

# ISON™ PUREMOTION™ FAQ



This document is intended to provide concise answers to common questions about PUREMOTION™ devices and their technology. Please contact your Orion representative for additional information or any other specific questions.

<b>Q:</b>	<b><i>What UV technology does PUREMOTION™ units use?</i></b>
<b>A:</b>	PUREMOTION™ is equipped with short-wavelength ultraviolet LEDs or most commonly known as UVC LEDs. The LEDs are manufactured by Seoul Viosys and their peak wavelength is 275nm.
<b>Q:</b>	<b><i>Can UVC LEDs kill viruses as well as bacteria?</i></b>
<b>A:</b>	Yes, UVC interacts with the RNA and DNA of viruses and bacteria to inactivate and kill them respectively. Please see link to press release: <a href="http://www.seoulviosys.com/en/company/press/press-release">http://www.seoulviosys.com/en/company/press/press-release</a>
<b>Q:</b>	<b><i>Can UVC inactivate the SARS-CoV-2 virus?</i></b>
<b>A:</b>	Yes, under the correct dose level of UVC, the SARS-CoV-2 virus can be inactivated when directly irradiated by UVC.
<b>Q:</b>	<b><i>How fast can Violeds UV Module sterilize the air?</i></b>
<b>A:</b>	UVC technology from world leader Seoul Viosys can sterilize in seconds once the air is directly irradiated by the LEDs. Please see link to press release: <a href="http://www.seoulviosys.com/en/company/press/press-release/">http://www.seoulviosys.com/en/company/press/press-release/</a>
<b>Q:</b>	<b><i>Is PUREMOTION™ IPMU safe to use around people?</i></b>
<b>A:</b>	PUREMOTION™ was evaluated by UL under the Photobiological Standard and deemed safe to use around people. Contact us to obtain a copy of the Photobiological Safety Test Report.

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<b>Q:</b>	<b><i>How does air circulate through the PUREMOTION™ Unit?</i></b>
<b>A:</b>	The PUREMOTION™ device is designed to intake air using the center fans and then circulate it within the UVC chamber before exiting from the slots on the sides of fixture and non-disruptively return it to the room.
<b>Q:</b>	<b><i>Has any third-party testing being performed to determine PUREMOTION™ IPMU efficacy?</i></b>
<b>A:</b>	Yes, a custom Aerosol Study was performed by Microchem Laboratory to determine the antimicrobial efficacy of the IPMU device. Contact us to obtain a copy of the report.
<b>Q:</b>	<b><i>Is it normal to see a violet glow coming out the PUREMOTION™ IPMU unit?</i></b>
<b>A:</b>	Yes, it is normal and safe to see a violet glow. UVC itself is invisible but the purple glow is part of the visible light spectrum that the LED emits.
<b>Q:</b>	<b><i>Does the PUREMOTION™ unit require regular maintenance?</i></b>
<b>A:</b>	There is no maintenance required during the component's rated life. UVC Led modules can be replaced by replacing back plate kit and installing new one. Replacement kit can be purchased from Orion separately. Same back plate allows quick and easy access to fans and LED and fan drivers.
<b>Q:</b>	<b><i>What is Life cycle of UVC LED boards?</i></b>
<b>A:</b>	UVC life varies based on the application. PUREMOTION™ IPMU UVC modules' life is estimated to be L50 at 30,000 hours in a 25°C (77°F) environment. Average office is 3,200 hours annually or 9 years, 24/7 or 8760 hours annually is 3.5 years.
<b>Q:</b>	<b><i>Are the IPMU UVC LED modules replaceable?</i></b>
<b>A:</b>	Yes, the LED UVC boards are replaceable in the field. The IPMU allows a certified electrician to remove the back panel containing the modules and replace it with a new one. All connections are quick connect, plug and play in order to reduce labor and time. If a driver requires maintenance, these are accessible once the back panel is removed.

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<b>Q:</b>	<b><i>What if the customer is not comfortable replacing the UVC modules?</i></b>
<b>A:</b>	Orion offers end-life component replacement maintenance services. Contact Orion Maintenance Services.

<b>Q:</b>	<b><i>How long does it take to sterilize a room with PUREMOTION™ IPMU?</i></b>
<b>A:</b>	ASHRAE guidelines recommend $\geq 4$ Air Changes per Hour (ACH) for an office space. Third party laboratory testing shows that the IPMU 5 delivers approximately 5 ACH in an area of 100 square feet and result in 99.27% reduction of non-enveloped viruses after 90 minutes. Please see IPMU data sheet and look for “Air Movement UVC Planning Guide” to help you figure out how many units you need for your area. The table estimates are based on an enclosed room. <a href="https://www.cdc.gov/infectioncontrol/guidelines/environmental/appendix/air.html">https://www.cdc.gov/infectioncontrol/guidelines/environmental/appendix/air.html</a>

<b>Q:</b>	<b><i>Does Clean Air Delivery Rate (CADR) apply to PUREMOTION™?</i></b>
<b>A:</b>	No, CADR only applies to air cleaners with filters that remove dust and pollen particles from the air as it passes through them.

<b>Q:</b>	<b><i>What is the sound rating of the fans?</i></b>
<b>A:</b>	The fans are rated at 24db.

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## Additional Resources

- © **illuminating Engineering Society Committee Report on GUV:**  
[Germicidal Ultraviolet \(GUV\) FAQ | IES](#)
- © **FDA**  
[UV Lights and Lamps: Ultraviolet-C Radiation, Disinfection, and Coronavirus | FDA](#)
- © **CDC**  
[Basic Upper-Room Ultraviolet | CDC](#)
- © **Columbia University**  
[Could a New Ultraviolet Technology Fight the Spread of Coronavirus? | Columbia News](#)
- © **LEDs Magazine**  
[Boston University validates Signify UVC for coronavirus deactivation | LEDs Magazine](#)
- © **HPAC Engineering Magazine**  
[Limit the Spread of Contagious Diseases and Bacteria with Germicidal UV | HPAC](#)