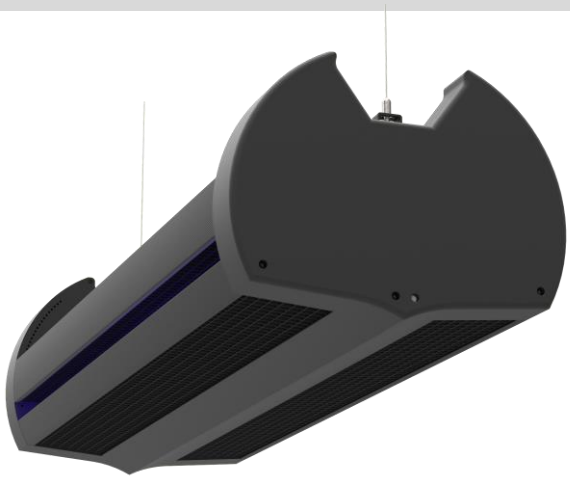
SaniLume

The World's Most Powerful Upper Room Air Sanitizer



Model SL-36KT-75/40

Safety Precautions, Site Planning, Installation, Operation, Maintenance

ILLUMISOFT LIGHTING

IMPORTANT SAFEGUARDS

When using electrical equipment, basic safety precautions should always be followed including the following:

READ AND FOLLOW ALL SAFETY INSTRUCTIONS

a) This equipment is designed for use with germicidal UV radiation sources and must be installed incompliance with competent technical directions to prevent risk of personal injury from UV radiation.

b) UV radiation can pose a risk of personal injury. Overexposure can result in damage to eyes and bare skin. To reduce the risk of overexposure this equipment must be installed in accordance with the manufacturer's site planning recommendations. This may include instructions on the relative location of each germicidal system component, the minimum distances between UV-generating devices and other objects or surfaces, and protection from line-of-sight exposure to UV radiation in occupied spaces located above the equipment mounting area (e.g. upper floor balconies, open staircases, etc.)

c) UV and optical radiation can be reflected by surrounding surfaces such as ceilings and walls. Since the reflective properties of surfaces can vary widely, it should be considered as part of site planning. Follow the manufacturer's recommendations for selecting appropriate ceiling and wall finishes.

d) IT IS THE RESPONSIBILITY OF THE INSTALLER TO ENSURE THAT PERSONS WILL NOT BE EXPOSED TO EXCESSIVE UV OR OPTICAL RADIATION DURING EQUIPMENT OPERATION. THIS WILL REQUIRE THE INSTALLER TO CONDUCT AN ASSESSMENT OF IRRANDIANCE OR ILLUMINANCE LEVELS IN THE SURROUNDING OCCUPIED SPACES PRIOR TO OCCUPANCY.

e) Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.

f) Maintenance and servicing of this UV generating equipment shall be performed by authorized personnel. Service personnel must wear appropriate Personal Protective Equipment (PPE) if the equipment will be in operation during the maintenance or servicing work. Contact the equipment manufacturer for PPE recommendations and guidance.

g) When replacing lamps, replace them only with the lamps for which the equipment is marked and intended.

h) The use of accessory equipment not recommended by the manufacturer may cause an unsafecondition.

i) Do not use this equipment for other than intended use.

SAVE THESE INSTRUCTIONS

Safety Warning Labels

All personnel should be alerted to the potential hazards indicated by the product safety labeling on this unit. The following conventions are used to indicate and classify precautions in this manual and on product safety labeling. Failure to observe precautions could result in injury to people or damage to property.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

Danger indicates an IMMINENTLY hazardous situation, which, if not avoided, WILL result in death or serious injury.

Warning indicates a POTENTIALLY hazardous situation, which, if not avoided, COULD result in death or serious injury.

Caution indicates a POTENTIALLY hazardous situation, which, if not avoided, MAY result in minor or moderate injury.

This symbol is used to identify an ELECTRICAL SHOCK or ELECTROCUTION hazard.

This symbol is used to identify an ULTRAVIOLET LIGHT hazard.

This symbol is used to identify the need to wear approved ultraviolet blocking eyewear.

This symbol is used to identify the need to wear protective gloves.

This symbol is used to identify components which must not be disposed of in trash

Safety Instructions

To guard against injury, basic safety precautions should be observed, including the following:

1. Read and follow **ALL** safety instructions.

2. 

Avoid exposure to direct or reflected germicidal ultraviolet rays.
Germicidal ultraviolet rays are harmful to the eyes and skin.

3. Intended for indoor use only.
4. Do not alter design or construction.
5. Do not use this unit for other than its intended purpose, as described in this manual.
6. Do not mount under any source of moisture or condensation, such as humidifiers, cooling coils, etc.

7. 

Germicidal ultraviolet rays may break down plastic, rubber or other non-metallic materials, with inadequate resistance to ultraviolet. Shield these these materials which may be exposed to direct or reflected germicidal ultraviolet rays.
8. Do not remove any labels or devices.

9. 

Do not operate without proper electrical ground.

10. Do not operate the unit if there is visible or suspected damage to the unit or, if applicable, there is damage to power cord and/or plug.
11. Do not operate without lower panel secured.
12. Utility power supplied to the unit **MUST** match power requirements listed on the unit label.

13. 

Always disconnect power to the unit before performing any service or maintenance.

14. Read and follow all notices and warnings on the unit.
15. SAVE THESE INSTRUCTIONS.

NOTICE: These instructions do not claim to cover all details or variations in the equipment, procedure, or process described, or to provide directions for meeting every possible contingency during installation, operation or maintenance. When additional information is desired to satisfy a problem not covered sufficiently for user's purpose, please contact your nearest representative.
NOTICE: Proper grounding is required to ensure personal safety. Carefully observe grounding procedure under installation section.
NOTICE: Fixture may become damaged and/or unstable if not installed properly.
GENERAL: Upon receipt of fixture thoroughly inspect for any freight damage, which should be brought to the attention of the delivery carrier. Compare the catalog description listed on the packing slip with the fixture label on the housing to assure you have received the correct merchandise.

⚠ CAUTION See ratings on fixture for appropriate voltage. Any other connection voids the warranty.

It is the user's responsibility to determine and validate the suitability of this equipment for use in the user's system or process. No warranty or representation is made by the manufacturer with respect to suitability or performance of this equipment or to the results that may be expected from its use. The user should periodically inspect, clean as necessary and confirm the presence and good legibility of the product

Disclaimers

Disclaimer: This product is not approved or certified as a medical device and is not intended to be used for medical purposes.

Disclaimer: Illumisoft Lighting Canada Ltd. does not promise or warrant that the use of the Products will protect any user from or prevent infection and/or contamination with any viruses, bacteria, protozoa, fungi, illness or disease. The Products are not approved and/or certified as a medical device by Health Canada or any other regulatory body. As such, the Products are not intended for and must not be used for medical purposes.

DISCLAIMER OF LIABILITY: Illumisoft Lighting Canada Ltd. assumes no liability for damages or losses of any kind that may arise from the improper, careless, or negligent installation, handling or use of this product, or through any use of this products outside of their intended use as described.

ILLUMISOFT LIGHTING CANADA LTD. DBA SANILUME LIMITED WARRANTY EFFECTIVE NOV. 30, 2020

Subject to the exclusions set forth below, Illumisoft Lighting Canada Ltd.,("Illumisoft") warrants its products to be free from defect in material and workmanship for a period of five (5) years from the date of shipment from Illumisoft's facilities. except as follows:

a) Lamp: 1 years

b) Fans and Ballast 3 years

Reseller must follow the instructions contained within the Installation and Safety manual. Failure to install any Product properly will void this Manufacturer's Warranty as will any tampering with the Product by anyone other than Illumisoft or its authorized agents.

This statement of Limited Warranty ("Warranty") applies only when the Product(s) are installed in applications in which ambient temperatures are within the normal range of climate controlled indoor environments. Illumisoft will not be responsible for any failure of the Product(s) that result from external causes such as: acts of nature; physical damage; exposure to adverse chemicals or other substances; use of reactive cleaning agents or harsh chemicals to clean the Product(s); environmental conditions; vandalism; fire; animal or insect activity; fault or negligence of purchaser, any end user of the Product(s)and/or any third party not engaged by Illumisoft, improper or unauthorized use, installation, handling, storage, alteration, maintenance or service or any other occurrences beyond Illumisoft's reasonable control. Adequate records of operating history and maintenance must be kept by the end user and be provided to Illumisoft upon request to substantiate that the Product(s) have failed to comply with the terms of this Warranty.

If the Product(s) fail to comply with the terms of this Warranty, Illumisoft, at its option, will repair or replace the Product(s) with the same or functionally equivalent Product(s) or component part(s). This Warranty excludes labor and equipment required to remove and/or reinstall original or replacement part(s). This Warranty extends only to the Product(s) as delivered to, and is for the sole and exclusive benefit of, the original end user. The repair of replacement of any Product(s) or component part within the Product(s) is the sole and exclusive remedy for failure of the Product(s) to comply with the terms of this Warranty and does not extend the Warranty period. Warranty claims regarding the Product(s) must be submitted in writing within (30) days of discovery of the defect or failure to an authorized Illumisoft representative. Product(s) or component part(s) may be required to be returned for inspection and verification of non-conformance by Illumisoft. Illumisoft is not responsible for any costs and expenses incurred in connection with shipment of Product(s) to Illumisoft but Illumisoft shall bear all cost and expense incurred in connection with shipment of replacement Product(s) to the customer.

