

## Philips reliability tests

Characteristic checked	Test or inspection items	
<b>Reliability non operational</b>	Temperature cycle	IEC 60068
	Thermal shock	IEC 60068
	Wet High Temperature Storage Life	IEC 60068
<b>Reliability operational module</b>	Power and Temperature Cycling	IEC 60068
	Room Temperature Operating Life time module	IEC 60068
	High Temperature Operating Life LED	IEC 60068
	Room Temperature Operating Life time LED	IEC 60068
	Switching cycles	
<b>Design in</b>	Thermal management	
	Corrosion Test	
	Field tests	
	Microbiological performance	
	Materials release in appliance	
<b>Mechanical tests/ water sealing</b>	Sinusoid vibration	JESD 22-B103
	Random vibration	JESD 22-B103
	Mechanical impact	
	IP level	IEC 60529:2003
	Low pressure water	
<b>Sustainability</b>	Material compliance with RoHS / Reach	
<b>Electrical safety</b>	IEC 61347	
	IEC 62031	
<b>Electro Magnetic Compatibility</b>	Radiated Electromagnetic Disturbance	EN55015:2013
	Radio Frequency Electromagnetic Field	EN55015:2013
	Electrostatic discharge	EN61547:2009 / EN61000-4-4:2009
	Electromagnetic Field Immunity	EN61547:2009 / EN61000-4-3:2007
<b>Packaging</b>	Drop test	ISO 2248
	Transportation test (for shipped finished products)	
<b>Approbation</b>	CE safety: CB report available	
	UL 979	
	CSA C22.2 No68	
<b>Drinking water and food contact compliance</b>	Closures with sealing gaskets for food containers	21 CFR 177.1210 FDA
	Rubber articles intended for repeated use	21 CFR 177.2600 FDA
	(EC) 1935/2004 and German LFGB	

Data subject to change

### UV-C RISK GROUP 3



**WARNING UV-C** emitted from this product. Avoid eye and skin exposure to unshielded product. Follow application instructions user manual. Not to be used in general purpose lighting fixtures.

**WARNING:** Materials, plants and/or animals that are exposed to UV-C for a long time may become damaged and/or discolored.



**PHILIPS**

NaturalTrust  
UVC LED Module

Philips NaturalTrust  
UVC LED module

The small solution for clean water, air and surface.

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www.philips.com/uvpurification  
3222 635 71385  
MAR 2021



# Philips NaturalTrust UVC LED Module for clean water, air and surface.

## Philips is launching the NaturalTrust range based on UVC LED technology

The Philips NaturalTrust UVC LED Modules are designed to disinfect ambient water (sealed nut & snap version), cold water (sealed nut version with cable) and air & surface (non-sealed version with cable). The UVC LED module emits UVC radiation which deactivates micro-organisms such as bacteria, moulds and viruses to prevent them from growing in the water or on the surface that is irradiated. This way it reduces the presence of unpleasant odors caused by germs accumulating in or on your device, therefore requiring less maintenance. Because of its small size, it fits appliances where conventional mercury discharge lamps cannot be integrated, such as refrigerators, coffee machines, air humidifiers, ice makers etc. It is operating on low voltage DC below 24V so there are no issues with electrical safety in water appliances. In cold conditions such as cold water reservoirs or refrigerators, there is no UVC output drop like with conventional mercury discharge lamps. Successful operation of the UVC LED module has been proven by monitoring microbiological test setups in real environments for several months of continuous operation. This resulted in a 99% reduction of bacteria without the need for cleaning the device.

Features	Benefits
Reduces microbiological contamination by 99%	Clean water, air and surface
Small size	Design flexibility
Instant on/off	Instant disinfection
Silicone snap fit housing*	Plug & play and compact sealed-to-water solution for water disinfection
Low voltage	Safe
No UVC output drop in cold conditions**	Can be used in cold water, refrigerators,...
On board electronics	Output independent from input voltage
Low power	Minimal energy consumption
Contains no mercury	Environmentally friendly

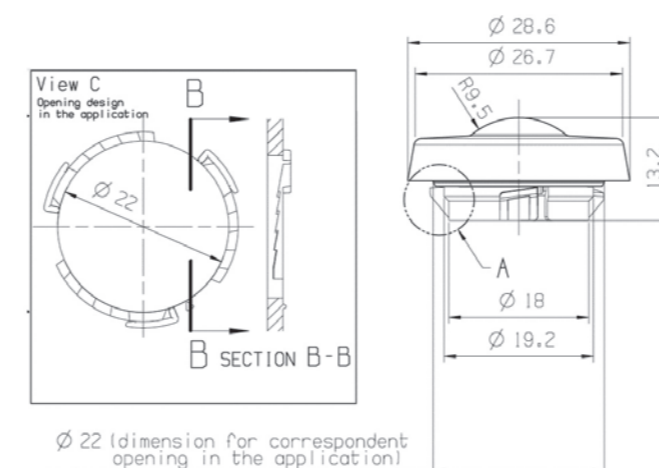
\* only for sealed UVC-LED modules  
\*\* for cable versions only

