



FAR-UVC
222NM
FOR SAFER
COVID FREE
SPACES



UEC ENERGY

Innovating for the Future



ABOUT UEC ENERGY

UEC Energy was founded by energy industrial professionals with significant experience in designing and developing major renewable energy infrastructure projects.

Our primary aim is to identify new solutions for the betterment of society, the environment and industry and more recently has extended into the World of public health with the development of Far-UVC solutions for all sectors of society.

Our pipeline of projects includes electric vehicles research, micro power generation, marine industry technology development and other exciting ventures. We are also embarking on some exciting engagements in the defence sector as well as working in retail, hospitality and leisure on pathogen secure initiatives to be able to prevent future lockdowns.

HOW IT WORKS

Far-UVC the science behind the light

Since June 2020 UEC Energy's design engineers have been working with scientific organisations producing Far-UVC technology and their OEM partners.

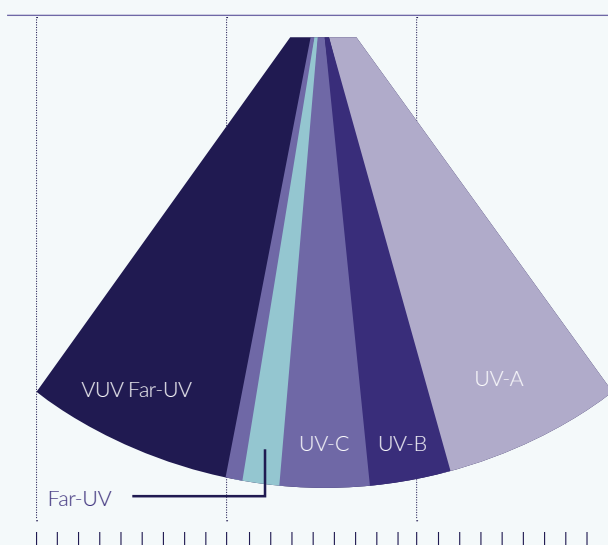
Unlike traditional UV technology which is known to be 100% effective against pathogens, but dangerous to human eyes and skin, Far-UVC is different as it sits within the wavelength range of effective short wave UV light which kills viruses and bacteria which is between 200nm and 280nm (nano metres) and has been proven to be both effective in killing surface and airborne pathogens whilst being safe to human eyes and skin.

Following extensive testing it has been found that people can work and operate in regulated and controlled Far-UVC environments for up to eight hours in any twenty-four period without negative impacts.

This discovery is a clear game changer when dealing with global pandemics.

Very low doses of far-UVC light efficiently kill airborne human coronaviruses carried by aerosols. A dose as low as 1.2 to 1.7 mJ/cm² of 222-nm light inactivates 99.9% of the airborne human coronavirus tested from both genera beta and alpha, respectively. As all human coronaviruses have similar genomic size, a key determinant of radiation sensitivity, far-UVC light will show comparable inactivation efficiency against other human coronaviruses, including SARS-CoV-2, a fact borne out in recent studies published in the American Journal of Infection Control (AJIC) which show that FAR UV can kill 99.7% of coronavirus on surfaces within less than 30 seconds. The same UV exposure regulated to current human exposure limits will clean the air within minutes.

ULTRAVIOLET LIGHT SPECTRUM



VUV Far-UV

- 100nm - 200nm
- Medical equipment
- Nanofabrication
- Photochemistry
- Spectroscopy

Far-UVC

- 207nm - 222nm
- Germicidal
- Most effective for disinfecting
- Safe for skin and eyes
- Sensing

UV-C

- 200nm - 280nm
- Germicidal
- Most effective for disinfecting
- Sensing

UV-B

- 280nm - 315nm
- Curing
- Tanning
- Medical Applications

UV-A (near UV)

- 315nm - 400nm
- Printing
- Curing
- Lithography
- Sensing
- Medical Applications

