



**PHILIPS**

UV-C disinfection luminaires

# Disinfection with the power of light

UV-C light is a proven and effective way  
to disinfect air, surfaces and objects

# Absolute confidence, in a world of uncertainty

We are living in unprecedented times. In the face of a global pandemic, the world is demanding a proven and effective way to protect people from harmful micro-organisms.

Bacteria and viruses can cause a wide range of common infections. They can live in air, on surfaces and on objects, even after normal cleaning routines. That means any contamination left behind in the air we breathe and on the surfaces we touch can have a profound effect on our day-to-day health and wellbeing.

## UV-C disinfection

UV-C lighting disinfects radiated air and surfaces which contain bacteria and viruses and helps to reduce them from spreading further. All micro-organisms tested to date respond to UV-C lighting<sup>1</sup>

## Philips UV-C disinfection luminaires

With 35 years of experience in UV-C lighting, we have built up strong application expertise. This has led us to develop a new range of UV-C disinfection luminaires and chambers, ideal for use in offices, retail outlets, factories; in hospitality areas, schools and public washrooms and even on modes of transport such as aircraft, buses and trains.

<sup>1</sup> Fluence (UV Dose) Required to Achieve Incremental Log Inactivation of Bacteria, Protozoa, Viruses and Algae Revised, updated and expanded by Adel Haji Malayeri, Madjid Mohseni, Bill Cairns and James R. Bolton. With earlier contributions by Gabriel Chevretils (2006) and Eric Caron (2006) With peer review by Benoit Barbeau, Harold Wright (1999) and Karl G. Linden.







# Shining a light on UV technology

UV-C radiation is a known disinfectant for air, surfaces and objects that can help mitigate the risk of acquiring an infection.

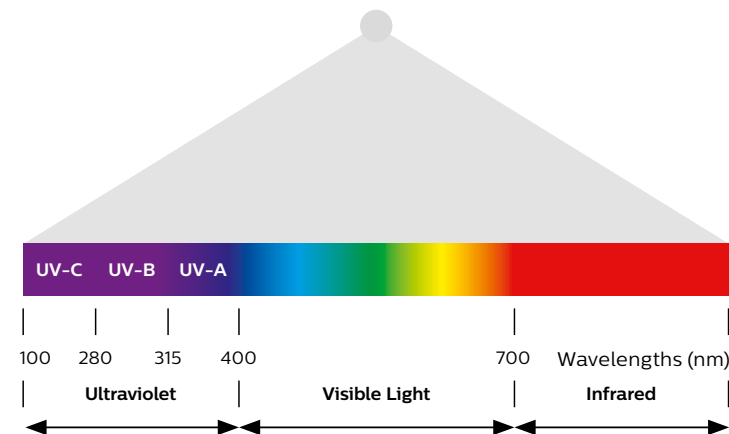
### What is UV technology?

Ultra-Violet (UV) light is invisible to the human eye and is divided into UV-A, UV-B and UV-C.

UV-C is found within 100-280 nm range. The germicidal action is maximized at 265 nm. Philips Low pressure UV-C lamps have their main emission at 254 nm where the action on DNA is 85% of the peak value. As a result, our germicidal lamps are extremely effective in breaking

down the DNA and RNA of micro-organisms. This means that they cannot replicate and cause disease<sup>2</sup>.

The technology has primarily been used in areas where there is a risk of microbiological contamination, and has been used safely and effectively for more than 40 years<sup>3</sup>.



“

Our test results show that above a specific dose of UV-C radiation, viruses were completely inactivated: in a matter of seconds we could no longer detect any virus.”

Dr. Anthony Griffiths, Associate Professor of Microbiology at Boston University School of Medicine

<sup>2</sup> A comparison of pulsed and continuous ultraviolet light sources for the decontamination of surfaces. McDonald K.F., Curry R.D., Clevenger T.E., Unklesbay K., Eisenstark A., Golden J., Morgan R.D. IEEE Trans. Plasma Sci. 2000,28:1581-1587. doi: 10.1109/27.91237.

<sup>3</sup> EPA Report, "Building Retrofits for Increased Protection Against Airborne Chemical and Biological Releases" Pg. 56.



# UV-C Services End-to-end Services Offer

The effectiveness and safe application of a UV-C solution starts with the right application design. We can help with how UV-C lighting can work both for you and your business to:



## Plan and design

Our team will assess your facility to identify potential areas for UV-C, customizing a solution with the right light output, optimum installation position, mounting height, angle and system functionality.



## Build

For total peace of mind we provide end-to-end project management. We supply, deliver, install and commission your UV-C system, so you enjoy a smooth, seamless experience.



