



Care222[®] Filtered Far UV-C Excimer Lamp Module

Filtered Krypton-Chloride 222nm Technology

Ushio is proud to introduce the Care222[®] series, our line of filtered 222nm Far UV-C excimer lamp modules for microbial reduction applications.

Filtered Care222 modules can be safely used in unoccupied and occupied spaces without posing a health risk to humans when used within the current exposure limits recommended by the American Conference of Governmental Industrial Hygienists (ACGIH[®]) or the requirements of IEC 62471. Exposure within the current ACGIH recommendations and IEC requirements allow microbial reductions using 222nm far-UVC light sources in occupied spaces. Recent studies indicate that higher doses of filtered UV light emitted from the Care222 modules pose a minimal health risk to human skin or eyes.

Features of the Care222 module allow customers to obtain 100% light output in less than a second, whereas conventional germicidal lamps start at only 50% output and take several minutes to achieve 100% output.

The featured Care222 12W B1 module contains 4 highly efficient 222nm excimer lamps and a patented filter that eliminates dangerous longer wavelengths of more than 230nm in an easy to install housing.



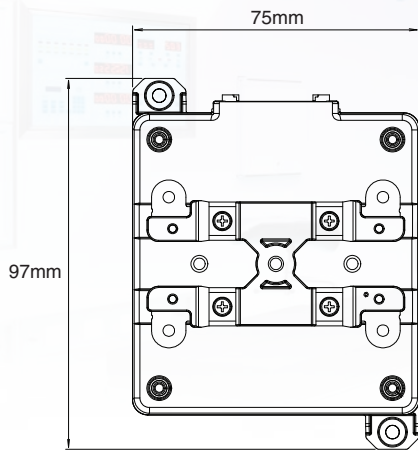
FEATURES & BENEFITS

- Proprietary Safety Filter Technology Included to Ensure Narrowband 222nm Emission
- Mercury Free - Environmental Friendly
- Large Production Capacity
- Effective Germicidal Wavelength
- Effective Reduction of Viruses, Bacteria, and Spores
- Wide Operating Temperature
- Instantaneous On/Off at Full Output Power
- No Lifetime Reduction by Frequent On/Off Cycles
- Minimal Ozone Emission

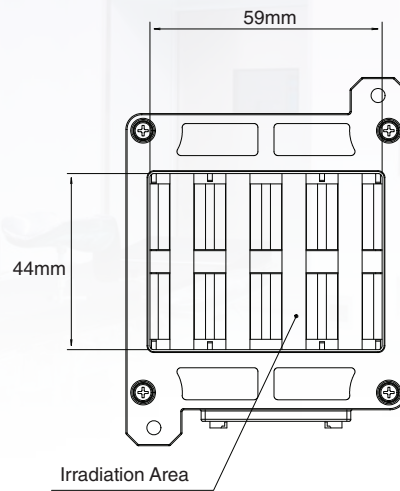
APPLICATIONS

- Surfaces
- Air

SPECIFICATIONS



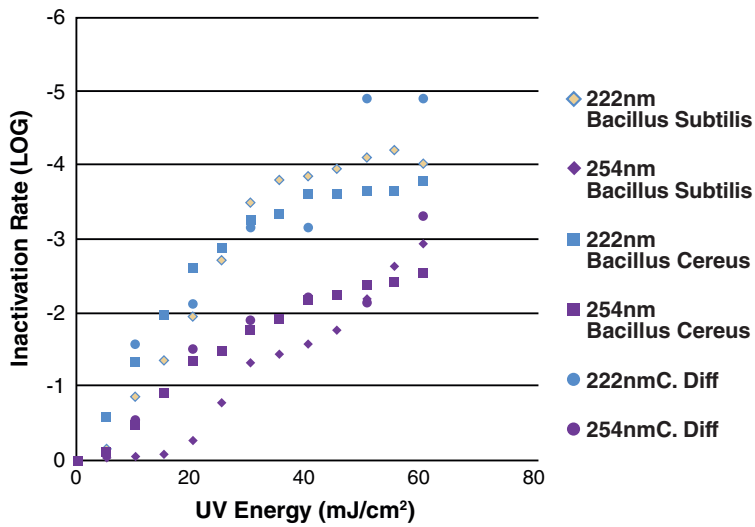
12W 222nm B1 Lamp Module (with filter)



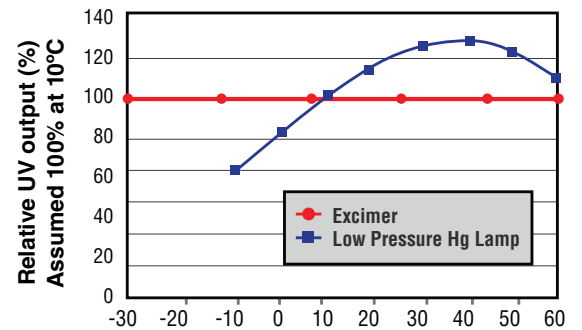
12W 24V B1 222nm Inverter

	Part Number	Type	Size (mm)
Module	5003332	UXFL70-222B4-U1A-Z1	97 x 75
Inverter	5003331	PXZ120I2-A	89 x 82