# Philips NaturalTrust UVC LED Module

## Dimensional drawings

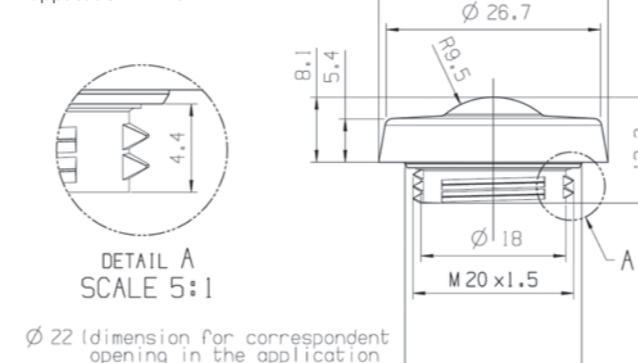
Dimensions in mm

### Sealed snap version

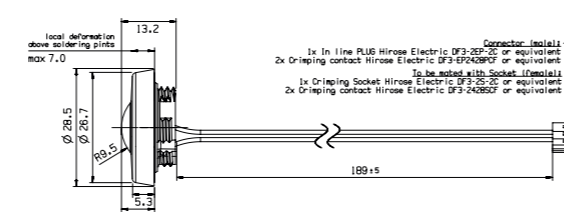


### Sealed nut version

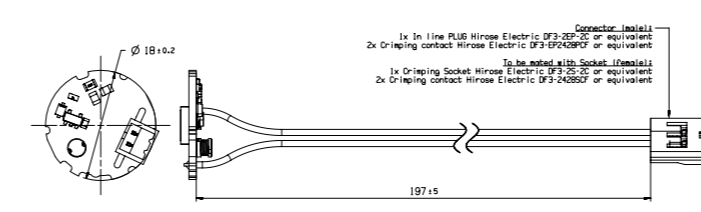
Wall thickness of application: 1.2 - 3 mm



### Sealed cable version



### Non-sealed cable version



## Technical specifications

### Module specifications

Supply voltage	12 – 24 VDC
Input current	Depending on input voltage, max 90mA
Module power consumption	Max 0.8 W
IEC 62031	As 'Built-in LED Module'
UL: Registered Component	UL 979, C22.2 No. 68-09 E338671



UVC LED Module snap version - sealed



## Module performance after 100hr operation

	Philips NaturalTrust UVC LED sealed*	Philips NaturalTrust UVC LED cable	Philips NaturalTrust UVC LED cable sealed
Ordering code	927898620001 (nut) - 927898610001 (snap)	927898650001	927898660001
Silicone sealing	yes	no	yes
Fixation	nut or snap	na	nut*****
Connector	on board**	on cable**	on cable**
UVC output	7,5 mW (@ Tc 70°C)	9,5 mW @ (Tc 70°C)	8 mW (@Tc 50°C)
Max radiation at wavelength	275 nm	275 nm	275 nm
Operation temperature***	Tc max 70°C	Tc max 70°C	Tc max 70°C
UVC maintenance (L70B10)****	7.000 operational hours	9.000 operational hours	10.000 operational hours
Maximum humidity	85%	95%	95%
# Switches	min. 100K	min. 100K	min. 100K
Application	ambient water (>8°C)	air, surface	cold water (< 8°C)

The UVC output does NOT depend on the input voltage.

\* Any water condensation on the pcb is not allowed. Lifetime and UVC output will be negatively influenced when operating in high humidity environment.

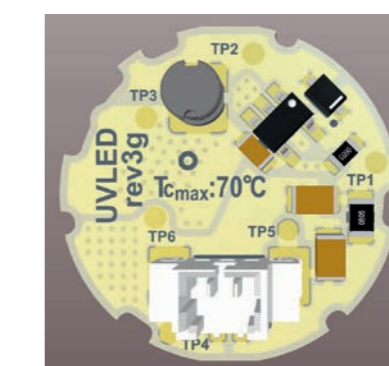
\*\* See design-in guide for details.

\*\*\* Use additional cooling of the device to reduce operating temperature.

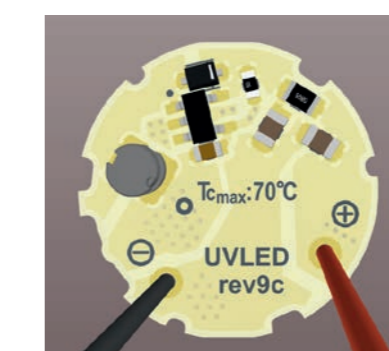
\*\*\*\* 10% of the products will have 70% of the initial UVC output at the declared lifetime. 90% of the products will have higher UVC output. If the module is operated at temperatures above the operation temperature, the L70B10 point may be less than the declared lifetime, and product failures may occur.

\*\*\*\*\* Nut not part of product offering, to be ordered separately (code number: 322201958701).

## Location of Tc

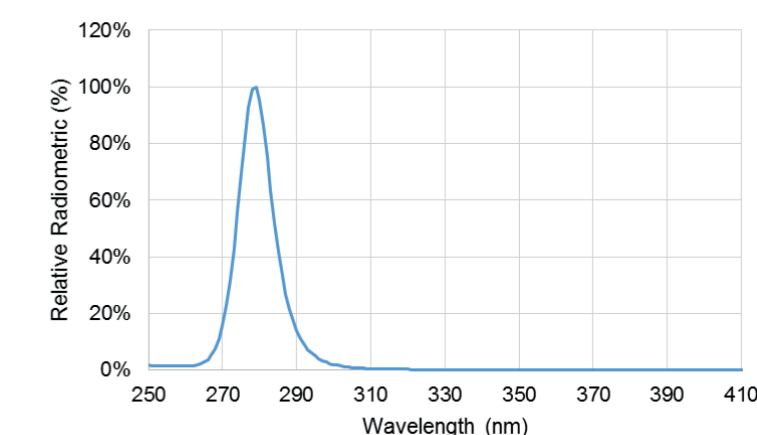


Philips NaturalTrust UVC LED sealed version



Philips NaturalTrust UVC LED cable versions

## Spectral irradiance UVC Module



## Water tightness & dust ingress (sealed versions)

IEC standard 60529	IP68 (from silicone side)
Maximum working pressure	No water leak at 50 psi / 3,5 bar
Cycling water pressure	Tested for 0 mbar / 250 mbar