

The Facts about the Sanuvox R1700GX & R4000GX

The Process



R4000GX
UV Air Purifier

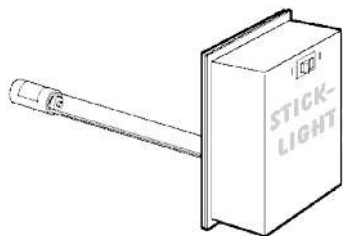
The Sanuvox R1700GX and R4000GX In-Duct Purifier will purify a portion of the air moving within the duct at any given time. The air within our homes continually circulates through the ventilation system every minute of every hour of every day. Sanuvox In-Duct purifiers rely on the re-circulation of the homes ventilation to bring the overall level of contamination down. After an hour or two of being installed, the home will have circulated the air through the in-duct purifier enough times as to bring the home's overall contamination down drastically.

For a typical application, Sanuvox will destroy the contaminants quicker than the contaminants are introduced into the environment. The R4000GX treats the air with 16,479 microwatts per/cm² of UV intensity inside the Aluminum Reflector Tube over a distance of 12".

The Two Inch Rule

Some manufacturers promote that their one and two Lamp 'Stick-Light' purifiers will treat the entire volume of air passing through the duct at one time.

Unfortunately, that could not be farther from the truth. According to the Lamp Manufacturer's, efficiencies drop very



quickly the further away from the Lamp surface you move. **At just 2" from the surface of the glass, the UV efficiency has already dropped 80%, and the decline is exponential.** This is true for all types of UV Lamps, from cold cathode to hot cathode, soft glass to quartz glass.

Manufacturers who promote that their one or two lamp 'Stick-Light' purifiers will purify the entire duct are in reality only TREATING A VERY NARROW BAND OF AIR that travels by the lamp. As will be discussed later on, even that narrow band of air is not being treated adequately because the air is moving much too fast in the duct to receive the proper UV dosage.

The 2" Rule is the reason why the "J" Lamp is mounted inside the Aluminum Reflector Tube. Sanuvox wanted to maximize the UV Energy which would otherwise be lost in the duct-work. By using the Reflector, Sanuvox stayed true to the 2" Rule while increasing the amount of UV Energy that is treating the air.

NOTE: THE TWO INCH RULE ONLY APPLIES TO AIR PURIFICATION (TREATING MOVING AIR). WHEN TREATING MOVING AIR, THERE IS ONLY A FRACTION OF TIME TO TREAT THE CONTAMINANT IN THE AIRSTREAM. THAT'S WHY AN AIR PURIFIER NEEDS AN INTENSE AMOUNT OF UV ENERGY. IN CONTRAST, THE TWO INCH RULE DOES NOT APPLY TO OBJECT PURIFICATION (PURIFYING A STATIONARY OBJECT). THE OBJECT IS NOT MOVING THEREFORE THE NEED TO DELIVER SUCH HIGH AMOUNTS OF UV WITHIN A FRACTION OF A SECOND IS NO LONGER NEEDED. THE UV ENERGY CAN SHINE ON THE OBJECT INDEFINITELY.

Efficiencies & Testing

Many manufacturers are claiming a destruction of 80% or more on their one and two Lamp 'Stick-Light' purifiers against *Serratia marcescens* (3,400 MICROWATTS PER/CM² OF GERMICIDAL UV FOR DESTRUCTION).

In contrast, Sanuvox tests are done in real world conditions and through clinical studies. Sanuvox results have shown mold levels dropped 100%, *Mycobacterium tuberculosis* (10,000 MICROWATTS PER/CM² OF GERMICIDAL UV FOR DESTRUCTION) dropped more than 90% and VOC's dropped 50%. According to the information supplied by other manufacturers, **the Sanuvox R4000GX destroys a higher % of contaminants that require at least 300% more UV dosage than their one and two lamp Probe units.**

Proprietary Sanuvox technology is 3rd party tested in real world conditions, as well as tested under strict controlled conditions by a University Medical Hospital. Contaminants tested include but not limited to: alternaria, aspergillus/penicillium, ascospore, cladosporium, hyaline fungi, chaetomium, cladosporium, drescheleria/bipolaris, smuts/myxomycetes, legionellosis, tuberculosis bacilli and formaldehyde.

**For further research, visit www.sanuvox.com.

Relationship between UV-V and Residual Ozone

Sanuvox Purifiers do not produce ozone as their primary function. The UV-V section of the Dual Zone Lamp (approx. 10% of the Lamp glass) may produce a small amount of residual ozone. The Residential Purifiers that use a Dual Zone Lamp have in tests produced 0.003 ppm. of residual ozone. So minute, that some tests show zero amount of residual ozone in the environment. Sanuvox Residential Purifiers produce less residual ozone than a photocopier or an electronic air cleaner. The amount of residual ozone that can be produced by a Sanuvox Residential Purifier (0.003 ppm.) is a fraction of the ASHRAE (0.05 ppm.) and OSHA (0.10 ppm.) standards for safe levels of ozone. Sanuvox designed the UV-V portion of the lamp to "fire" first. While contained in the Aluminum Tube, the UV-C (approx. 90% of the Lamp glass) Germicidal Energy acts as a catalyst to speed up the process to keep the residual ozone to extremely low levels.

By incorporating UV-V into Sanuvox Purifiers,

studies have shown a significant decrease in VOC's while producing virtually no residual ozone in the environment. Sanuvox Purifiers not only destroys biological contaminants, but are also able to destroy toxins, chemical contaminants such as diesel fumes, cigarette smoke, formaldehyde, pet and cooking odors. It is impossible for UVC Germicidal only 'Stick Lights' to treat any of these chemical contaminants or odors. UV-V does NOT mask odors or contaminants; UV-V molecularly changes the molecule(s).

**Sanuvox Purifiers are always available as germicidal only if requested.

Installation

The installation of an R1700GX or R4000GX requires no more than 10-30 minutes by an HVAC contractor. The purifiers can be installed on either the return or supply side of the plenum. We recommend installing it on the return side for the added benefit of keeping the filter and coil cleaner than if the purifier was installed on the supply side. The R1700GX is hardwired to the fan relay, and the R4000GX is simply plugged in, the airflow sensor automatically turns the purifier on and off. Direct UV light is destructive to plastics (drainpan, wiring, motor windings, etc.), the Reflector Tube can easily be positioned so no UV will see any plastic. A 'Stick-Light' purifier has no measure to control what the UV sees.

3 Year Warranty

'Stick-Light' purifiers have a maximum lamp life of 8,700 operating hours (1 year). 'Stick-Light' purifiers must have each Lamp wiped clean every 2-3 months to remove the bio-aerosols in the air-stream that adhere to the Lamp and block the UV rays.

The R1700GX and R4000GX have a 3-year warranty, which includes the UV "J" Lamp and all replacement Lamps. As a result of the proprietary design, the Aluminum Reflecting Tube redirects UV to "burn off" any bio-aerosols that adhere to the UV Lamp. The R1700GX and R4000GX are self-cleaning; the only maintenance required is a one Lamp change every 3 years (Sanuvox takes into consideration the unit will operate 24 hours a day, 7 days a week, 365 days a year).

NOTE: UV Lamps age, and as they age, they lose their effectiveness. 'Stick-Lights' can only offer a one year Lamp life because: a) mounted perpendicular to the air-stream, b) does not use any measure to slow the air down as it passes over the lamp, and c) does not use any reflectivity to increase UV intensity.

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