FAR-UVC CONTROLLED ACCESS GATES

Creating a COVID-19 and pathogen free entrance barrier

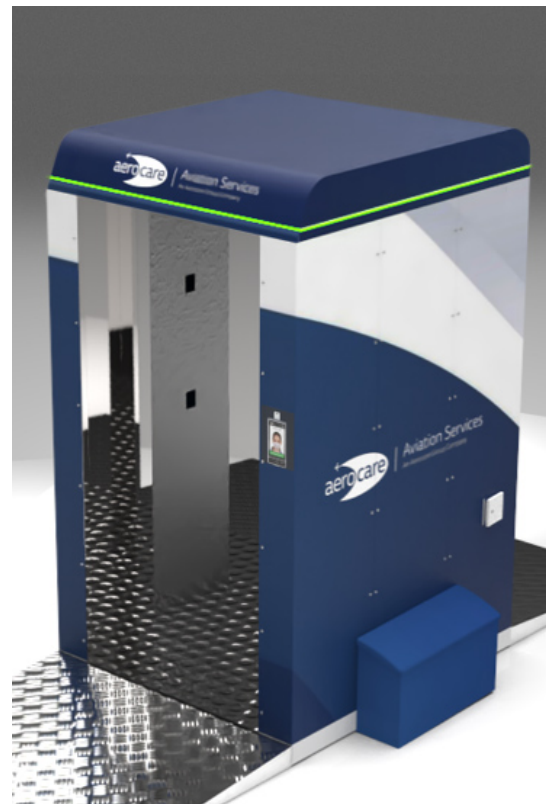
Building access, sports stadium access, shops, restaurants, airports, the potential is endless. Securing a building from potential pathogens such as COVID-19 is critical when ensuring that a space is free of potential viral hazards. Keeping people safe from infection will be the only way we can pick up our lives and move forwards.

Designed using Far-UVC 222nm technology it decontaminates people as they pass through and when coupled with a health passport and/ or negative test, you know that that person is not transporting COVID-19 and other pathogens into the building. Using the Gate should enable building users to walk freely without masks and without the need for continuous surface cleansing. The gate has been designed to ensure safe decontamination access to

controlled areas such as airport arrivals and departures, public concert venues and sporting venues as well as office buildings.

The gate works by using the same Far-UVC technology as Far-UVC lamps providing full all over coverage of a body standing inside the gate. When coupled with a 'health passport' QR code or negative test result barcode, the gate carries out a short six second decontamination of the person from head to toe, thus providing not only external decontamination but also allowing a person to pass through with a negative internal test.

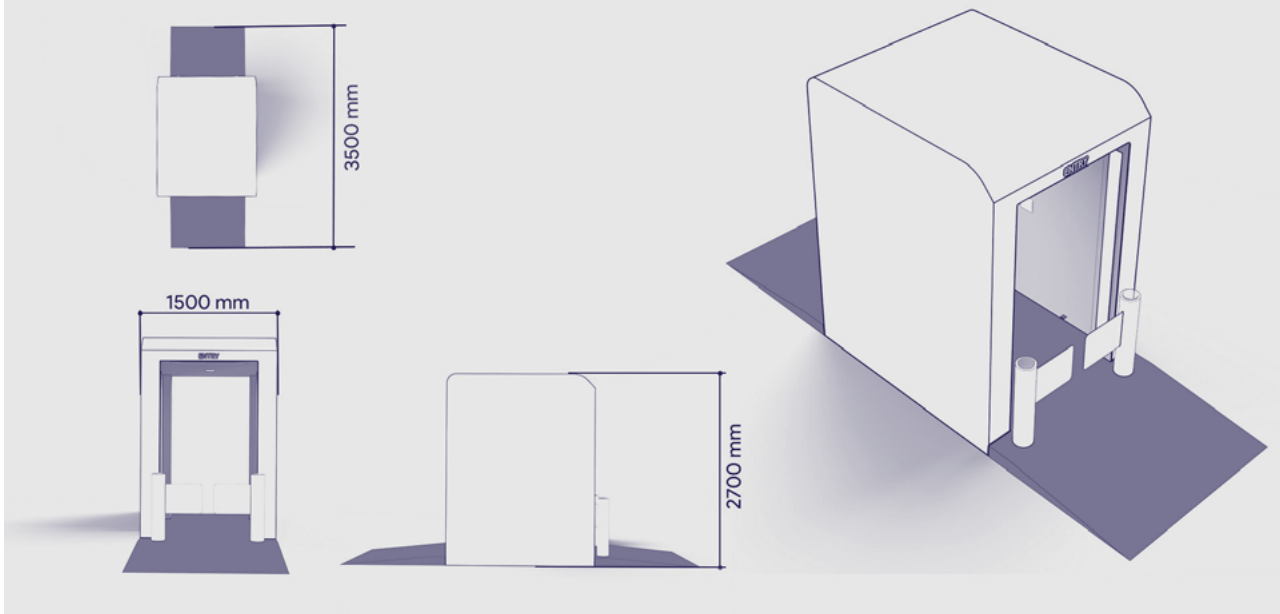
UEC offers a number of Access Gate specifications and designs depending on the required application and additional features needed."



