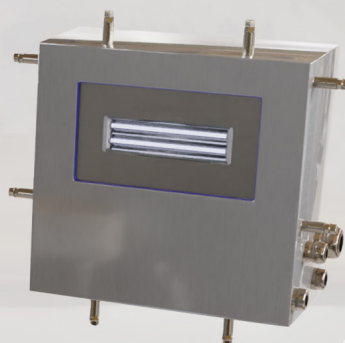
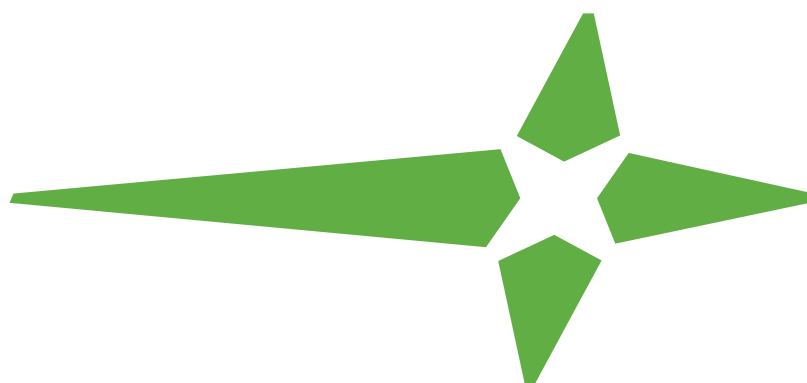


NobleLight®

BlueLight® Small Area UVC Flash Disinfection System

High-speed pulsed light disinfection for food, beverage, & packaging





About Excelitas®

Excelitas is a leading provider of advanced, life-enriching technologies that make a difference, serving global market leaders in the life sciences, advanced industrial, next-generation semiconductor and avionics end markets. Headquartered in Pittsburgh, PA, USA, Excelitas is an essential partner in the design, development and manufacture of advanced technologies, offering leading-edge innovation in sensing, detection, imaging, optics and specialty illumination for customers worldwide.

Excelitas is at the forefront of addressing many of the relevant megatrends impacting the world today, including precision medicine, industrial automation, artificial intelligence, and connected devices (IoT).



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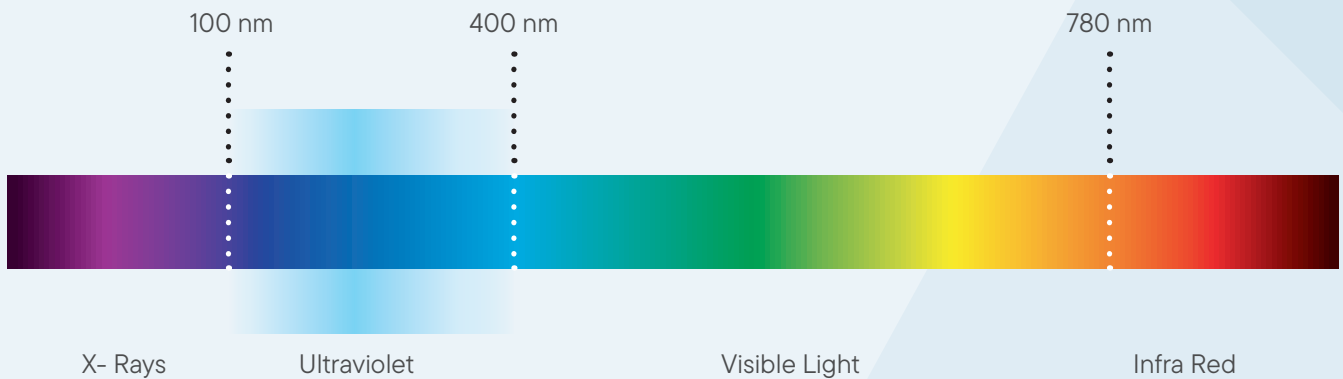
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The power of light enables the world around us

Excelitas develops “light” technologies across the electromagnetic spectrum that are integrated into equipment and manufacturing processes to advance the world around us.