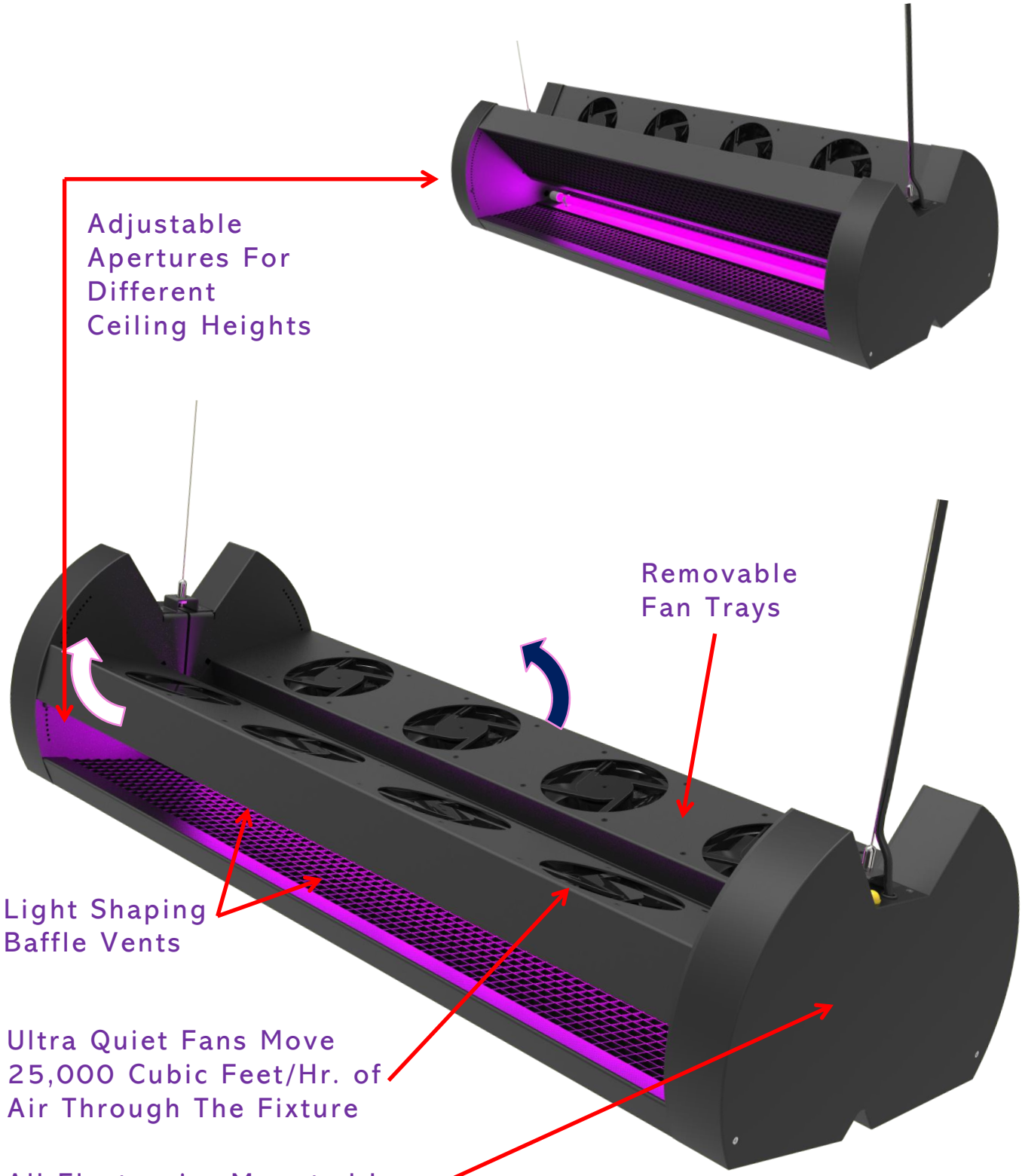
THE FOREGOING WARRANTY TERMS ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, AND ILLUMISOFT EXPRESSLY DISCLAIMS ALLOTHER WARRANTIES, EXPRESS OR IMPLIED, RELATING DIRECTLY OF INDIRECTLY TO THE PRODUCT(S), WHETHER ORAL, WRITTEN OR ARISING BY COURSE OF DEALING OR USAGE OF TRADE, INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NO AGENT, DISTRIBUTOR OR OTHER SUPPLIER OF ILLUMISOFT PRODUCTS HAS THE AUTHORITY TO MODIFY OR AMEND THIS WARRANTY WITHOUT THE EXPRESS WRITTEN AUTHORIZATION FROM ILLUMISOFT.

The total liability of Illumisoft on any and all claims of any kind, whether in contract, warranty, tort (including negligence), strict liability or otherwise, arising out of or in connection with, or resulting from, Illumisoft's performance or breach of this Warranty, or from Illumisoft's sale, delivery, resale, repair, or replacement of any Product(s) or the furnishing of any services, shall in no event exceed the purchase price allocable to the Product(s) that give rise to the claim, and any and all such liability shall terminate upon the expiration of the warranty period specified above.

IN NO EVENT SHALL ILLUMISOFT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, EXEMPLARY OR PUNITIVE DAMAGES, EVEN IF INFORMED OF THE POSSIBILITY OF SUCH DAMAGES, WHETHER AS A RESULT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, OR ANY OTHER THEORY, INCLUDING WITHOUT LIMITATIONLABOR OR EQUIPMENT REQUIRED TO REMOVE AND/OR REINSTALL ORIGINAL OR REPLACEMENT PARTS, LOSS OF TIME, PROFITS OR REVENUES, LACK OR LOSS OF PRODUCTIVITY, INTEREST CHARGES OR COST OF CAPITAL, COST OF SUBSTITUTE EQUIPMENT, SYSTEMS, SERVICES OR DOWNTIME COSTS, DAMAGE TO OR LOSS OF USE OF PROPERTY OR EQUIPMENT OR ANY EQUIPMENT OR ANY INCONVENIENCE ARIZING OUT OF ANY BREACH OF THE FOREGOING WARRANTY OR OBLIGATIONS UNDER SUCH WARRANTY.

Illumisoft reserves the right to modify or discontinue this Warranty without notice provided that any such modification or discontinuance will only be effective with respect to any Product(s) purchased after such modification or discontinuance.

Features


Adjustable
Apertures For
Different
Ceiling Heights
Removable
Fan Trays
Light Shaping
Baffle Vents
Ultra Quiet Fans Move
25,000 Cubic Feet/Hr. of
Air Through The Fixture
All Electronics Mounted In
a Removable End Cap

Product Specifications

Upper Room Air Germicidal UVC Technology
• 254 nm germicidal UVC lamp rated for 10,000 hrs.
• Powerful UVC energy is distributed into upper room areas is proven inactivation technology against pathogens including mold, fungi, bacteria, and viruses
• Powerful integral air handling circulates room air through the UVC energy field

Construction
• All aluminum construction except UV stabilized polycarbonate end caps

Finish
• Polyester powder coat finish on all visible aluminum parts

Optics
• Horizontal multicell louvers restrict stray UVC emissions below the fixture
• Adjustable apertures can be adjusted to increase UVC output as ceiling height increases

Mounting
• Minimum mounting height is 7' 9" from the fixture bottom to the finished floor
• Recommended to not have obstructions or walls less than 10 ft in front of the fixture's apertures

Compliance
• This GUV product is designed to comply with UL1598 CRD SL4.8 Risk Group 0
• UL 1598 listed GUV fixture
• The installer must follow all the safety instructions in this manual

Intertek
5005590

Warnings and Safety
• All warnings and safety information in this manual must be strictly followed

Order Information
SL36-KT-75 75-watt UVC lamp, covers approx. 400 sq. ft
SL36-KT-40 40-watt UVC lamp, covers approx. 250 sq. ft

DIMENSIONS	LENGTH	38.875" 987 MM
	WIDTH	13.88" 352 MM
	HEIGHT	9.95" 253MM
	WEIGHT	29 LBS/13.15 KG
ELECTRICAL SL-36KT-75	INPUT WATTS @ 120-277V	113W
	VOLTS	120-277
	AMPS @ 120v	0.58
	FREQUENCY	50-60 HZ
	LAMP UVC OUTPUT	23
ELECTRICAL SL-36-KT-40	INPUT WATTS @ 120-277V	64
	VOLTS	110-277
	AMPS @ 120v	0.33
	FREQUENCY	50-60 HZ
	LAMP UVC OUTPUT	14
FAN PERFORMANCE (8 Fans)	CFH	25,440
	DBA @	42
OPTION: 347V INPUT	VOLTS	110-347

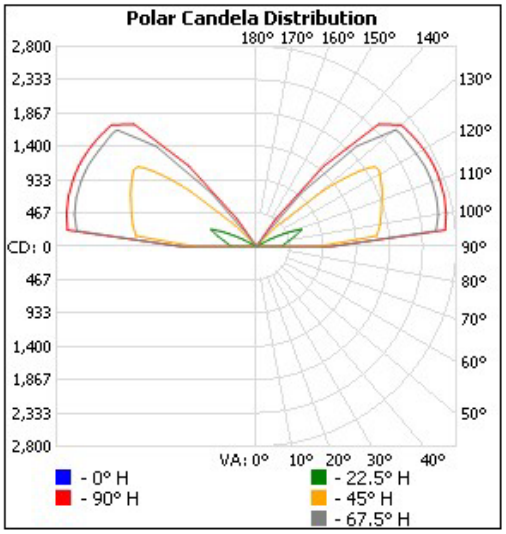
Certified Laboratory Test Results

intertek
Total Quality. Assured.