## Operate

We'll check your UV-C system is operating correctly on a regular basis, performing irradiation measurements, checking for faults and carrying out preventative checks.



## Maintain and optimize

We can also carry out maintenance and repairs, optimizing your installation, verifying performance and providing fast replacements at the end of your UV-C light's useful life.

# Designed with safety in mind

### Correct usage

Our UV-C products are either provided with physically integrated equipment or time safeguards (such as presence or motion detection sensors or timers) or are to be installed together with the adequate containment safeguards to ensure that our UV-C products can be operated in line with the relevant safety standards. UV-C disinfection luminaires that we provide without physically integrated equipment or time safeguards are meant to be used only as components in disinfection systems that contain the adequate safety safeguards such as, but not limited to, those indicated in the mounting instructions and/or user manuals of such luminaires.



Direct exposure to UV-C is dangerous. Philips UV-C disinfection luminaires must only be sold through qualified partners and installed by professionals according to our stringent safety and legal requirements.



# Professional air, surfaces and objects disinfection

Everywhere it's needed

Philips UV-C disinfection luminaires can be used to disinfect air, surfaces and objects in a wide range of applications. These include hospitality areas, schools and public washrooms. In offices, retail outlets and factories. Even on modes of transport such as aircraft, buses and trains.

For more information on the benefits of Philips UV-C disinfection luminaires in your chosen application, please contact your local Signify representative.

## The power to protect in real-world applications



### Retail

Disinfecting shopping carts, shelves and counters



### Hair and beauty salons

Disinfect client rooms, floor, mirror, chair, counter surfaces and other sensitive areas



### Schools

Disinfect classroom walls, floors, desks and surfaces



### Offices

Disinfect work rooms, meeting spaces and corridors



### Banking

Disinfect counters, cash machines and work surfaces



### Hospitality

Disinfect guest rooms, reception areas and health club facilities



### Food outlets

Disinfect preparation surfaces and equipment



### Washrooms

Disinfect vanity units, basins and mirrors



### Transport

Disinfect interior and exterior surfaces of different vehicles and passengers' waiting spaces



# Philips UV-C disinfection luminaires **The power to protect**

We have more than 35 years of experience and expertise in developing and manufacturing UV-C products. Our Philips UV-C disinfection luminaires portfolio with UV-C lamps deliver on all the promises of UV technology.



Designed for efficacy

All viruses and bacteria tested to date effectively respond to UV-C disinfection.<sup>1</sup>



A lifetime of reliability

Made from durable, UV-C resistant materials, our UV-C solutions are designed to provide reliable disinfection over the useful long lifetime of the lamp and luminaire. This is supported by our stringent manufacturing and testing processes to guarantee the highest quality.



Environmentally friendly

For added peace of mind, all our UV-C solutions are also environmentally friendly. We guarantee that no ozone gases will be emitted during or after use.



Safety in mind

Philips UV-C products are delivered with a range of safeguards and instructions. They come with physically integrated equipment or time safeguards, such as presence or motion detection sensors or timers, or otherwise they are to be installed with containment safeguards to enable correct operation. In addition, we provide extensive training and certification programs to help ensure correct installation, usage and maintenance of our UV-C products.



A wide range of applications

The Philips UV-C disinfection luminaires and components are innovative, high-quality solutions that are suitable for a wide range of applications. This includes upper air systems that disinfect passing air, as well as cabinets that are used to disinfect specific objects.

<sup>1</sup> Fluence (UV Dose) Required to Achieve Incremental Log Inactivation of Bacteria, Protozoa, Viruses and Algae Revised, updated and expanded by Adel Haji Malayeri, Madjid Mohseni, Bill Cairns and James R. Bolton. With earlier contributions by Gabriel Cheverifis (2006) and Eric Caron (2006) With peer review by Benoit Barbeau, Harold Wright (1999) and Karl G. Linden.

# UV-C lighting for commercial applications

Bacteria and viruses are transmitted through the air and via surfaces. We recommend to consider 3 main types of Ultraviolet Germicidal Irradiation (UVGI) using UV-C lighting for:



## Air applications

Viruses, bacteria, or fungi can be airborne, spreading through breathing, talking, coughing, sneezing, raising of dust or any activities which generate aerosol particles or droplets. Heating, cooling and air circulation in your spaces can further distribute airborne bacteria and viruses.



## Surface applications

When someone coughs or exhales, they release droplets of fluid. Most of these droplets fall on nearby surfaces and objects - such as desks, tables or telephones. If they are carrying a virus, staff could become infected by touching contaminated surfaces or objects, then touching their eyes, nose or mouth.



