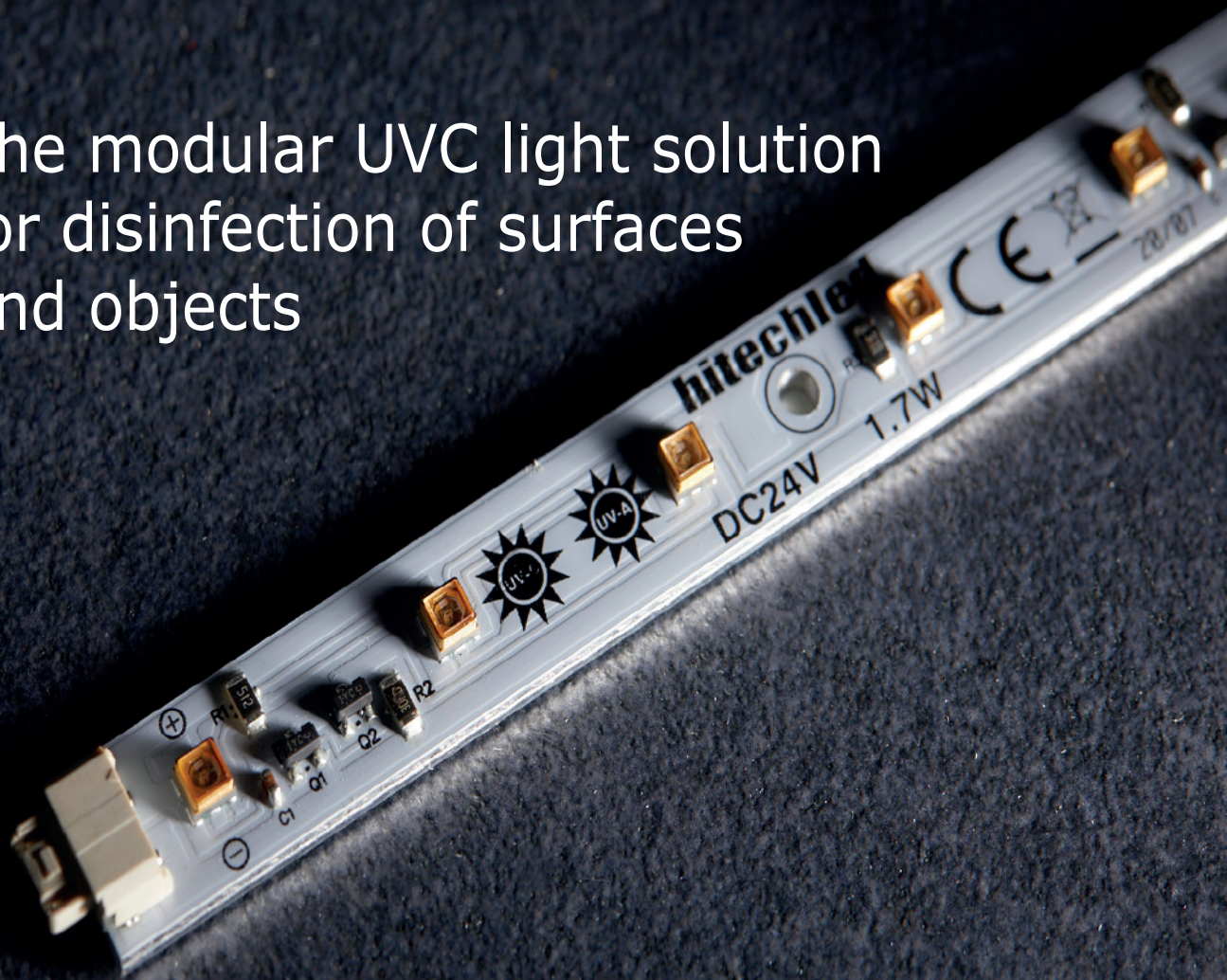
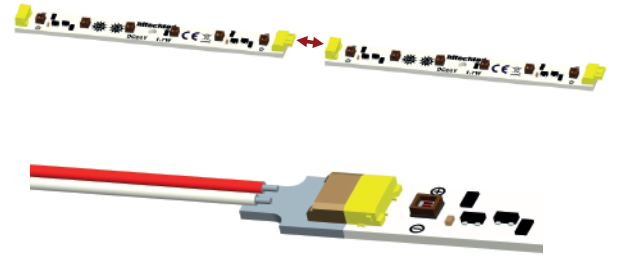
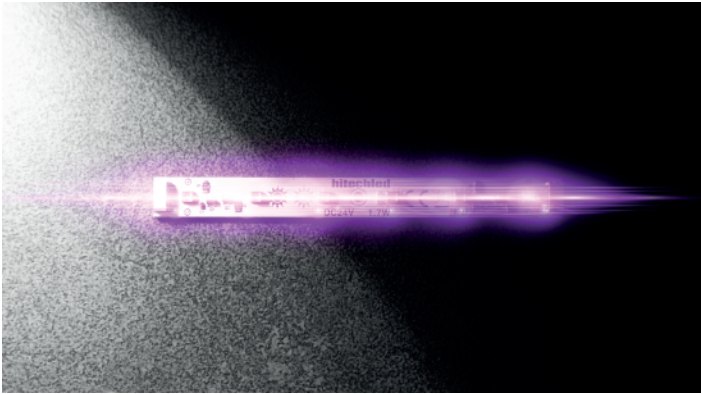