RADIOMETRIC .IES FILE
(see notes below)

Filename: 104457374CRT-003 Config 2 _ IES

Manufacturer: ILLUMISOFT LIGHTING CANADA
Luminaire: UPPER ROOM AIR GERMICIDAL FIXTURE
Luminaire Cat: SANILUME V2
Lamp: Hg Lamp
Distribution: Quadrilateral Symmetry
Lamp Output: Total luminaire Lumens: 6978.6
Max Candela: 2,733.0 at Horizontal: 90°, Vertical: 112°
Input Wattage: 97.89
Luminous Opening: Rectangle w/Luminous Sides (L: 34.56", W: 13.56", H: 0.6")
Test: The data set was measured in RADIOMETRIC UNITS. The following applies for data in this .IES file: Lumens-> mW, lux-> mW/m^2, candela-> mW/sr
Test Lab: Intertek Cortland
Near Field Test: Test distance of 194.4cm (max per gonio limits for UV for this EUT). Inverse square law may not be appropriate based on product dimensions.
Photometry : Type C
Cutoff Class: Noncutoff
Nema Type: 3 X 1



Set for Higher Ceiling Heights

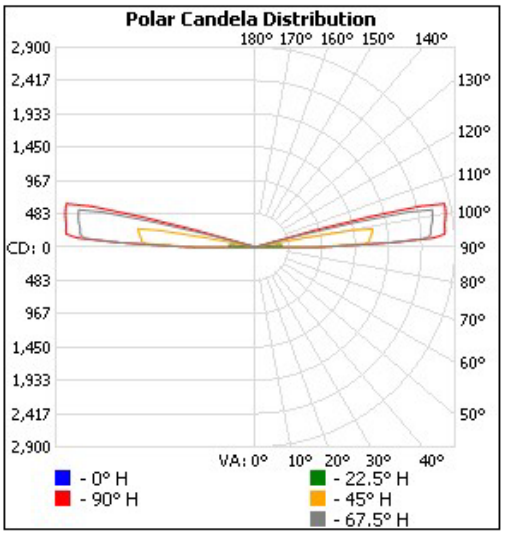
Wide Beam

intertek
Total Quality. Assured.

RADIOMETRIC .IES FILE
(see notes below)

Filename: 104457374CRT-003 Config 1 _ IES

Manufacturer: ILLUMISOFT LIGHTING CANADA
Luminaire: UPPER ROOM AIR GERMICIDAL FIXTURE
Luminaire Cat: SANILUME V2
Lamp: Hg Lamp
Distribution: Quadrilateral Symmetry
Lamp Output: Total luminaire Lumens: 2124.8
Max Candela: 2,819.0 at Horizontal: 90°, Vertical: 102°
Input Wattage: 97.89
Luminous Opening: Rectangle w/Luminous Sides (L: 34.56", W: 13.56", H: 0.6")
Test: The data set was measured in RADIOMETRIC UNITS. The following applies for data in this .IES file: Lumens-> mW, lux-> mW/m^2, candela-> mW/sr
Test Lab: Intertek Cortland
Near Field Test: Test distance of 194.4cm (max per gonio limits for UV for this EUT). Inverse square law may not be appropriate based on product dimensions.
Photometry : Type C
Cutoff Class: Noncutoff
Nema Type: 1 X 1