## Object applications

Viruses can live on surfaces for up to 5 days<sup>1</sup>, so devices which come into regular contact or are shared between people can provide a higher risk. Introducing a disinfection process to your daily cycle of item reuse or recharging helps ensure that viruses and bacteria are destroyed.

<sup>1</sup> Source: World Health Organization

# Overview Philips professional UV-C disinfection luminaires

Philips offers a range of luminaires with compatible reflectors, lamps and drivers that are suitable for use in commercial applications.



Air Disinfection solutions

**Philips UV-C disinfection upper luminaires air**



Ceiling Wall



Surface Disinfection solutions

**Philips UV-C disinfection batten**



Bare Reflector

**Philips UV-C disinfection trolley**



1 arm 2 arm

**Philips UV-C disinfection linear luminaire with sensor**



Sensor

**Philips Dynalite UV-C control systems**



Object Disinfection solutions

**Philips UV-C disinfection chamber**



Small Medium Large



Air  
Disinfection solutions

# Philips UV-C disinfection upper air

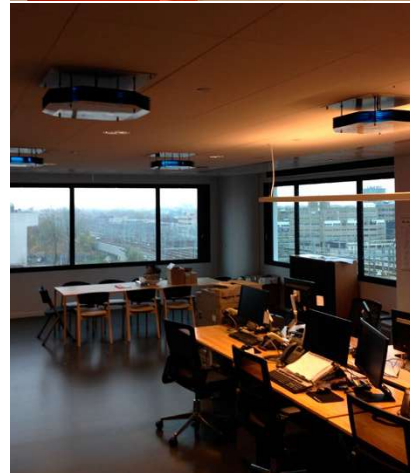
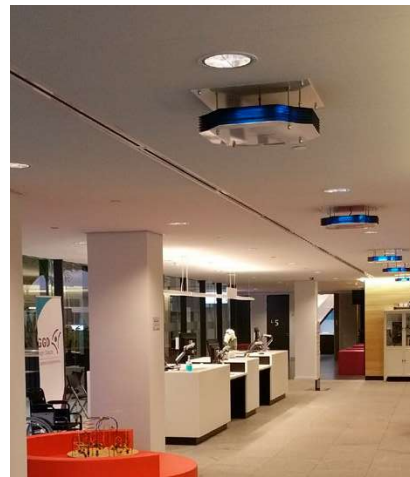
Airborne viruses and bacteria contaminate the air trapped indoors and can pose a real health threat. Upper air UV-C systems are powerful instruments to disinfect the upper air layers within rooms.

### Benefits:

- Optimized for low ceiling heights, the UV-C rays are distributed at device level and above.
- The beam of UV-C rays is controlled by specific reflectors and the louvre design. This allows for the disinfection of the air in a space, while ensuring that day-to-day business activities can continue underneath the area where the device is active.
- Allows disinfection of a large volume of air while business activity continues.
- Radiates UV-C in the upper part of rooms, where it does not reach people directly.
- Quietly and effectively deactivates airborne viruses and bacteria with Philips UV-C (253.7 nm) lamps.
- Effective disinfection over the useful long lifetime of lamp and luminaire.
- Environmentally friendly - no ozone emissions during or after use.

### Features:

- Shortwave UV radiation peak at 253.7 nm (UVC).
- Louvres and reflector control the distribution of UV-C at the device level and above, where people are not usually present.
- Complies with IEC 62471 standard for photobiological safety.



## Philips UV-C disinfection upper air wall mounted

Designed for the disinfection of air in a lot of applications, with installation on walls.

- Wall mounted installation.
- Philips T5 TUV lamp included: 25W.



## Philips UV-C disinfection upper air ceiling mounted

Designed to be installed on false ceilings for the disinfection of air in a wide range of applications.

- Surface mounted on false ceilings.
- Philips PL-S TUV lamp included: 4x9W.