FEATURE AND BENEFITS

- Far-UVC Gates use the same lamp technology listed above but are placed within a gate to ensure complete coverage of a person.
- Gates operate for six seconds when a person stands inside the gate
- Can be used in conjunction with a 'Health Passport' ensuring the person is COVID free internally and the gate will ensure they are COVID free externally
- Application is ideal for Airports both inbound and outbound
- A lot of interest from sporting event providers including football clubs
- Indoor and outdoor concert venues
- Hospital and office entrances.
- Any environment that requires 100% pathogen free persons.

THE ADVANCED FAR-UVC GATE



THE TECHNOLOGY COMPLIES WITH THE FOLLOWING REGULATIONS:



- DIRECTIVE 2006/25/EC OF THE EUROPEAN PARLIAMENT
- Output vs IEC/EN 60598-1 and relevant part 2
- EC 62471-6 Photobiological safety of UV Lamp Products (inc User Info for safety measure labelling)
- BS EN 60598 (EN 62471:2008) Photobiological Safety of Lamps
- EN 60598-1:2015/A1:2018 Luminaires Pt1: General requirements & Tests
- EN 14255-1:2005 Measurement & assessment of Personal Exposures to Incoherent
- Optical Radiation Part 1 (UV radiation emitted by artificial sources in the workspace) and Part 4 (Terminology & Quantities Used in UV Workspaces)

See also GLA Safety Guidelines May 2020

- EMC - Electromagnetic Compatibility Directive (RoHS - restriction of Hazardous Substances - mainly an employer limit but we should refer)
- UKAS accredited testing houses database <https://search.ukas.com/#/tabbed/search?q=60335&ati=1>



FAR-UVC WANDS

UV wands use a Far-UVC 222nm light to provide a disinfection system that is safe, effective, and that can be used in occupied spaces in line with manufacturers instructions.

Proven effective at destroying pathogens such as SARS-COV-2, bacteria, moulds and spores. This lightweight sanitisation wand can be mains or battery operated.



FEATURES & BENEFITS

- Safe UV wavelength
- Disinfects surfaces quickly
- Dry, chemical free disinfection
- Replaceable bulb
- Ozone Neutral & Mercury Free

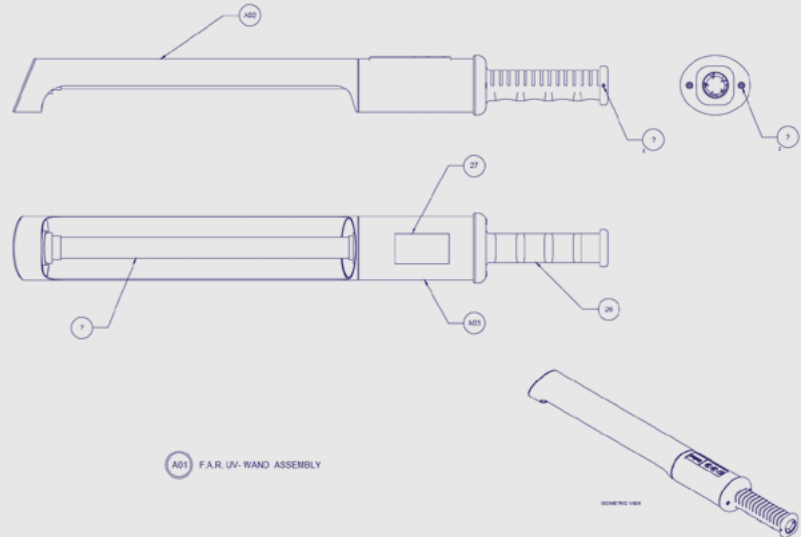
Applications:

- Airports & Transportation
- Hospitality & Retail
- Educational establishments
- Hospitals & Healthcare
- Any other occupied space





FAR-UVC BIOCARE



WAND SCHEMATICS

Pathogen reduction will vary based on the type of virus or bacteria, the distance from the Far-UVC 222nm light source and time of direct exposure.

The term sanitisation is used to indicate a general pathogen reduction and does not reference a specific log reduction.

BiocareUV wands are intended to be used in conjunction with other protective measures such as manual cleaning and correct use of PPE.

Always consult with a trained product application representative to ensure

that the total irradiance (UV dose) does not exceed recommended human exposure limits.

BiocareUV wands should be installed and used in accordance with manufacturer's site planning and application recommendations as applicable for the product.

The BiocareUV wand is not currently intended for use as a medical device.