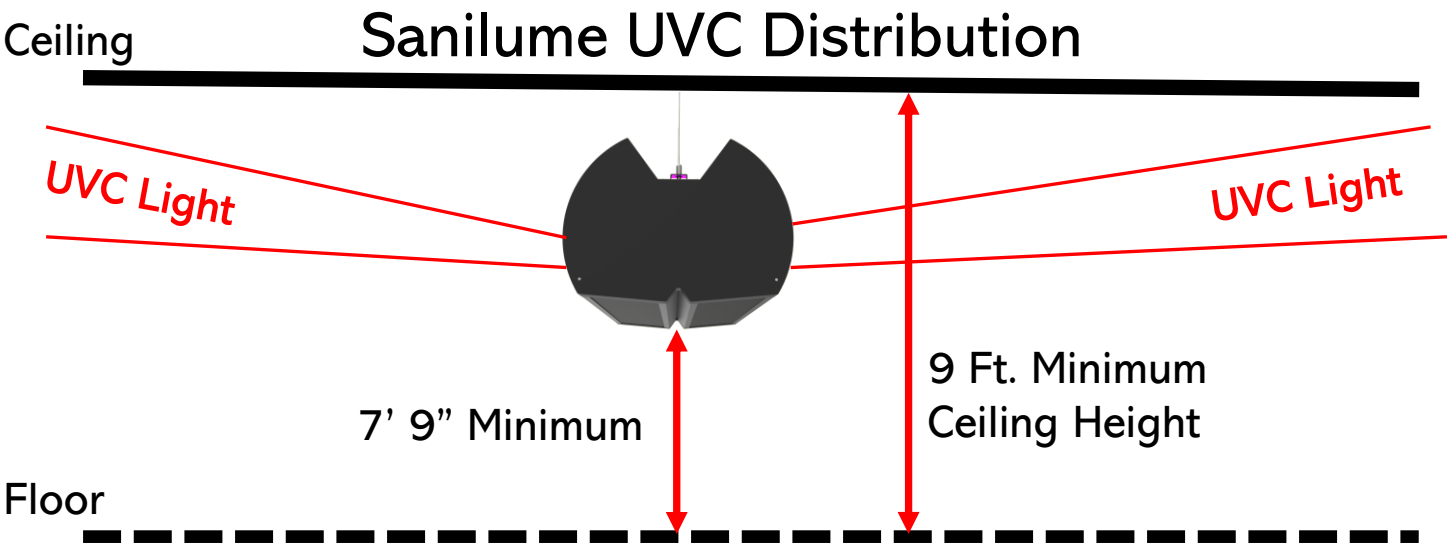


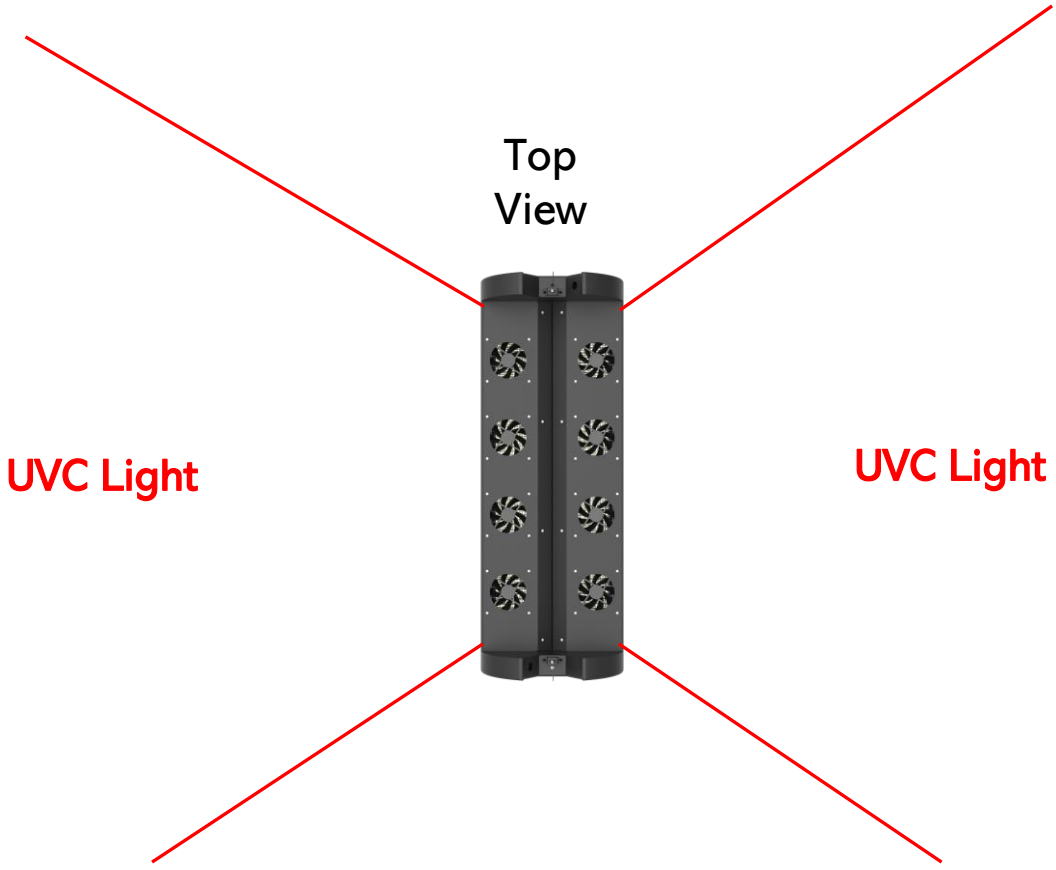
Set For 8-9 Ft. Ceilings

Narrow Beam

SaniLume

Site Planning: Installation Considerations





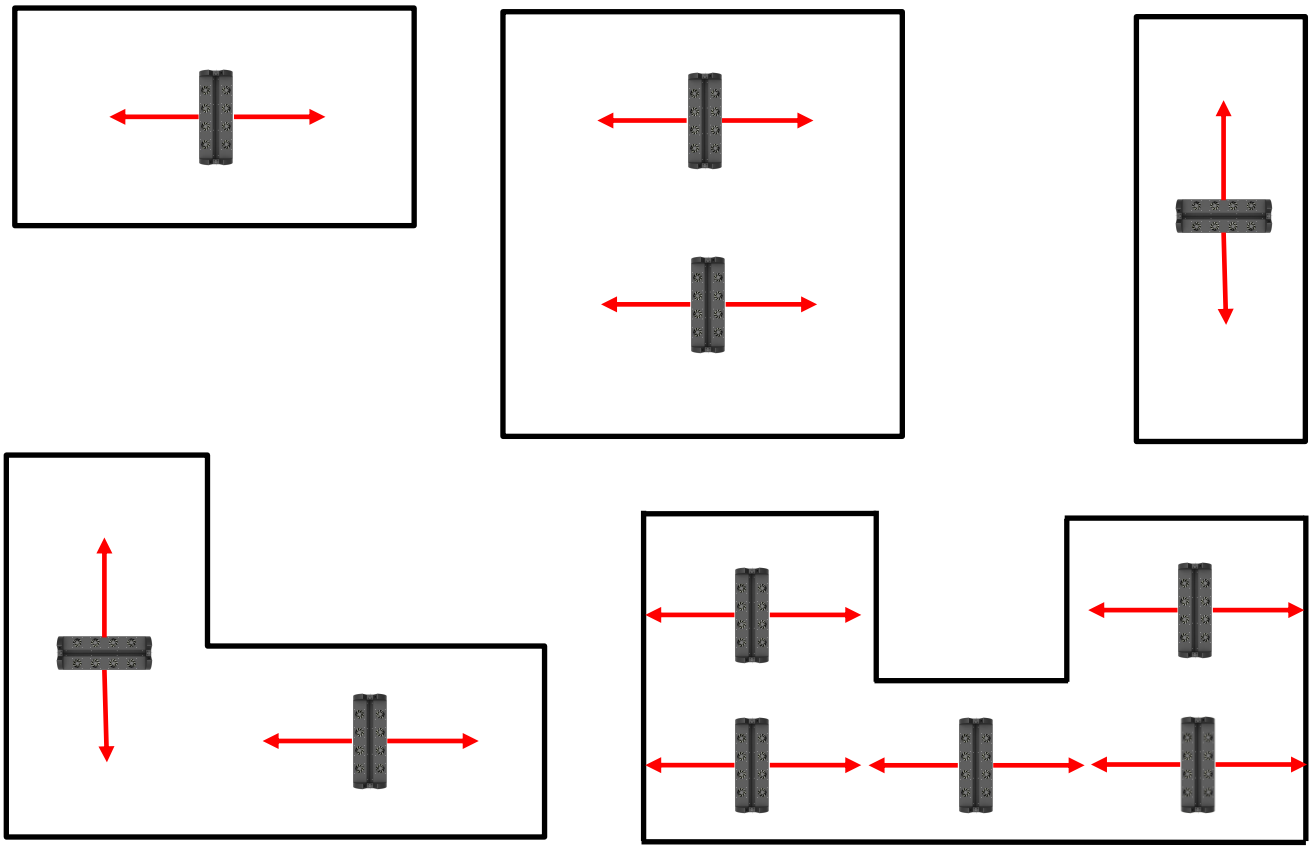
Site Planning: Installation Considerations

Room Size

As a general guideline, one Sanilume KT36-75 (75-watt lamp) can disinfect approximately 400 sq. ft. (37.16 sq. m.) regardless of ceiling height, as Sanilume fixtures have adjustable apertures to emit more UVC light as ceiling heights increase. (the installation instructions explain setting the adjustable aperture for different ceiling heights) KT36-40 (40-watt lamp) can disinfect approximately 250 sq. ft.

Sanilume Orientation In Rooms

As a general guideline, the apertures that emit the UVC light should face towards the longest dimension of the space in a single room. For multiple fixtures in a space of various layouts and dimensions, more light is emitted from the aperture sides of the fixture than the ends (as shown on the top view diagram on page 3) so the fixture should be oriented to maximize the UVC light distribution in each space. Below are some examples.

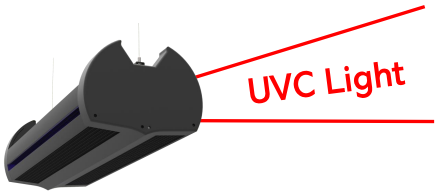


Site Planning: Line-Of-Sight

Light Degradable Materials: UVC light can degrade plastics, fabrics and other light degradable materials. Any such materials that are within approximately 20 ft of the fixture and 7 ft. above the floor may degrade over longer periods of time.

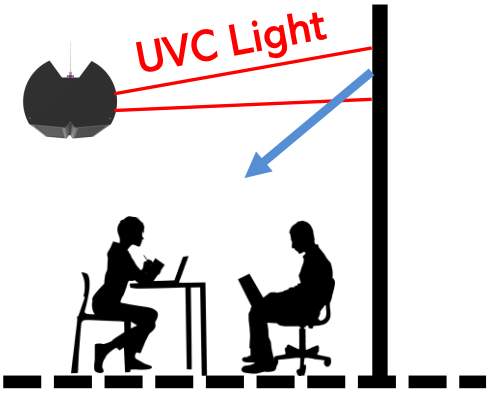
Occupant Contact: Care must be taken that the UVC energy fields not be in any line-of-sight conditions of any room occupants. Although occupants below 7 ft from the floor will be safe from UVC over exposure, situations can occur where UVC energy may contact room occupants such as **stairs, escalators, split-level rooms and rooms with sloped ceilings.**

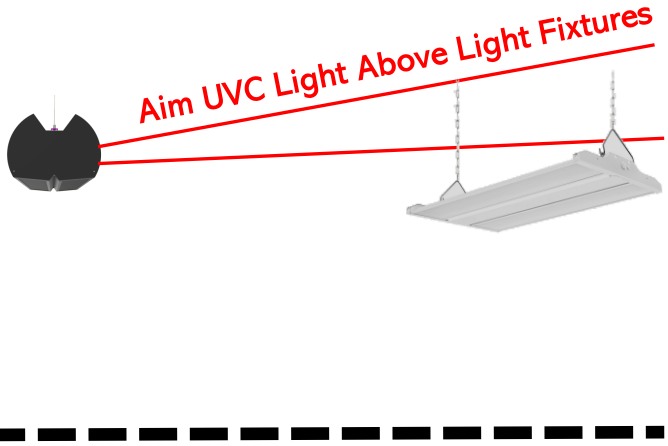
Avoid Any Potential UVC Contact By Room Occupants



Glass: UVC is blocked by glass, so occupants in spaces with glass walls will be protected from UVC exposure

Reflections: UVC will reflect off walls and ceilings. Ceiling reflections will be discussed in the installation instructions in conjunction with the adjustable apertures and mounting height. Wall reflections can potentially cause UVC exposure thresholds to be exceeded if the fixture is mounted too close to a wall. Avoid this situation and check the UVC intensity with a spectrometer (to be discussed) near any walls. Sanilume should be mounted to avoid having direct UVC light beams hitting any hanging light fixtures. Reflected UVC may cause unsafe levels below 7 ft., and also UVC could degrade any plastic parts on the light fixtures over time.





Site Planning: Electrical

Voltage: Verify the voltage in the electrical circuits supplying the fixtures. Sanilume comes standard with a universal input voltage of 110-277 VAC. A 347VAC input option is available.

Circuits: All Sanilume fixtures need to be on a separate dedicated circuit so that they may be turned off for fixture maintenance, building maintenance, and emergency situations. The wall switches need to be **readily accessible and clearly marked** so that the fixtures may be turned off when required.

Lamps: Frequent on/off cycling of UVC lamps significantly lowers the lifespan of the lamp. It is recommended that the fixtures be left on 24/7 and the lamps be changed once per year.

Sanilume Model Choice: The Sanilume KT36-75 has a 75-watt UVC lamp, and the Sanilume KT36-40 has a 40-watt UVC lamp. **Spaces that have walls within 10 ft. of the fixture (not recommended) should use the KT36-40** to avoid wall reflections that may exceed safety thresholds. In general, the higher the UVC output, the greater the efficacy. **We recommend the 75-watt KT36-75 version unless wall reflections are an issue.**

Installation: Sanilume fixtures have a configuration like that of standard pendant light fixtures. The mounting and electrical hookup is essentially the same. Qualified electricians should have no problem installing Sanilume fixtures. Please consult our installation manual and video. All necessary hanging hardware for drywall ceilings or suspended ceilings is included with every Sanilume. (electrical connection hardware such as junction boxes, branch circuit wiring etc. are not included)

UVC Checking: During installation, the UVC intensity levels need to be verified below 7 ft. and at any areas of concern such as walls and stairs as previously discussed. A calibrated hand-held spectrometer will be required to do so. We highly recommend that the end user purchase their own spectrometer so that UVC levels may be verified on an ongoing basis.

Site Planning: Fixture Mounting Heights & Aperture Adjustment

The **Sanilume** fixture is recommended for use in rooms with a ceiling height of 9 feet or more and where occupants remain for prolonged periods. **The minimum ceiling height under any circumstances is 9 ft with a fixture mounting height of 7' 9" from the finished floor to the bottom of the fixture.**

Mounting Height & Ceiling Reflections

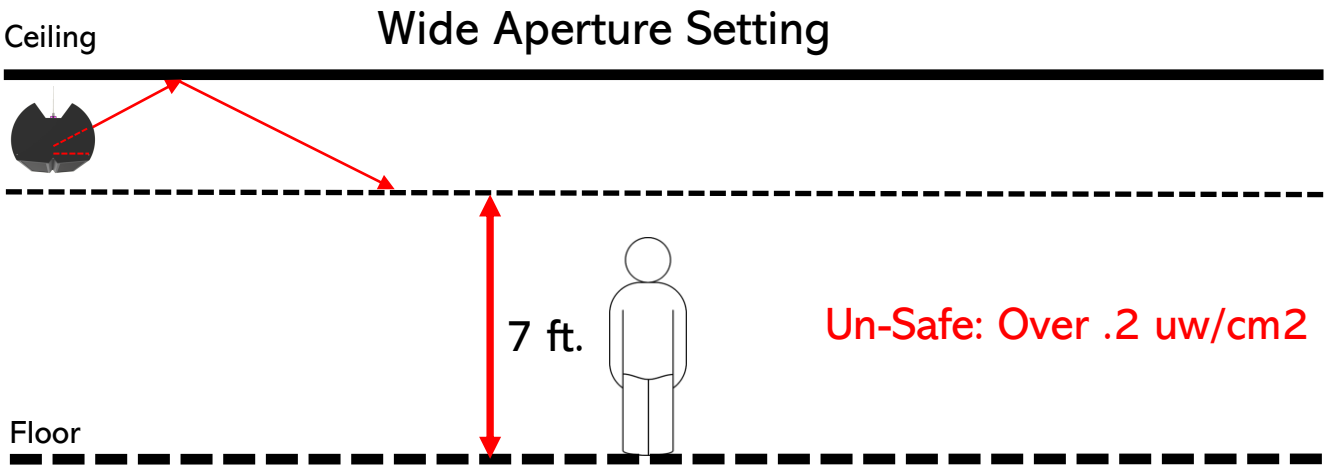
1. **The minimum ceiling height for Sanilume installation is 9 ft.**