# Philips UV-C disinfection batten

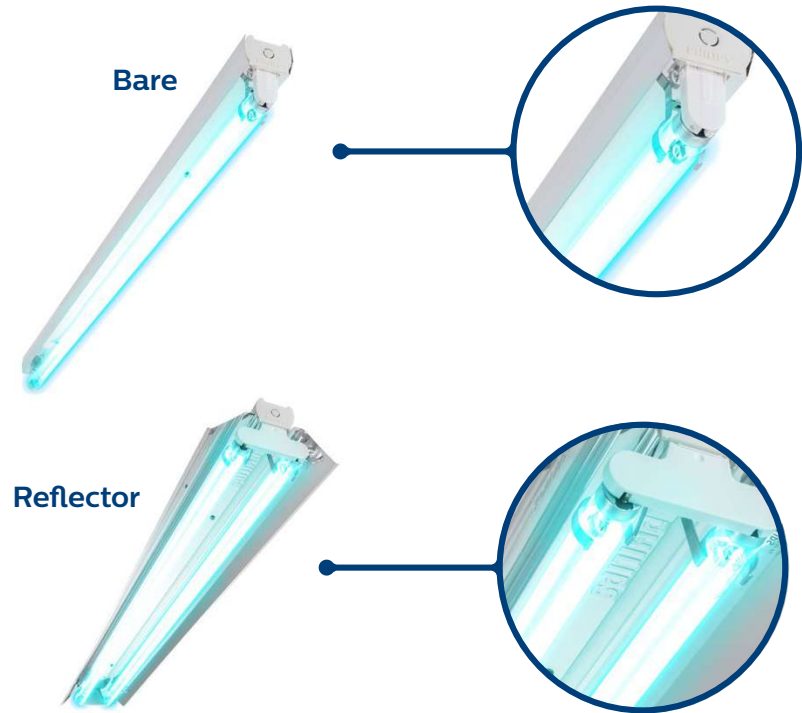
A fixed installation of luminaires on the ceiling is used at controlled times to fill a room or enclosed space with disinfecting UV-C radiation. Philips UV-C batten provides disinfection for high contact areas, such as meeting rooms, restaurants, supermarkets, washrooms and public buildings.

**Benefits:**

- In laboratory testing, Signify's UV-C light sources inactivated 99% of SARS-CoV-2 virus on a surface with an exposure time of 6 seconds.<sup>1</sup>
- Proven, effective disinfection over the useful long lifetime of lamp and luminaire.
- Environmentally friendly - no ozone emissions during or after use.

**Features:**

- Lamp configurations possible: 1-lamp or 2-lamps version.
- Available: bare batten or with reflectors.
- Philips T8 TUV lamp included: 36W.
- Shortwave UV radiation peak at 253.7 nm (UVC).
- High reflective aluminum housing for better reflectivity and performance.



<sup>1</sup> Tests performed in a lab setting by Boston University using a Signify UV-C light source revealed that a dose of 5mJ/cm<sup>2</sup> reduced 99% of SARS-CoV-2, the virus causing COVID-19, in just 6 seconds. Based on the data, it was determined that a dose of 22mJ/cm<sup>2</sup> will result in a reduction of 99.9999% in 25 seconds. Research variables available upon request.



## Philips Dynalite control system

When using UV-C lighting, the safety of people is always the priority. That's why the Philips Dynalite UV-C automated control system is designed to enable the use and/or operation of a properly designed and installed UV-C lighting system in a safer way than without an equivalent control system in place.

**Safety first - why controls**

The Philips Dynalite UV-C disinfection control system's multiple mechanical and network safeguards help prevent exposure to harmful UV rays while at the same time applying the appropriate UV-C dosage.

The control system includes safety mechanisms such as authorized activation, UV-C cycle about-to-start warning, movement sensors and emergency stop switches to deactivate in case of potential hazards.



# Philips UV-C disinfection trolley

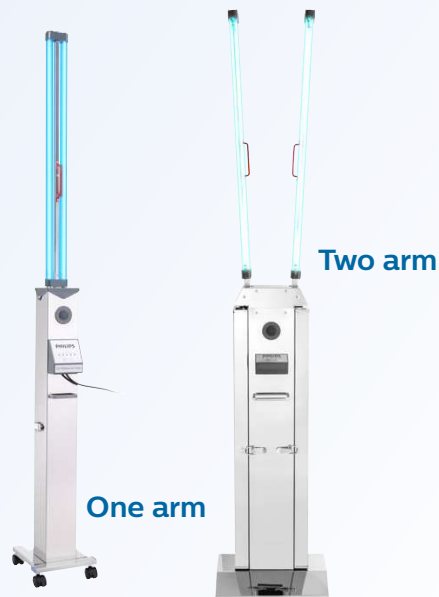
The UV-C trolley is designed to disinfect professional surfaces within a coverage of 30m<sup>2</sup> square area or 48m<sup>2</sup> circular area. The one arm trolley achieves 3-log disinfection within 30 minutes and with the two arm version this will be achieved within 15 minutes. The longer disinfection duration last, the wider disinfection coverage area will be. Both, the one arm and two arm UV-C disinfection trolley come without a sensor. The trolley is ideal for offices, banks, schools, retail outlets, hair and beauty shops, and hospitality areas such as hotel guest rooms and restaurants. It works well to be brought into a bus or train, when people have left. With the 360° wheels, UV-C trolley is a flexible solution as it can be easily and fast replaced and repositioned in the room/space.