LED MODULE UVC 1,7W

The modular UVC light solution
for disinfection of surfaces
and objects





Technical Features

| | |
|--|-----------------------------|
| Model | HB35A-6UVC24 |
| Product code | HTL 000818 |
| Module operating Voltage | DC 24 V |
| Wattage | 1,7W |
| LED quantity | 6 |
| LED pitch | 20 mm. |
| Double wavelength LED type | UV-C - UV-A |
| UV-C wavelength | UV-C 275/280 nm. |
| UV-A wavelength | UV-A 315/400 nm. |
| Total radiant power at the distance of 50 mm | 638 μ W/cm ² |
| Viewing angle | 120° |
| Modules connectable in succession | 15 pz |
| International protection level | IP20 |
| Operating temperature range | -20 C° ~ +60 C° |
| Storage temperature range | +5 C° ~ +50 C° |

Terminal head with wires

| | |
|--------------|-----------------|
| Model | HB35A-6UVC-WIRE |
| Product code | HTL 000819 |

Description

The HB35A-6UVC24 module is equipped with 6 Ultraviolet LEDs at UV-C and UV-A wavelength which inactivates viruses, bacteria and other microorganisms when exposed to this radiation, the action of this module also favors the reduction of bad odors.

The small size of the module makes it suitable for the construction of devices for the sterilization of objects such as keyboards and mobile phones, or for the treatment of surfaces and parts subject to continuous contact with people, with results of over 99.9%.

The application is very simple the modules can be connect to each other by male/female connectors and at the end of the row of modules the terminal head with the wires for connection to a 24 VDC power supply can be inserted.

There is no need to interpose any glass or transparent plastic protection in front of the LEDs, although these protections are transparent, they determine a screen that almost completely blocks the passage of UV-C light, canceling the sterilizing process.

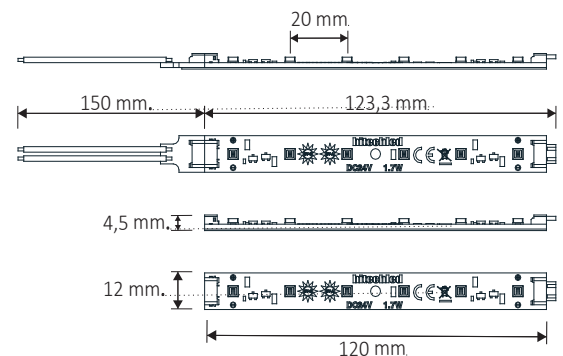
Both the module and the terminal head with wires. they are provided with thermal adhesive for fixing to a metal surface to favor heat dissipation and for a quick fixing after removing the protection. If necessary, a screw can be added in the central hole of the module.

The connection must be carried out gently keeping the modules aligned avoiding forcing or bending in order not to damage the connectors.

⚠ ... WARNING !!! UVC radiation can seriously hurt eyes and skin, so you should never expose people or animals to the UVC light emitted by this device.



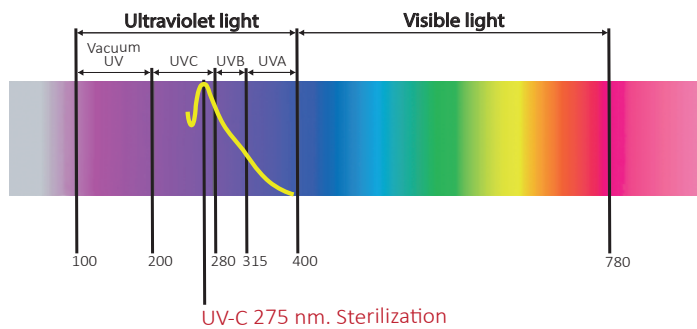
The radiation is not visible to the human eye !!