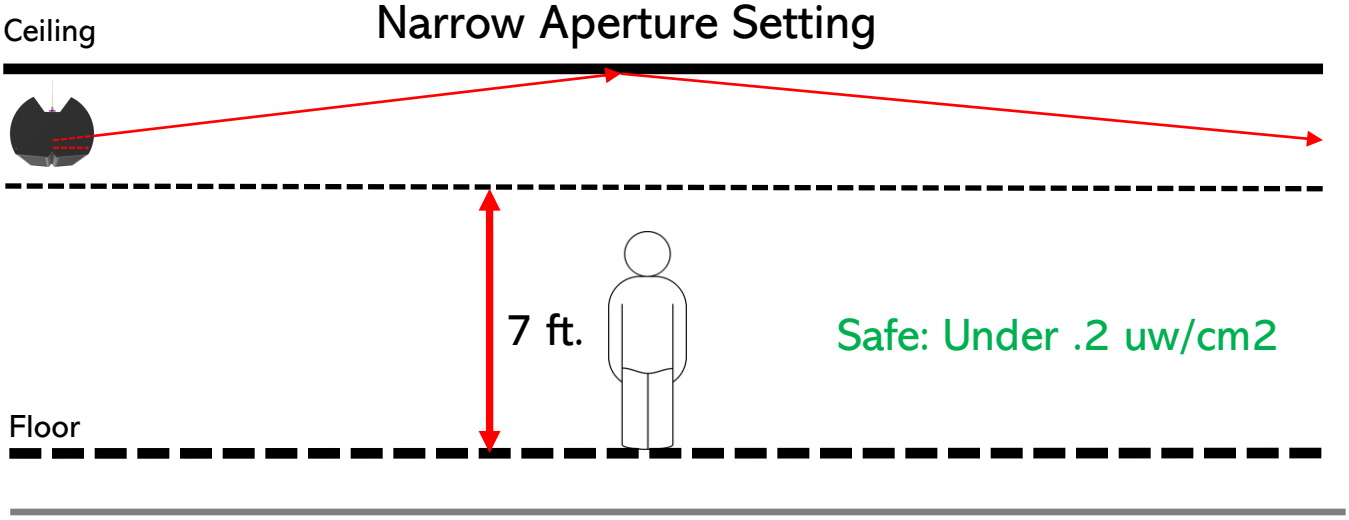
2. Sanilume fixtures come from the factory set for a ceiling height of 9', with their apertures set to the 4th hole and a mounting height of 7' 9" from the finished floor to the bottom of the fixture tip. Table 1 shows the recommended mounting heights and aperture settings for various ceiling heights. These settings were calculated using a Sanilume SL-36KT-75 in a room having a suspended ceiling grid with ceiling tiles. Measurements using a laboratory quality UV irradiance meter were taken, with the readings being under .2 uw/cm2 below 7 ft. in height from the finished floor.
   Important Note: There are wide variations in reflectivity between different ceiling surfaces which will affect the amount of UVC that is reflected downwards towards room occupants. It is mandatory to verify that the maximum UCV irradiance levels are below .2 uw/cm2 at any place in the room below 7 ft. in height from the finished floor.

3. The aperture settings on Sanilume fixtures dictate both the amount of UVC emitted from the fixture and the upward angle of distribution. As the aperture is opened, UVC output increases, and the beam width is increased (the angle of the upper side of the beam increases). Accordingly, a wider aperture will cause more UVC energy to strike the ceiling and at steeper angles, which will increase the UVC levels below the fixture. This can cause unsafe levels of UVC below the 7 ft. height if the aperture setting are too wide and/or the ceiling reflectivity is too high.

Site Planning:

Fixture Mounting Heights & Aperture Adjustment





Site Planning: Fixture Mounting Heights & Aperture Adjustment

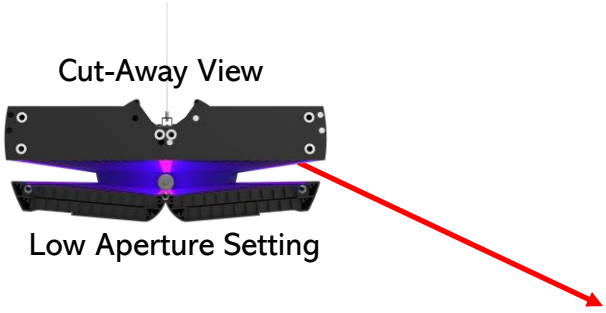
Thoroughly Review The Site Planning Guide Before Beginning. There are many factors that must be considered before installating Sanilume fixtures.

General Rule #1. The optimal Sanilume mounting height for spaces with higher ceiling heights will be the height that maximizes the irradiated space above the Sanilume, while not exceeding the irradiance thresholds below 7 ft. If the fixtures need to be mounted higher for aesthetic reasons, the effectiveness of the fixture may be a bit lower, but will still give excellent performance.

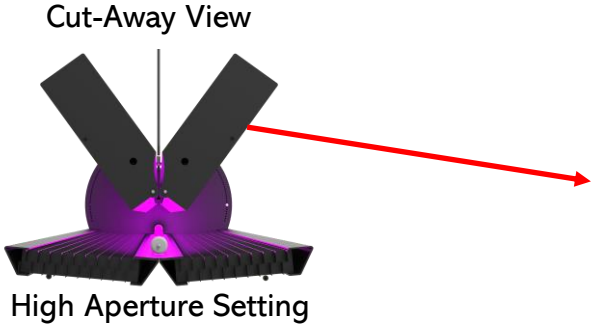
General Rule #2. If the ceiling reflections are too high, lower the aperture setting.

General Rule #3. If the reflections from the top louvers in the fixture are too high, then raise the Sanilume closer to the ceiling.

Low Aperture Setting. A small amount of UVC reflects downwards from the top louvers. For a 9 ft. ceiling height and the bottom of the fixture mounted at the recommended 7' 9" from the floor, the maximum UVC reflections will be in the safe range.



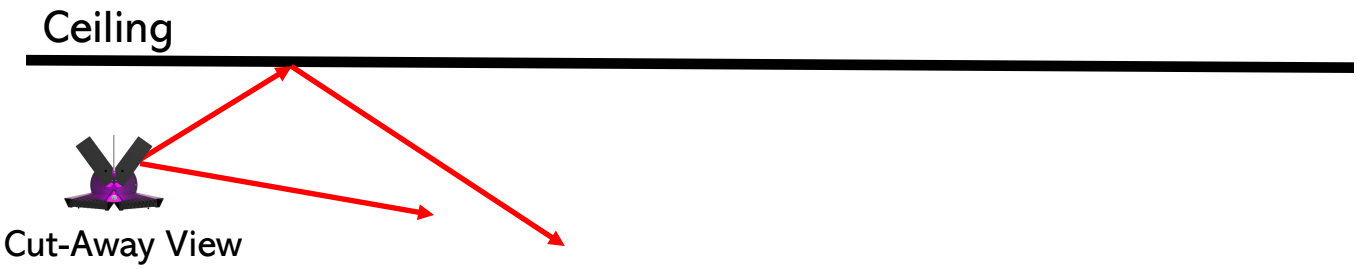
High Aperture Setting. When the apertures are fully open, the fixture will reflect a lot more UVC at a much more shallow angle and much further out from the fixture. High aperture settings require high ceiling heights.



Site Planning: Fixture Mounting Heights & Aperture Adjustment

Ceiling reflections. Reflective ceiling and exposed duct materials such as aluminum will greatly increase the potential for ceiling reflections being at an unsafe level. In such cases, ceiling to fixture distances can be increased and the aperture can be at a lower opening setting.

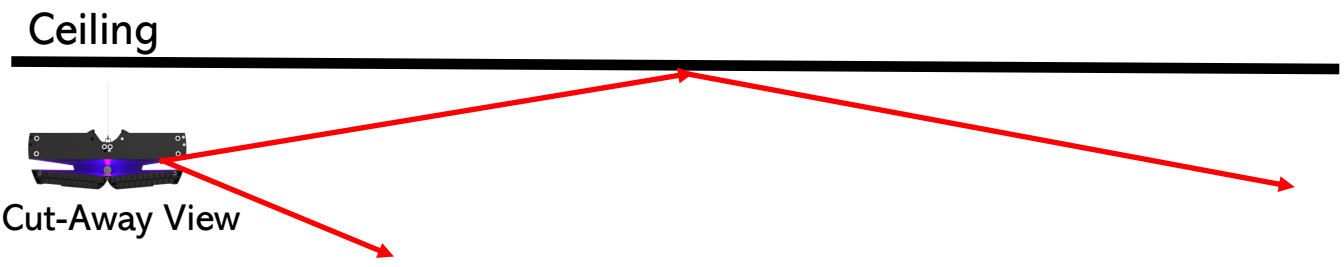
Suspended Light Fixtures. Suspended light fixtures near the Sanilume and in line-of-sight of the UVC can reflect UVC downwards. It may be better to mount Sanilumes above any suspended light fixtures.



Cut-Away View

With low ceiling heights (9 ft. min) and a high aperture setting, the ceiling reflections will be relatively steep, which will cause a shorter travel distance with much higher UVC reflected intensity closer to the fixture. This would cause unsafe levels below 7 ft from the floor with lower ceiling heights.