Our BlueLight Flash disinfection systems are engineered to emit across the ultraviolet light spectrum. Ultraviolet (UV) light is invisible to the human eye, however its incredibly useful and plays a vital role in many industrial applications, from disinfecting surfaces and water to curing inks and resins.

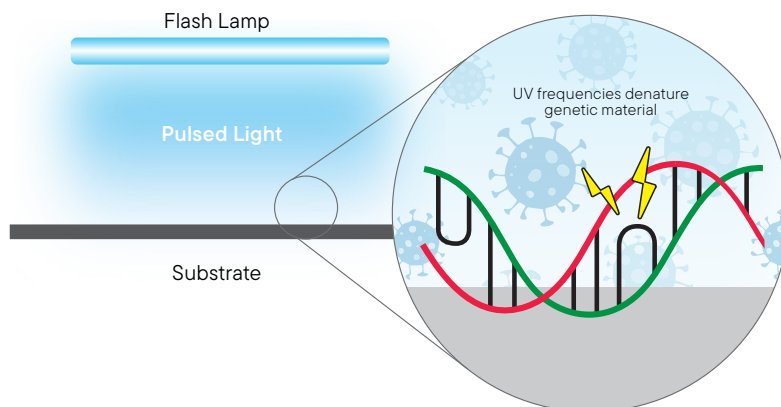


Noblelight Pulsed Light Disinfection

Excelitas' Noblelight BlueLight Flash small area disinfection system provides fast, reliable, pulsed light disinfection for food and beverage packaging production applications - without the need for harmful chemicals or mercury

This system achieves a reduction of more than 4 logs in microbial load, operating efficiently at high throughputs of up to 500 square meters per hour. Originally designed for disinfecting food packaging, such as beverage bottle caps, this BlueLight system is also effective on other surfaces that require disinfection, including organic materials.

WHAT IS UV DISINFECTION?



UV light denatures the DNA and RNA of microorganisms. When genetic material absorbs photons it causes instabilities such as dimer bridges, preventing replication.

Pulsed UV light, is highly effective at inactivating pathogens at high speeds.



