁵ Enforcement Policy for Sterilizers, Disinfectant Devices, and Air Purifiers During the Coronavirus Disease 2019 (COVID-19) Public Health Emergency Guidance for Industry and Food and Drug Administration Staff March 2020, U.S. Department of Health and Human Services, Food and Drug Administration

⁶ "Pathway to Developing a UV-C Standard – A Guide to International Standards Development", C. Cameron Miller and Ajit Jillavenkatesa, IUVA News / Vol. 20 No. 4, 2018

⁷ Int. J. Environ. Res. Public Health 2019, 16(14), 2557

⁸ Foster, D., Hubble, A., & Philp, R. (2001). A new process for the disinfection of natural gas. Journal of Natural Gas Chemistry, 10(1), 47-54.

⁹ Ultraviolet-C decontamination of a hospital room: Amount of UV light needed. Lindblad et al. BURNS 46(2020) 842-849

¹⁰ Infect Control Hosp Epidemiol. 2015 Feb;36(2):192-7

¹¹ New coronavirus stable for hours on surfaces"; CDC (extracted from N van Doremalen, et al. Aerosol and surface stability of HCoV-19 (SARS-CoV-2) compared to SARS-CoV-1. The New England Journal of Medicine. DOI: 10.1056/NEJMc2004973 (2020)).

¹² 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

References for Products & Processes

- iv. Cognituv products are tested using standard of technology assessment techniques to decrease viral load and reduce infection risk, even to the limit of detection¹³.
- b. Air Disinfection and IAQ
 - i. Our mathematical approach to calculating the optimal implementation of products is based on a peer reviewed mathematical model to describe the effectiveness of UV lamps in AIR disinfection¹⁴.
 - ii. Our methods of utilizing UV technology for air sterilization are rooted in well-established scientific study and considerations^{15 16 17}.
 - iii. Early adoption of the propriety PCOR process catalyzed by UVC light decreases TVOC content and improved IAQ¹⁸, even decreasing the concentration of difficult organisms such as molds¹⁹.
- c. Industrial Processing
 - i. Ultraviolet-C (UVC) disinfection chambers can be used to disinfect reclaimed natural gas by exposing it to UVC light, which can inactivate or destroy microorganisms such as bacteria, viruses, and fungi. However, UVC does not have deleterious effects on chambers on methane or biofuels²⁰.
 - ii. UVC disinfection is a method of bioremediation to reduce the biologic burden in induction pipelines and storage vessels, a major source of maintenance risk²¹²².
- 4. History of UV
 - a. UV disinfection has a long history of supporting occupational health, extending shelf life of consumables and reducing the chemical burden of bioremediation²³²⁴²⁵²⁶.
- 5. Improvements to Quality of Life
 - a. The implementation of UV air sterilization in a double-blind test of work environments had no effect on the quality of life for workers (no negative side effects) however, there were less illnesses²⁷.
- 6. Effectiveness
 - a. UV light disinfection is widely effective. It is especially important in practical selective areas²⁸²⁹³⁰.

¹³ Virucide Activity of the UV BOX E 2/40 H [SARS-CoV-2] Summary. C. Peterson 2020 (LP USA)

¹⁴ Mathematical Modeling of Ultraviolet Germicidal Irradiation for Air Disinfection. Kowalski et al. QM 2, 249-270, 2000.

¹⁵ Guidelines for the Application of Upper-Room Ultraviolet Germicidal Irradiation for Preventing Transmission of Airborne Contagion – Part 1: Basic Principles. First et al. CH-99-12-1. ASHRAE 1999.

¹⁶ DEFINING THE EFFECTIVENESS OF UV LAMPS INSTALLED IN CIRCULATING AIR DUCTWORK. 2002

¹⁷ UV DISINFECTION OF AIR SOME REMARKS: AV Krasnochub – MIPT, May 2005

¹⁸ Molecules 2016, 21, 56; doi:10.3390

¹⁹ Nhung et al. The Journal of Medical Investigation Vol. 59 2012.

²⁰ Foster, D., Hubble, A., & Philp, R. (2001). A new process for the disinfection of natural gas. Journal of Natural Gas Chemistry, 10(1), 47-54.

²¹ Camara et al. NPJ Biofilms Microbiomes. 2022; 8: 42

²² Zhu et al. 2003 Appl Environ Microbiol 69(9):5354-5363

²³ Kethley et al ARCH ENVIRON HEALTH 1972;25:205-14

²⁴ Lighthart, B., Mohr, A. J., Pepe, R., Jaffe, D. A., & Schwarz, J. P. (2010). Gas-phase ultraviolet air purification for controlling volatile organic compounds. Journal of the Air & Waste Management Association, 60(2), 216-224.

²⁵ Purmessar et al. Journal of Environmental Chemical Engineering. Volume 7, Issue 3, June 2019, 103060

²⁶ Carson et al. IUVA 2006

²⁷ LANCET. Volume 362. Issue 9398, P 1785-1791 2003.

²⁸ Evaluation of an Ultraviolet C (UVC) Light-Emitting Device for Disinfection of High Touch Surfaces in Hospital Critical Areas. Casini et al. 27 AUG 2019

²⁹ American Journal of Infection Control 45 (2017) 288-92.

³⁰ Zhu et al. Applied and Environmental Microbiology, Sept. 2003, p. 5354-5363.



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