Floor



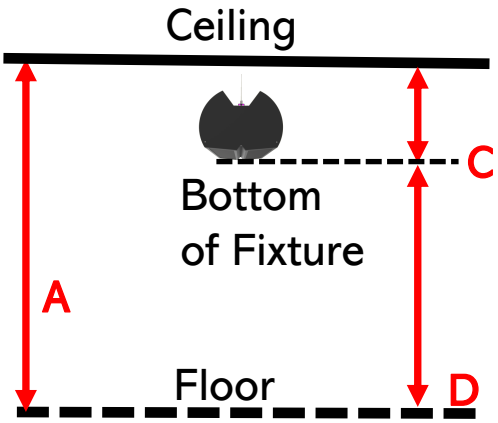
Cut-Away View

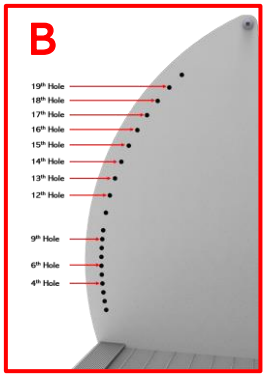
With low ceiling heights (9 ft. min) and a low aperture setting, the ceiling reflections will be relatively shallow, which will cause a longer travel distance with lower UVC reflected intensity further out from the fixture.

Floor

Fixture Mounting Heights & Aperture Adjustment

Aperture Adjustment & Mounting Height





The fixture will come from the factory with the apertures set at a factory recommended setting for the minimum ceiling height of 9 ft, with the aperture screws installed on the 3rd hole from the bottom of the aperture, and a recommended mounting height of 7' 9" from the finished floor to the bottom tip of the fixture.

Table 1

Ceiling Height "A"	Aperture Screw Hole "B"	Ceiling to Bottom of Fixture "C"	Floor to Bottom of Fixture "D"
9'	3	1' 3"	7' 9"
9'6"	4	1' 6"	8'
10'	5	1' 9"	8' 3"
10'6"	6	2'	8' 6
11'	7	2' 3"	8' 9"
11'6"	7	2' 6"	9'
12'	8	3'	9'
12'6	9	3' 6"	9'
13'	10	4'	9'
14'	11	5'	9'
15'	12	6'	9'
16'	13	7'	9'
17'	14	8'	9'
18'	15	9'	9'
19'	16	10'	9'
20'	17	11'	9'
21'	18	12'	9'
22'	19	13'	9'
FOR CEILING HEIGHTS ABOVE 11' 6": FLOOR TO BOTTOM OF THE FIXTURE "D" SHOULD STAY AT 9' FOR CEILING HEIGHTS ABOVE 22': APERTURE SCREW HOLE "B" SHOULD REMAIN AT 19 FOR CEILING HEIGHTS IN BETWEEN THOSE SHOWN, CHOOSE THE NEXT CLOSEST SETTING			

If UVC levels exceed the safety limits, please make the appropriate adjustments.

Important Note: The fixture mounting heights and aperture settings in Table 1 are **recommended** setting only. The user/installer is responsible for ensuring that UVC levels are safe in occupied spaces.

Site Planning: Fixture Quantity Estimation

Below is a copy of our Excel Site Planning spreadsheet. You can download this from our website sanilume.ca under the "Resources" section.

SaniLume	Estimated Requirements				
AREA #1:	CEILING HEIGHT:	**347V Y/N**	**SQ. FT.**	**QTY 40W**	**QTY 75W**
KT36-40 14 WATTS UVC, 54 WATTS POWER - 100-277 VAC					
KT36-75 23 WATTS UVC, 98 WATTS POWER - 100-277 VAC					
AREA #2:	CEILING HEIGHT:	**347V Y/N**	**SQ. FT.**	**QTY 40W**	**QTY 75W**
KT36-40 14 WATTS UVC, 54 WATTS POWER - 100-277 VAC					
KT36-75 23 WATTS UVC, 98 WATTS POWER - 100-277 VAC					
AREA #3:	CEILING HEIGHT:	**347V Y/N**	**SQ. FT.**	**QTY 40W**	**QTY 75W**
KT36-40 14 WATTS UVC, 54 WATTS POWER - 100-277 VAC					
KT36-75 23 WATTS UVC, 98 WATTS POWER - 100-277 VAC					
AREA #4:	CEILING HEIGHT:	**347V Y/N**	**SQ. FT.**	**QTY 40W**	**QTY 75W**
KT36-40 14 WATTS UVC, 54 WATTS POWER - 100-277 VAC					
KT36-75 23 WATTS UVC, 98 WATTS POWER - 100-277 VAC					
AREA #5:	CEILING HEIGHT:	**347V Y/N**	**SQ. FT.**	**QTY 40W**	**QTY 75W**
KT36-40 14 WATTS UVC, 54 WATTS POWER - 100-277 VAC					
KT36-75 23 WATTS UVC, 98 WATTS POWER - 100-277 VAC					
AREA #6:	CEILING HEIGHT:	**347V Y/N**	**SQ. FT.**	**QTY 40W**	**QTY 75W**
KT36-40 14 WATTS UVC, 54 WATTS POWER - 100-277 VAC					
KT36-75 23 WATTS UVC, 98 WATTS POWER - 100-277 VAC					
AREA #7:	CEILING HEIGHT:	**347V Y/N**	**SQ. FT.**	**QTY 40W**	**QTY 75W**
KT36-40 14 WATTS UVC, 54 WATTS POWER - 100-277 VAC					
KT36-75 23 WATTS UVC, 98 WATTS POWER - 100-277 VAC					
AREA #8:	CEILING HEIGHT:	**347V Y/N**	**SQ. FT.**	**QTY 40W**	**QTY 75W**
KT36-40 14 WATTS UVC, 54 WATTS POWER - 100-277 VAC					
KT36-75 23 WATTS UVC, 98 WATTS POWER - 100-277 VAC					
AREA #9:	CEILING HEIGHT:	**347V Y/N**	**SQ. FT.**	**QTY 40W**	**QTY 75W**
KT36-40 14 WATTS UVC, 54 WATTS POWER - 100-277 VAC					
KT36-75 23 WATTS UVC, 98 WATTS POWER - 100-277 VAC					
AREA #10:	CEILING HEIGHT:	**347V Y/N**	**SQ. FT.**	**QTY 40W**	**QTY 75W**
KT36-40 14 WATTS UVC, 54 WATTS POWER - 100-277 VAC					
KT36-75 23 WATTS UVC, 98 WATTS POWER - 100-277 VAC					
TOTAL KT36-40					
TOTAL KT36-75					

Installation Accessory Kit: What's Included

1. UVC Meter
2. 7 ft. Collapsible Rod for UVC Meter Sensor Mounting
3. Digital level
4. Eye & Face Protection
5. Protective Gloves
6. Aperture Pins (to hold an aperture open during installation and maintenance)
7. Denatured Alcohol

Mounting Hardware Kit: What's Included

1. 2 x 1/16" Aircraft Cables
2. 2 x T-Bar Hangers (15/16")
3. 2 x ¼-20 Bolts/Nuts for Hangers
4. 2 x 5" Canopies
5. 2 x Bracket Bars With ¼" Studs
6. 2 x Cable Couplers For Canopies
7. 1 x Cable Gland For Canopy
8. 4 x Cable Ties
9. UVC Measurement Quick Start Guide
10. Guide to: Safety Precautions,
    Site Planning,
    Installation,
    Operation,
    Maintenance

Installation Instructions

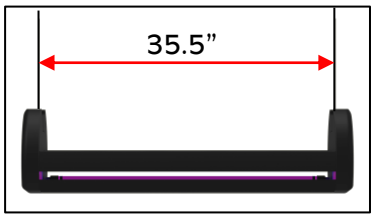
Fixture Placement

Please review the section on site planning for fixture placement, orientation etc. The **Sanilume** fixture is recommended for use in rooms with a ceiling height of 9 feet or more and where occupants remain for prolonged periods. **The minimum ceiling height under any circumstances is 9 ft, and a mounting height of 7' 9" from the finished floor to the bottom of the fixture.**

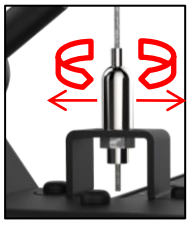
Installation

In most respects, the installation of Sanilume fixtures is the same as that of pendant style light fixtures along with the following information below. Please use Table 1 for the recommended mounting heights and aperture settings of the fixture for various ceiling heights.

1. The mounting distance between the cable hangers is 35.5". Attach the junction box and mounting hardware accordingly. Complete the electrical connection using a qualified electrician and adhering to all pertinent local codes. The one or more Sanilume fixtures should be wired on a dedicated circuit with a dedicated on/off switch. Before installation, verify the input voltage ratings of your fixture match that of the build mains supply.



2. Install the supplied mounting hardware on the ceiling and make all necessary electrical installations as required by your local electric codes. Two 15' lengths of 1/16" aircraft cable should be hanging from the ceiling. Thread one of the cables through one of the Griplock grippers and pull the end with a needle nose plyer towards the center of the fixture. Do the same for the other end of the fixture.



Side-To-Side Level Adjustment

3. Raise the fixture to approximately the calculated height while pulling the cable through the grippers. Fine tune the fixture height so the bottom tip of the center of the fixture is at the correct distance from the ceiling. Using an accurate level as shown, set the end-to-end incline adjustment to zero by adjusting the aircraft cable length to the grippers. **Make sure the fixture height remains at the proper height. Warning: It is important for occupant safety that the fixture be perfectly level to insure the UVC distribution is correct.**

4. Using the level as shown on the non-power feed end of the fixture, check the side-to-side level. Although it is set from the factory, it is important to check. If adjustments are needed, loosen the gripper by twisting the knurled gripper housing (see photo above) and sliding the gripper the appropriate direction on the mounting bracket until the side-to-side incline is zero, and repeat the procedure for the other end of the fixture if necessary. **Important Note: Both aperture settings have to be the same, otherwise the fixture will not be level side-to-side Warning: Make sure the grippers are retightened! Warning: It is important for occupant safety that the fixture be perfectly level to insure the UVC distribution is correct!**

Mandatory UVC Measurements

Handheld radiometers are used to measure irradiance for a safe occupant levels of UVC. After fixture installation, it is mandatory to check UVC levels to ensure no UVC level is above the accepted threshold of safety anywhere in the room below 7 ft. in height above the floor.