System Features

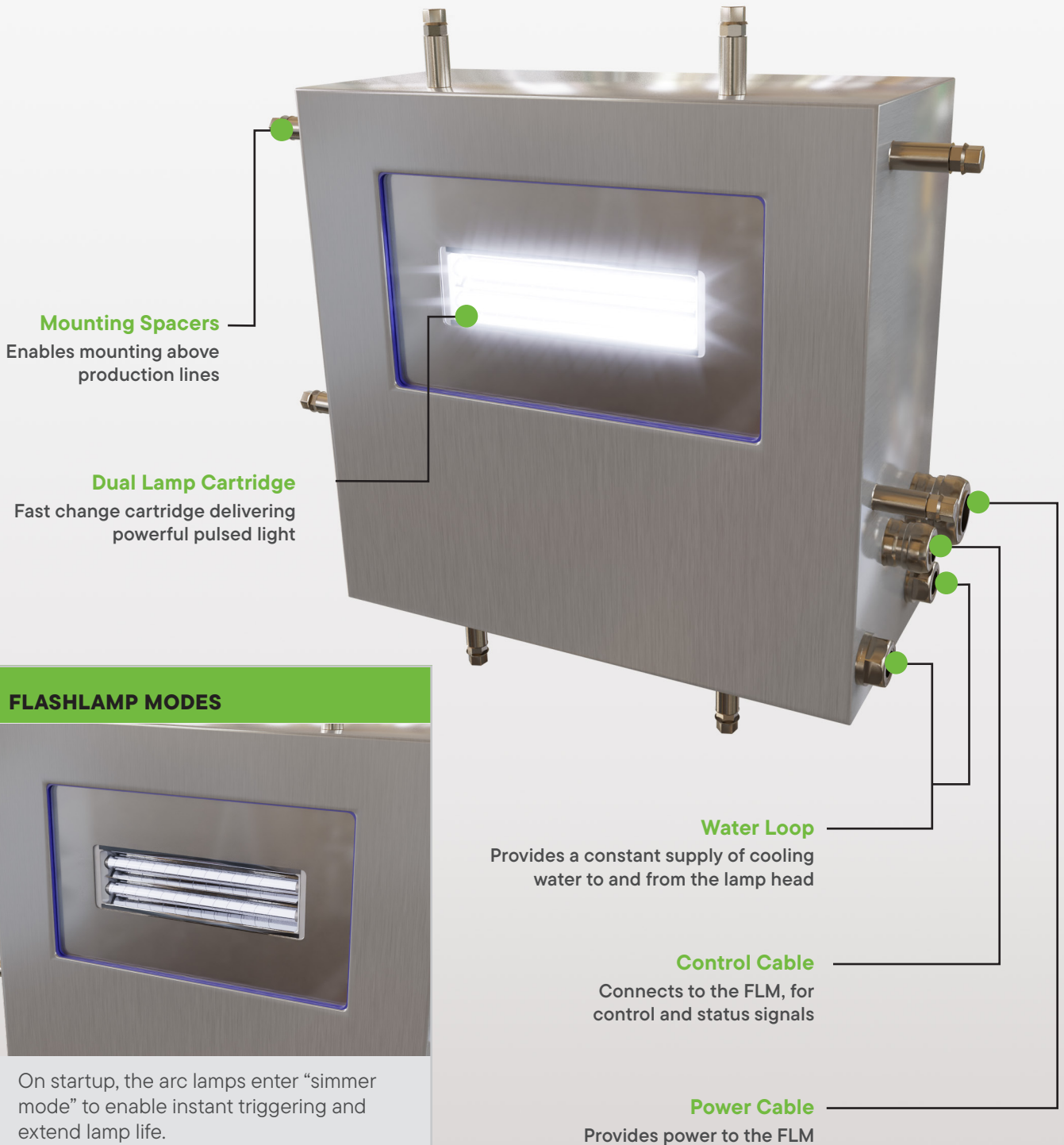
Designed for high-speed food and beverage packaging lines, the BlueLight Flash small area system delivers instant UV surface treatment in a compact form. Its updated design ensures reliable performance in the tough conditions of food production environments.

The user-friendly Flash Control Cabinet (FCC) has an intuitive, user friendly touchscreen interface. Housed in a hygienically designed, washdown-compatible stainless steel enclosure, it combines power, simplicity, and durability for efficient surface disinfection.



The Flash Lamp Module (FLM) houses a dual lamp cartridge that delivers powerful photonic disinfection to surfaces such as packaging, pre-forms, pots, tubs, and organic materials. It can be mounted in a variety of angles for easy integration into production lines.

Designed for efficiency and safety, the FLM features a quick-change cartridge for fast lamp replacement and includes a quartz glass breakage sensor for added safety.



Applications & Benefits



Direct food irradiation

Engineered to operate reliably in humid production environments and are fully compatible with wash-down procedures, ensuring durability and ease of maintenance under demanding conditions.



High-speed packaging disinfection

High pulse rates combined with adjustable pulse durations enable efficient irradiation of up to 500 square meters per hour.



Mercury free UV light

Powered by Xenon arc lamps, this mercury free technology produces high intensity UV light. Effective against a broad spectrum of microbes, delivering a reduction rate exceeding 99.99%*.



Flexible irradiation

Can be installed at various angles, allowing effective irradiation of different products e.g. pre-forms, pots, tubs, and bottle caps.

*Dependent on substrate and test conditions

BlueLight Flash Small Area Dimensions

The system comprises two primary components: the Flash Lamp Module (FLM), which delivers irradiation to the substrate, and the Flash Control Cabinet (FCC), which provides the necessary power, cooling, and control signals to operate the FLM. Depending on the specific setup, an external air-to-water chiller may be required in place of the standard water-to-water chiller to meet application demands.