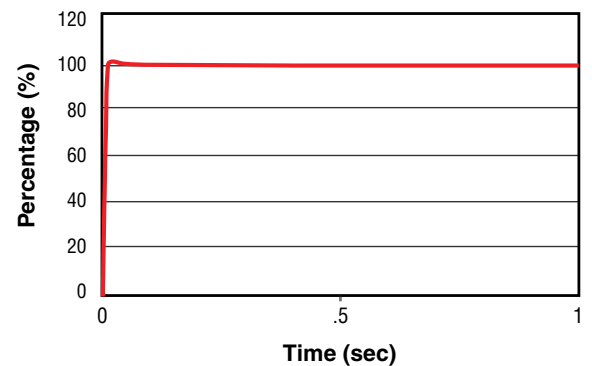
Comparison (254nm vs. 222nm) for Spore Inactivation*



Excimer lamp output is not affected by the ambient temperature.



Full output power available after Turn On.



*Reference Ushio Inc. Internal Data

Domain	Species	Methods ¹⁻⁷				
		222nm	254nm	70% ethanol	405nm	
Bacteria	<i>MRSA (Methicillin-Resistant Staphylococcus aureus)</i>	+++	+++	+++	+	
	<i>Pseudomonas aeruginosa</i>	+++	+++	+++	+	
	<i>Escherichia coli O157</i>	+++	+++	+++	+	
	<i>Salmonella Typhimurium</i>	+++	+++	+++	+	
	<i>Campylobacter jejuni</i>	+++	+++	N.D.	+	
	<i>Bacillus cereus</i>	Vegetative cell	+++	+++	++	+
		Spore	+++	++	—	—
	<i>Bacillus subtilis</i>	Vegetative cell	+++	+++	N.D.	+
		Spore	+++	++	N.D.	—
<i>Clostridium difficile</i>	Spore	+++	++	—	—	
Molds and Yeasts	<i>Candida albicans</i>	+++	+++	+++	+	
	<i>Penicillium expansum</i>	+++	+++	N.D.	+	
	<i>Aspergillus niger</i>	Vegetative cell	+	+	+++	+
		Spore	+	+	N.D.	—
Virus	MS2	+++	+++	N.D.	—	
	<i>Feline Calicivirus</i>	+++	+++	—	—	
	<i>Influenza A</i>	+++	+++	N.D.	—	
	<i>SARS-CoV-2</i>	+++	+++	N.D.	—	

Table X, Inactivation effect of 222-nm, 254 nm UVC irradiation and 70% ethanol on the various species. Dose of UVC radiation to achieve 3-log reduction of the species is grouped as follows. <50 mJ/cm²: +++, ~100 mJ/cm²: ++, ~1000 mJ/cm²: +, >1000 mJ/cm²: -. Treatment time with 70% ethanol to achieve 3-log reduction of the species is grouped as follows. <10 sec: +++, ~20 sec: ++, ~30 sec: +, >30 sec: -. N.D. means no data. The data shown in green were studied and provided by Ushio Inc.

Reference

1. CM Springorum et al., Conference: XIV international congress of the International Society for Animal Hygiene, At Vechta, Volume: 2, Page 740-742, 2009
2. D Wang, T Oppenländer, MG El-Din, and JR Bolton, "Comparison of the disinfection effects of vacuum-UV (VUV) and UV light on bacillus subtilis spores in aqueous suspensions at 172, 222 and 254 nm," Photochem. Photobiol., vol. 86, no. 1, pp. 176-181, 2010.
3. A. N. Edwards, S. T. Karim, R. A. Pascual, L. M. Jowhar, S. E. Anderson, and S. M. McBride, "Chemical and stress resistances of clostridium difficile spores and vegetative cells," Front. Microbiol., vol. 7, no. OCT, pp. 1-13, 2016.
4. S. E. Beck, H. B. Wright, T. M. Hargy, T. C. Larason, and K. G. Linden, "Action spectra for validation of pathogen disinfection in medium-pressure ultraviolet (UV) systems," Water Res., vol. 70, pp. 27-37, 2015.
5. J. C. Doultree, J. D. Druce, C. J. Birch, D. S. Bowden, and J. A. Marshall, "Inactivation of feline calicivirus, a Norwalk virus surrogate," J. Hosp. Infect., vol. 41, no. 1, pp. 51-57, 1999.
6. Kitagawa, et al. (2020) DOI: <https://doi.org/10.1016/j.ajic.2020.08.022>.
7. Welch, et al., Sci. Rep. 8, 2752 (2018). Buonanno, et al., Sci. Rep. 10, 10285 (2020).

SAFETY & CAUTIONS:

- When handling the module, be sure to wear protective gloves.
- Never touch the module when it is on, or soon after it has been turned off, as it is hot and may cause burns.
- Only use approved drivers with Care222 module. Unspecified use could lead to short lamp life, breakage and overheating of the fixtures.
- Follow detailed safety instructions provided by Ushio.