### Benefits:

- The UV-C radiation of the trolley disinfects with listed timeslot and offers a great variety for options of lamp directions and disinfection durations.
- Environment friendly as no ozone emission, no residue after or during usage.
- Additional warning and protection solution with containment safeguard against unexpected exposure to UV-C radiation.

### Features:

- Safeguard controls include a timer to plan disinfection for a predefined period, remote control, and voice alarm.
- Philips UV-C lamps:
  - One arm trolley: 2pcs TUV 30W
  - Two arm trolley: 4pcs TUC 30W
- Anti UV PC & Stainless Steel housing
- Buzzer & LED indicator: to assist display the working status.
- Lock & Key: extra protection to avoid unauthorized person operate the trolley.



# Philips UV-C disinfection linear luminaire with sensor

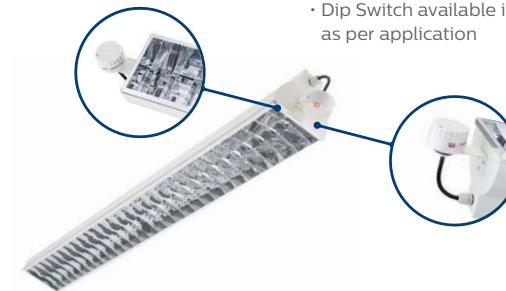
The Philips UV-C disinfection linear luminaire with sensor is designed for the disinfection of surfaces and is suitable for a wide range of applications. It provides universal UV-C irradiance with homogenous distribution. Its disinfection capability is based on wattage used and a specific exposure time for a given distance from that surface. The performance is enhanced by a highly-reflective and durable aluminum body, which improves its efficacy even further and directs the UV-C light to the to-be-irradiated surfaces and with-in the sensor range.

### Benefits:

- Available with safeguard controls using sensor monitoring which makes it safe to use.
- In laboratory testing, Signify's UV-C light sources inactivated 99% of SARS-CoV-2 virus on a surface with an exposure time of 6 seconds<sup>1</sup>.
- Proven, effective disinfection over the useful long lifetime of lamp and luminaire.
- Environmentally friendly - no ozone emissions during or after use.

### Features:

- Specially engineered mirror optics to cut off UV-C irradiation beyond the sensor range to avoid any accidental exposure beyond the coverage area.
- Philips T8 TUV lamp included: 36W.
- Shortwave UV radiation peak at 253.7 nm (UVC).
- Various mounting options.
- Specially designed mirror optics improve efficacy by average 90% by controlled distribution of the irradiance (Compared to UVC Batten with Al Cover)
- Dip Switch available in sensor for time settings as per application



<sup>1</sup> Tests performed in a lab setting by Boston University using a Signify UV-C light source revealed that a dose of 5mJ/cm<sup>2</sup> reduced 99% of SARS-CoV-2, the virus causing COVID-19, in just 6 seconds. Based on the data, it was determined that a dose of 22mJ/cm<sup>2</sup> will result in a reduction of 99.9999% in 25 seconds. Research variables available upon request.





Object  
Disinfection solutions

# Philips UV-C disinfection chamber

An effective disinfection chamber with UV-C for fast and environment friendly disinfection of versatile objects. Its application areas are all professional indoor applications for bacteria & viruses disinfection.

## Benefits:

- In laboratory testing, Signify's UV-C light sources inactivated 99% of SARS-CoV-2 virus on a surface with an exposure time of 6 seconds<sup>1</sup>.

## Features:

- Heavy-duty stainless-steel chamber
- Auto power off when the chamber is open ensuring no UV-C exposure to user
- Prefixed step timer for disinfection, easy to use, one touch operation
- Available in 3 sizes:
  - Small: height of 510 mm, 77 liters
  - Medium: height of 660 mm, 110 liters
  - Large: height of 1700 mm, 323 liters<sup>2</sup>



Large

Medium

Small

<sup>1</sup> Tests performed in a lab setting by Boston University using a Signify UV-C light source revealed that a dose of 5mJ/cm<sup>2</sup> reduced 99% of SARS-CoV-2, the virus causing COVID-19, in just 6 seconds. Based on the data, it was determined that a dose of 22mJ/cm<sup>2</sup> will result in a reduction of 99.9999% in 25 seconds. Research variables available upon request.

<sup>2</sup> To be confirmed.



Disinfection chamber



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