FLASH LAMP MODULE DIMENSIONS		FLASH LAMP CONTROL CABINET & CHILLER	
UV Module Size	490 x 470 x 250 mm <i>19.29 X 18.50 X 9.84 Inches</i>	Flash Lamp Control Cabinet Size	1000 x 600 x 2000 mm <i>39.37 x 23.62 x 78.74 Inches</i>
Radiation window	240 x 70 mm <i>9.45 x 2.75 Inches</i>	Control Cabinet Weight	350 Kg
Cabinet IP rating	IP69K	Cabinet IP rating	IP69K
Mounting Hardware	M10 x 40 mm hygienic spacers	Mounting Hardware	Hygienic feet with M6 mounting holes

OPTIONAL STANDALONE AIR - WATER CHILLER	
Water Chiller Cabinet Size	550 x 550 x 1480 mm <i>21.65 x 21.65 x 58.26 Inches</i>
Water Chiller Cabinet Dry Weight	110 Kg
Refrigerant	R134A (CFC Free)
Mounting Hardware	Castors

Operational Performance

Recommended lamp settings for various belt speeds are listed below, based on a fixed 50mm distance to the substrate.





OPERATING PARAMETERS FOR VARIOUS BELT SPEEDS					
Number of flashes per unit substrate	Voltage	Frequency (Hz)*	Belt Speed Range*		
			ft/min	inches/sec	mm/sec
1	Low	20	400	80	2032
1	High	10	200	40	1016
2	High	10	100	20	508
3	High	10	65	13	330

*Our systems may have the capability to run at parameters outside those specified above. If your application requires this please contact us for guidance - an application engineer will be happy to advise.



BlueLight Flash Small Area Microbiological Tests

Various microbiological tests with the BlueLight Flash system by independent accredited institutes and laboratories. Test material, reference germs, distance and number of flashes were varied.

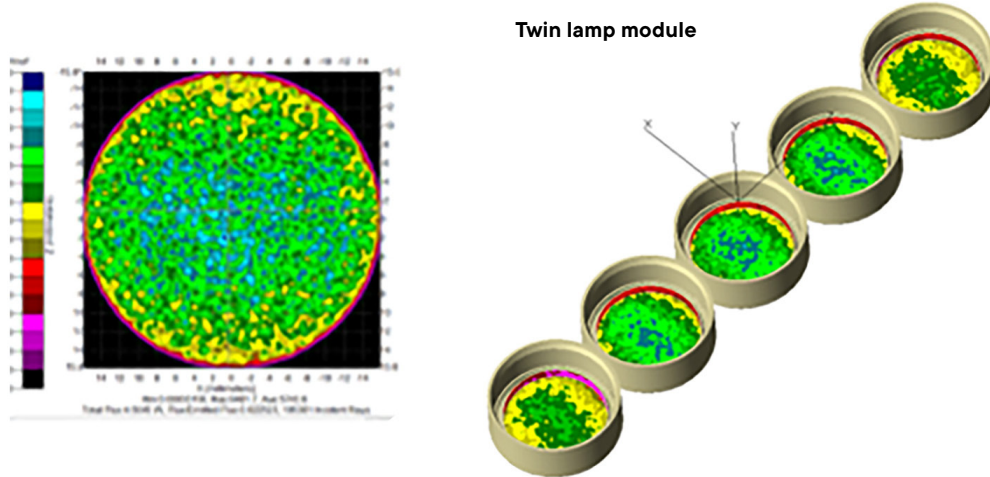
BLUELIGHT® FLASH SMALL AREA MICROBIOLOGICAL TESTS - REAL WORLD SAMPLES						
Packaging Sample / Material	Reference Germ	Inoculation Method	Distance Sample to Lamp (mm)	Avg. Log Reduction 1 Flash	Avg. Log Reduction 2 Flash	
Plastic Bottle Screw Cap 	Aspergillus brasiliensis ATCC 1604	Multi Dot	20	2.02	4.21	
Stainless Steel disks (Ø20 mm) 	Bacillus pumilus ATCC 27142	Nebulised	30	3.90	4.80	
Aluminum Tin (Volume 820 ml) 	Cronobacter sakazakii DSM 4485	Sprayed	20	4.50	4.80	
Aluminum Lid (Ø108 mm) 	Cronobacter sakazakii DSM 4485	Sprayed	20	5.00	5.20	