Product specifications are subject to change without notice

SPECIFICATIONS:

Lamp

ACwGIH: TLV Compliant

Peak wavelength: 222nm

Irradiance at 0.5m: 19.2uW/cm²

IEC Compliant: 62471

Ozone: Meets UK WEL

Electrical

Voltage Input: 12-24V DC

Power: Battery driven for 200W output

Certifications: EESR 2016

Battery Life / Spec: 2.5 hours

Mechanical

Total weight: 18.5kg (whole system inc backpack)

Operating temperature: 0 to 50 deg celcius

Certifications: Will be CE marked

Total system warranty: 2000 hours or 1 year

FAR-UVC LAMPS

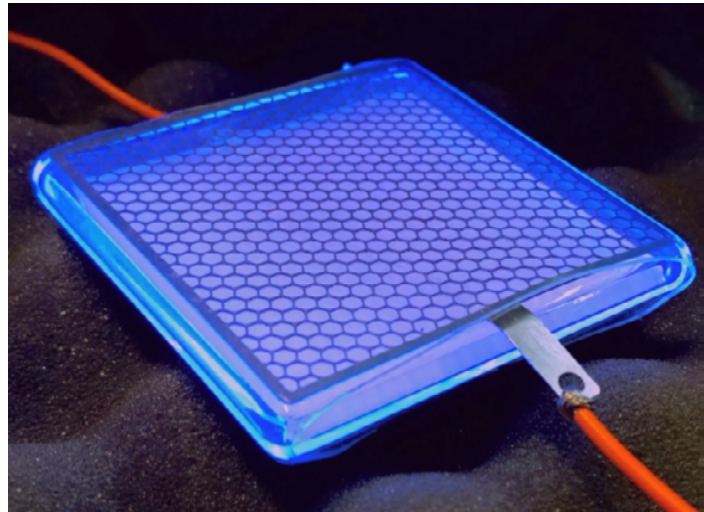
Kill COVID-19 in under six seconds and say goodbye to face masks, surface cleaning and restricted access.

COVID-19 has rocked the world and no more so than for retailers and the leisure industry who have gone above and beyond to change operations within the retail store to facilitate Government guidelines on occupancy, social distancing and the use of PPE.

All businesses have a duty of care not only to staff but also to customers to ensure the workspaces and public areas are safe and COVID-secure.

Traditional sanitisation practices of wiping down shelves and freezers, doors and handles, floors and EPOS areas take a great deal of time, require a vast amount of sanitisation products and disposable wipes all of which is both costly and hazardous to the environment.

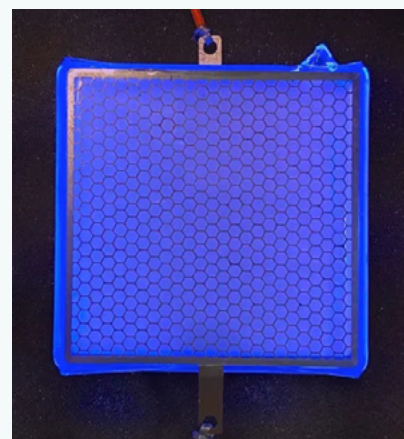
This can now all be replaced with a Far-UVC Lamp. UEC Energy is working with organisations across different sectors to deliver additional support to ensure continuous operation through pandemics.



The Far-UVC lamp is a revolutionary sanitisation solution that enables staff and customers to operate, without a mask, without social distancing and without the need for constant disinfection of surfaces and offers a range of lamps for different applications

FEATURES AND BENEFITS

- Far-UVC 222nm lamp technology removes the cost, time and environmental implications of regular sanitisation activities.
- Far-UVC uses a powerful wavelength of UVC which does not harm or do damage to human skin and eyes and can be used all the time when the space is occupied.
- The technology programmatically delivers human-safe sanitisation light into the indoor spaces delivering full sanitisation of all products and surfaces, doors and windows in every room.
- The Far-UVC lamps ensures your work environment is pathogen and viral free.





OUT OF THE BOX TECHNOLOGY

Far-UVC 222nm Lamps are mounted into ceilings, walls or floors, depending on the footfall, area of coverage and the operating environment.

This design allows them to simply be mounted within your existing lighting circuit and fittings removing requirement to re-design the lighting set-up within your internal environment.

Included with the lamp(s) is a controller programmed to manage the running and operational controls for the lamp ensuring that its only operating when occupancy levels require thereby extending the life of the light. The controller also provides the required evidence that the sanitisation activities have taken place; delivering insights to staff and customers and validating that your environment is COVID-secure.