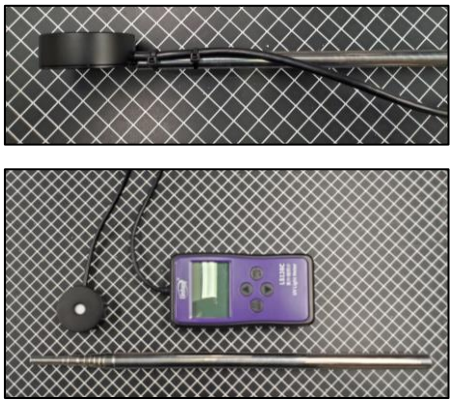
UVC Measurement—direct human exposure to ultraviolet germicidal irradiation exceeding the Threshold Limit Value (TLV) of effective irradiance of .2 uw/cm2 per 8 h established by the ACGIH can result in painful eye and skin irritation. This limit can be reached within a few seconds or accumulated over several hours if proper precautions are not followed to limit exposure. The cornea of the eye is the most sensitive organ to GUV over exposure, therefore, for lower room safety, in most cases irradiance should be no more than 0.2 µW/cm2 below 7 ft. in height above the finished floor anywhere in the room.

1. UVC measurements should be taken:

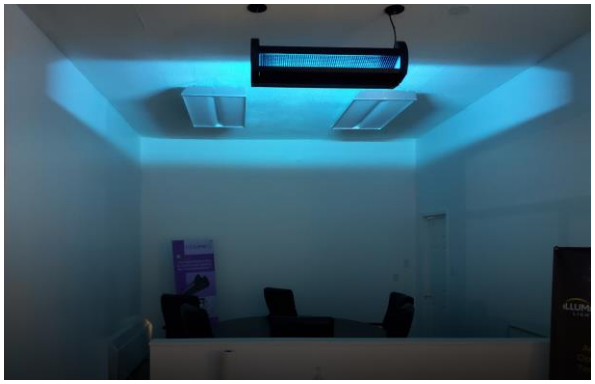
- At initial installation
- Whenever new tubes are installed (newer tube designs may have increased irradiance)
- Whenever modifications are made to the upper-room GUV system or room (e.g., adjustment of fixture height, location or position of louvers, addition of UV-absorbing or -reflecting materials, room dimension changes, modular partition height changes)
- Whenever the upper-room GUV fixtures are cleaned
- Whenever any complaints of possible overexposure are received

Preparation:

2 a. Remove the cap the cap from the sensor if there is one. Using the cable ties, attach the sensor to the end of the telescoping rod from the installation kit. The white center of the sensor should be facing horizontally when the stick is held vertically as shown. Set the rod length to 7 ft. from the bottom tip to the center of the white sensor.



b. Put on eye/face protection.



UVC Visual Check

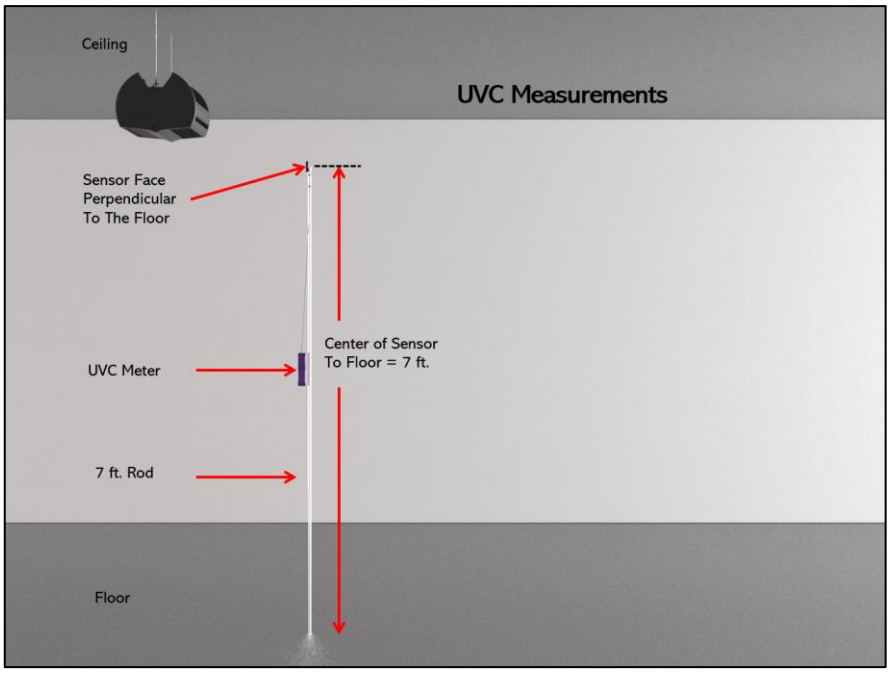
Although 254 nm light cannot be seen, germicidal lamps emit a small amount of blue light as well. It is recommended that the installer check the UVC distribution with the lights out to verify there are no line-of-sight obstructions or degradable materials withing the UVC beam. As shown above, the main UVC distribution pattern can be readily seen.

Mandatory UVC Measurements

Make measurements with the sensor face at a 90-degree angle to the ceiling and floor and positioned in the center of the fixture
(maximum UVC output). To test for proper UVC output, at a distance of 1 M from the center of the fixture raise the sensor into the UVC beam and find the maximum reading. For the Sanilume SL-36KT-75, the reading should be about 240 uw/cm2, and 140 uw/cm2 for the SL-36KT-40.

To test for safety:

- Measure every 3 ft. back from the fixture, up to 15 ft.
- Measure near walls
- Measure near any obstructions/protrusions that intersect with the UVC beam



IF ANY READING IN THE ROOM IS ABOVE .2 UW/CM ANYWHERE ABOVE 7 FT. IN HEIGHT FROM THE FINISHED FLOOR, ADJUSTMENTS MUST BE MADE.

1. Check the side-to-side level. If the apertures are not set the same or the power cable is pulling on the fixture, the level will be off.

1. If the reading that is too high is at the location where the UVC is being reflected down from the inside the fixture (about 3-7 ft from the fixture) First, try and raise the fixture by 1 or 2 inches. Recheck the level and retest.

2. If the high readings are caused by ceiling reflections, then lower the aperture setting as previously described.

Maintenance Instructions

Personal protection equipment, such as gloves; long sleeves with no gaps between cuffs and gloves, and ultraviolet resistant face shield, are **required** when entering the irradiated space, above 6 ½ feet from the floor, with the germicidal lamp operating.

WARNING **Always disconnect power to the fixture before performing any service or maintenance. Ultraviolet rays are harmful to the eyes and skin.**

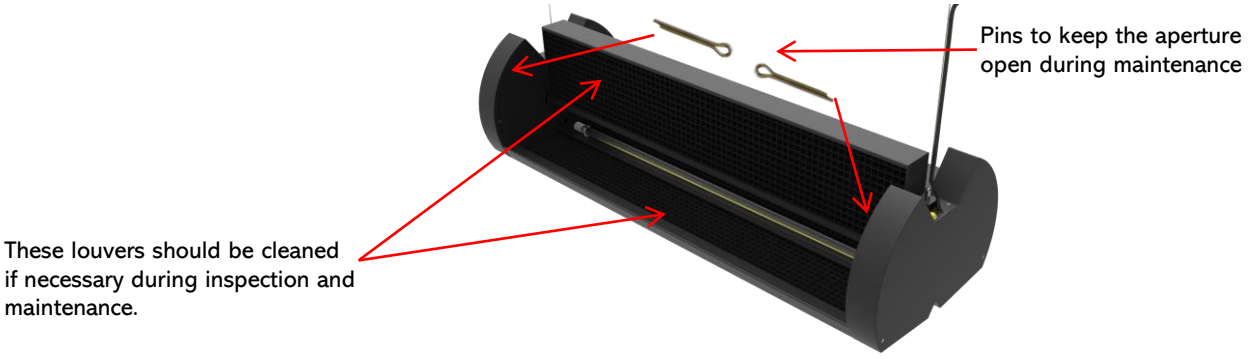
- The **Sanilume** is designed to operate with a minimal amount of maintenance. Occasional ultraviolet measurements **MUST** be made to ensure that germicidal ultraviolet intensities in the treated areas remain within the allowable exposure limits and above minimum levels.
- A regular cycle of cleaning the ***Sanilume*** Germicidal Lamp, egg crate louvers and fans must be established based on visual inspection and experience. The frequency of cleaning will vary with the conditions surrounding each installation. It is recommended that the ***Sanilume*** be cleaned at least once every six (6) months.
- The ***Sanilume*** Germicidal Ultraviolet Lamp used in the **Sanilume** fixture has a manufacturer's rated average effective life of 10,000 hours. Lamps may operate longer than the rated effective life, but the reduction in ultraviolet output will make it impractical to use past the manufacturer's rated life. For maximum efficiency, lamp replacement is recommended every 10,000 hours of operation or about 3 years of 8 hours/day/7 days/week. **We recommend that lamps are replaced every year.**
- **Unless lamp replacement is due to failure or breakage, it is recommended that all lamps be replaced at the same time.**

Lamp Installation, Cleaning or Replacement

IN ORDER TO PERFORM THIS TASK, BE SURE TO WEAR THE FOLLOWING SAFETY EQUIPMENT: SAFETY GLASSES OR A FACE SHIELD, AS WELL AS GLOVES.