BLUELIGHT® FLASH SMALL AREA MICROBIOLOGICAL TESTS - REFERENCE SAMPLES						
Test Material	Reference Germ	Inoculation Method	Distance Sample to Lamp (mm)	Voltage Setting	Avg. Log Reduction 1 Flash	Avg. Log Reduction 2 Flash
Glass Slide 76 mm x 25 mm	Aspergillus brasiliensis DSM 1988	Sprayed	20	Low	3.50	5.00
				High	5.90	>6.0
	Penicillium rubens DSM 848	Sprayed	20	Low	2.60	4.50
				High	4.50	5.20
Steel Foil 50 mm ²	Aspergillus brasiliensis DSM 1988	Sprayed	20	Low	4.10	4.40
				High	4.90	5.40
	Penicillium rubens DSM 848	Sprayed	20	Low	3.60	4.30
				High	4.70	4.60

BlueLight Flash Small Area Ray Tracing Results

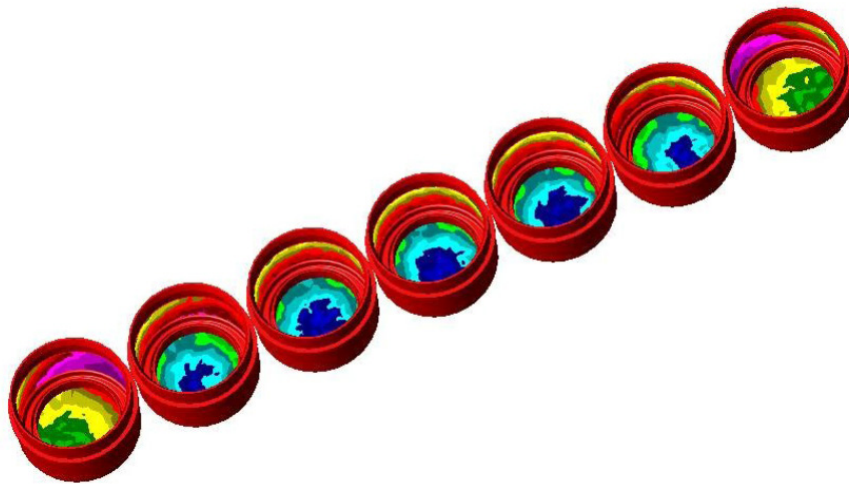
Excelitas Noblelight has developed a unique ray tracing simulation tool to be able to accurately model log reduction rates across a wide range of food packaging and materials.

Diagram 1: In house ray tracing simulation representing optical head and substrate



Results: Light distribution quite even on wet surface, so most of the surface will get a similar dose

Diagram 2: Ray tracing model showing energy distribution



The energy is most intense directly under the lamp module.

TEST BEFORE YOU DECIDE

Make use of our ray tracing simulation and microbiological test capabilities before you decide on a solution. We will be happy to advise you!

BlueLight Flash – for long-lasting enjoyable food and beverages.





(+44) 1223-423324

Excelitas UK Ltd.
161 Cambridge Science
Park, Cambridge, UK
CB4 0GQ

[excelitas.com](https://www.excelitas.com)

For a complete listing of our global offices, visit www.excelitas.com/locations

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Version: v1.1 Rev. Date: 10/12/2025