Organisations already using Far-UVC, includes sports stadiums, bars and restaurants, gyms and cafes albeit in the US but based on the same 222nm Far-UVC technology.

THE COST

Lamp costs will vary depending on the specification and required application. Some lamps come with a one year warranty and some with a two year warranty.

The savings by using these lamps is significant and includes not only staff time but the cost of sanitisation products needed as well as giving customers and staff the comfort of knowing that this lamp is continuously removing pathogens from the air and from surfaces.

A pre-install charge is levied to provide a site survey by our engineers using a powerful software programme and scanner to identify where the lamps need to be placed. You may only need one lamp to do the job depending on the space.

In addition, there is a maintenance and support contract for three or five years fixing any issues or replacing lamps for a fixed monthly or quarterly cost.

MEET THE TEAM

UEC Energy's Design and Innovation Industry Experts

Philip Emsley

Founder and CEO



Qualified as a Systems Analyst and Design engineer working

with Marks and Spencer in the 1990's developing instore based applications. He then became International Sales Director for a US eCommerce platform provider growing the international client base developing finance and procurement SAAS systems. Philip then qualified as an HVAC and building energy assessor and ESOS lead assessor working with clients including Motor Fuel Group, Coventry Building Society, Co-operative Food and for the European Bank for Reconstruction and Development acting as the energy advisor on overseas investments particularly in eastern Europe and North Africa. On this project Philip is responsible for environmental, sustainability, energy efficiency technology design as well as ensuring team and knowledge diversity on the project. Philip has developed extensive knowledge in the past six months of Far-UVC applications, research papers reviews, simulations and the use of the various decontamination solutions in work spaces.

Iain Beveridge

Innovations Director



Business & project developer in energy, infrastructure

& emerging technologies. Leading edge, technically adept and able to identify opportunity in challenging markets. Iain now has extensive experience and knowledge of Far-UVC and has acted as the lead researcher and liaison with Aerocare, Sterilray and Ushio.

Accomplished sales & marketing director (MISMM /LISM) in Energy, Infrastructure and IT markets. Experienced project manager for Energy and Technology projects (MIET).

Iain possesses a solid understanding of energy demand, generation, transmission & storage. Good international overview of energy markets, developments and trends. Particularly focused on energy transition, evolving regulatory policy, emerging technologies and developing energy related opportunities.

Lisa Gingell

Chief Communications Officer



Lisa has an extensive amount of experience in the IoT,

BeMS (building controls) and SaaS (software as a service) industry. Her personal expertise in this field lies in her 16 years as founder and Director of one of the UK's leading building energy management systems and Software as a Service solution provider, t-mac Technologies. Lisa will be responsible for developing the IT platform and control systems on the project. Lisa has been integral in understanding the market for Far-UVC and the proposed control solutions processes that do not yet exist in the decontamination industry.

Lisa is an expert in creating effective leading PR and communications strategies in the following arenas:

Big data, IoT, software as a service, AI and machine Learning, analytics, building optimisation solutions, building services, building controls, Original Equipment Manufacturers (OEM)

Peter Jewitt

Chief Financial Officer



Peter qualified as a chartered accountant with PWC. He is equipped with

over 25 years in the financial services industry. Recently, he has focused on getting businesses in the best possible shape to raise investment, guiding companies through the investor pitches, due diligence and ensuring the investment creates the best possible return for the shareholders.

Peter is responsible for the financial management, commercials for new initiative and ensuring the value of the business grows in line with business expectations and is the lead on client engagement when dealing with large contracts

Liang Chen

Chief Engineering Officer



Liang is our lead investor as well as our Chief Engineer. Liang comes from the

automotive industry as a lead design engineer in integrated digital display consoles for vehicles. Liang has a wealth of knowledge and experience in developing controls solutions and user facing solutions and will be involved in the project management of the wider scope of our retro-fit solutions.

Liang has been involved in the design of our energy generation platforms and user interface designs and carries out technical due diligence on solutions and components sourced from overseas

Keith Venn

Technical Projects Engineer



Keith has worked in mechanical, electrical and electronic engineering.

He spent many years working as a reliability engineer, for large blue-chip organisations, such as Xerox and IBM, where complex data analysis and predictions, and project management were required. These skills are now used with environmental data analysis, in order to provide a more in-depth insight for the client.

His area of expertise is in complex procedures such as Carbon Management and Carbon Foot printing. Keith is also a certified trainer and will be responsible for setting up and delivering UEC projects and for on-going data analysis and assessment.

CONTACT US

For more information on UEC Energy products then please contact us in the follow ways:

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Web: www.far-uec-systems.com



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