WARNING **Always disconnect power to the unit before performing any service or maintenance. Ultraviolet lamps are easily damaged and may cause injury if broken. Exercise care when handling.**

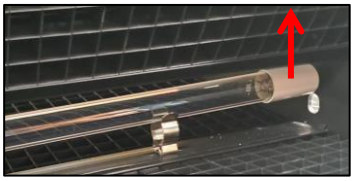
1. WARNING Shut down power to the fixture.
2. Raise up one of the fan trays up and insert the pins to keep the aperture in the up position.

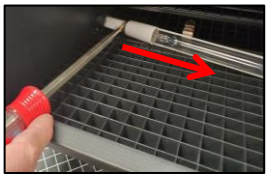


Maintenance Instructions

Lamp Removal

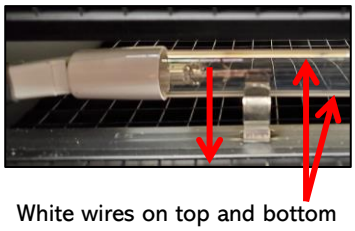
1. Pry the lamp upwards using a screwdriver beneath the plastic lamps ends to remove the lamp from the lamp holder clips. This must be done very gently! To remove the lamp from the connector, use the screwdriver to pry the lamp connector away from the lamp.

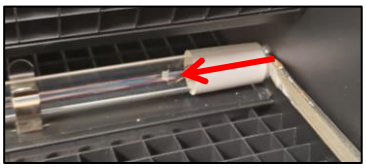




Lamp Installation

1. To install lamp, push the lamp connector onto the lamp pins. If its not fully seated, it can be pushed in at the end of the procedure. Align the white wires on the outside of the lamp so that they are at the top and bottom of the lamp. Carefully snap the lamp onto the lamp holder clips, starting with the connected end, making sure the white wires go between the lamp clips and do not get snagged on the clips.
2. Verify that lamp is properly seated. If not, use a screwdriver at the end opposite of the connector.
3. Close fixture to its operating position.
4. Once the Sanilume is powered on, verify operation by viewing the fixture from below and checking for a blue glow.


White wires on top and bottom

If The Lamp Gets Broken


Broken Quartz is SHARP. Wear protective gloves when handling broken ultraviolet lamp(s). In the event of breakage, **DO NOT** use a household vacuum cleaner to pick up fragments of the lamp. Sweep up debris into a plastic bag and dispose of properly.

Disposal of Mercury Lamps

Germicidal ultraviolet lamps, like standard fluorescent lamps contain small amounts of mercury. Mercury added lamps should not be placed in the trash. Dispose of properly. For further information regarding the disposal and recycling of lamps containing mercury, consult the Federal and Provincial/State requirements.

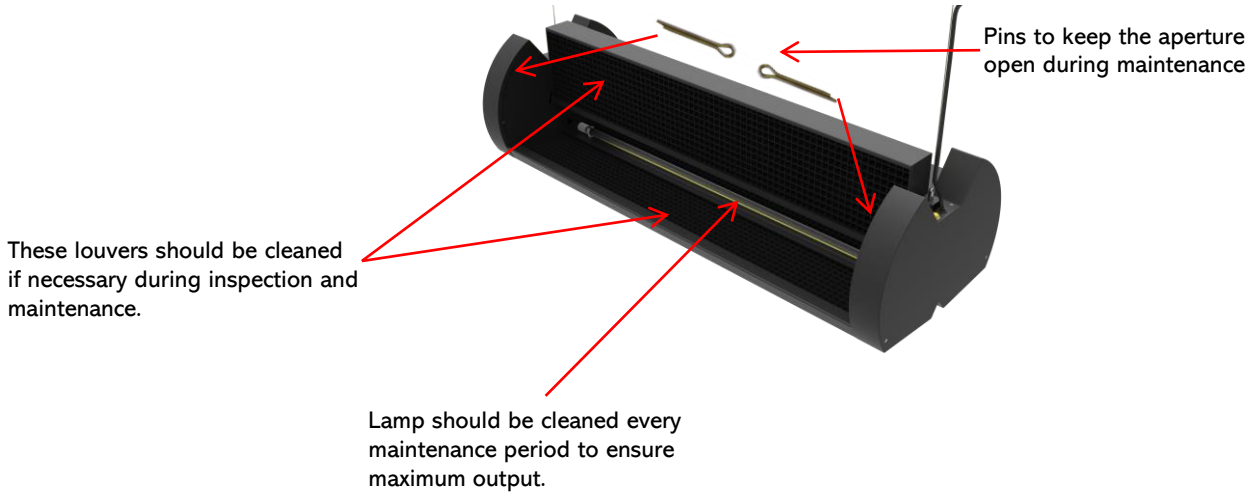
Maintenance Instructions

Cleaning

1. WARNING **Shut down power to the fixture.**

2. Raise up one of the fan trays up and insert the pins to keep the aperture in the up position. If cleaning is indicated, the bottom egg crate lovers can be dusted from both sides, and the top louvers can be dusted from the bottom only. Compressed air cans can be used as well. Inspect the fans and dust them if needed. Repeat the procedure with the opposing side of the Sanilume.

3. Moisten a clean, lint-free cloth with denatured alcohol and wipe down the outer surface of the lamp.



ILLUMISOFT LIGHTING

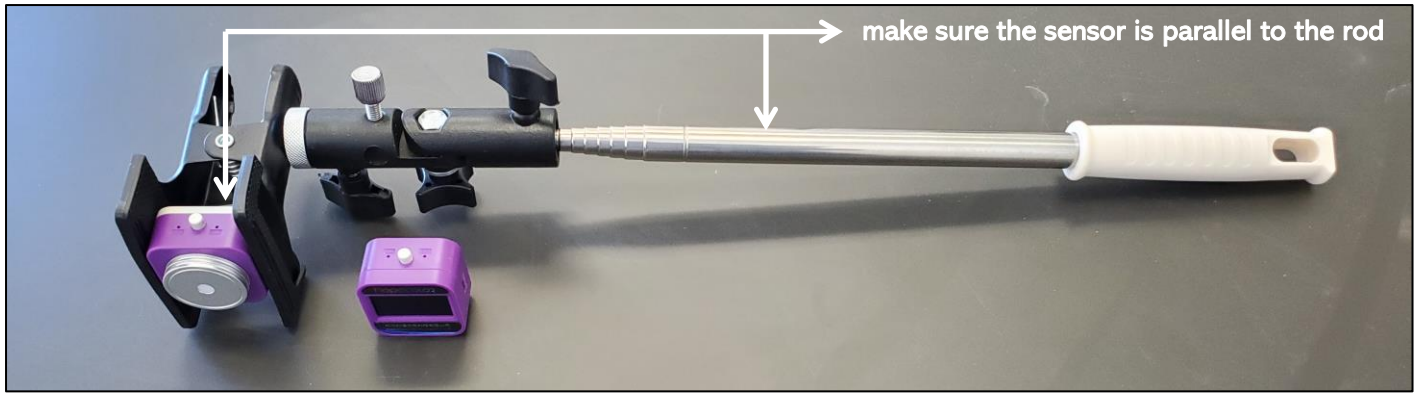
Illumisoft Lighting Canada Ltd.
160 Spruce St.
Ottawa ON K1R 1C6
Canada

SaniLume

UVC Measurement Quick Start

SaniLume

Note: Consult the owners manual for complete installation instructions, testing information and important safety precautions!

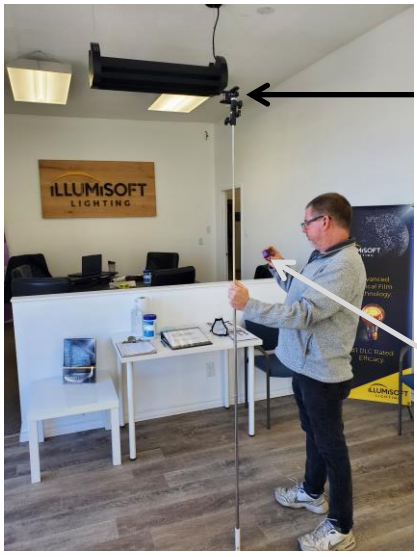


1. Push the white button on the sensor and the receiver to turn them on.
2. Wait for the two units to automatically Bluetooth pair.
3. When the display looks like that shown below with a star flashing on the right side of the screen, you are ready to go. Make sure the display looks the same and the units are uw/cm2.

Flashing star
Uw/cm2

When you are finished, power off the units: hold each white button down until the LEDs go out.

A USB charger cord is supplied to charge the batteries on both the receiver and sensor.



Sensor Face Perpendicular To The Floor And Facing The Apertures

Center of Sensor To Floor = 7 ft.

UVC Meter

Make measurements with the sensor face at a 90-degree angle to the ceiling and floor and positioned in the center of the fixture (maximum UVC output). To test for proper UVC output, at a distance of 1 M from the center of the fixture raise the sensor into the UVC beam and find the maximum reading. For the Sanilume SL-36KT-75, the reading should be about 240 uw/cm2, and 140 uw/cm2 for the SL-36KT-40.

To test for safety:

- Measure every 3 ft. back from the fixture, up to 15 ft.
- Measure near walls
- Measure near any obstructions/protrusions that intersect with the UVC beam
- Measure directly under the fixture with the sensor facing upwards

If any reading is above .2 uw/cm2, make adjustments and retest.

About

SaniLume

Proudly based in Canada, Illumisoft Lighting has pioneered high efficiency, low glare, soft diffused lighting through the use of advanced optical film technology. With 18 patents and counting, this technology enables their commercial light fixtures to achieve the highest energy efficiency in the world (DLC Qualified Products Listings).

They are now applying their technical expertise to help the world become a safer place to live, work and play.

Contact: **info@illumisoftlighting.com**

Sanilume.ca

By ILLUMISOFT LIGHTING