WHAT UVC RAYS ARE AND HOW CAN THEY INACTIVE MICROORGANISMS

Ultraviolet light is a part of electromagnetic radiation range and it is located before visible light in the electromagnetic spectrum, this part of radiation range also includes type C ultraviolet light (UVC).

The light generated by the module's UVC LEDs has a wavelength of 275 nm. this radiation can damages the DNA and RNA strands of microorganisms such as bacteria, viruses and spores, thus preventing them from reproducing or being harmful. The UV-C light is not visible to the human eye and for this reason the particular LEDs present on the HB35A-6UVC24 module also generate a UV-A light that is visible, appears purplish in color and serves to highlight the area exposed to the action. sanitizer of this device.



Breaking of DNA of microorganisms



Efficacy

The efficacy of this UVC module for some applications can exceed 99.9% of inactivated microorganisms, It depends on many factors: the duration of exposure time, the presence of dust particles that can protect microorganisms from UVC radiation and the resistance of microorganisms to radiation during exposure. In many systems the efficacy is increased by the repeated circulation of the air, to increase the probability that the ultraviolet radiation hits the microorganisms and to irradiate them several times thus increasing the "DOSE". The efficacy of this sterilization method also depends on the configuration of the environment: an environment in which there are obstacles to the light of the UVC module is not efficient. In these cases, the efficacy depends on where the UVC module is positioned. It is also very useful to clean the module at regular intervals and possibly replace it annually, in any case no later than 2 years if 10,000 hours of work are not exceeded at Ta. 40 C °.

Even the material of which the container where the UVC module is placed is made can contribute to the absorption of germicidal rays. An increase in efficiency can be achieved by using reflection. Aluminum has the highest reflection rate compared to other metals, and is very useful for reflecting UVC rays.

To determine the efficiency of an air treatment product, we recommend performing a test in accordance with ISO 15714.

MODULE TEST- DISTANCE: 50mm .; EXPOSURE TIME: 180s.

| Test Organisms | Test groups | Average number of positive controls (cfu/PCS) | Average number of testing groups (cfu/PCS) | Killing rate (%) | Sterilization logarithm |
|--|-------------|---|--|------------------|-------------------------|
| <i>Escherichia coli</i> 8099 | 1 | 5.0×10 ⁶ | 2.4×10 ³ | 99.95 | 3.32 |
| | 2 | 5.1×10 ⁶ | 2.5×10 ³ | 99.95 | 3.31 |
| | 3 | 4.9×10 ⁶ | 2.4×10 ³ | 99.95 | 3.31 |
| <i>Staphylococcus aureus</i> ATCC 6538 | 1 | 4.9×10 ⁶ | 2.3×10 ³ | 99.95 | 3.33 |
| | 2 | 4.8×10 ⁶ | 2.2×10 ³ | 99.95 | 3.34 |
| | 3 | 4.8×10 ⁶ | 2.3×10 ³ | 99.95 | 3.32 |
| <i>Candida albicans</i> ATCC 10231 | 1 | 2.5×10 ⁶ | 1.3×10 ³ | 99.95 | 3.29 |
| | 2 | 2.6×10 ⁶ | 1.4×10 ³ | 99.95 | 3.27 |
| | 3 | 2.4×10 ⁶ | 1.3×10 ³ | 99.95 | 3.27 |

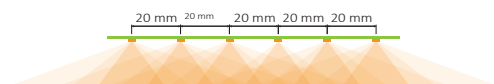
MODULE TEST- DISTANCE: 50mm .; EXPOSURE TIME: 60s.

| Test Organisms | Test groups | Average number of positive controls (cfu/pcs) | Average number of testing groups (cfu/pcs) | Killing rate (%) | Sterilization logarithm |
|--|-------------|---|--|------------------|-------------------------|
| <i>Escherichia coli</i> 8099 | 1 | 3.5×10 ⁶ | 8.4×10 ³ | 99.76 | 2.62 |
| | 2 | 3.8×10 ⁶ | 7.9×10 ³ | 99.79 | 2.68 |
| | 3 | 3.6×10 ⁶ | 9.0×10 ³ | 99.75 | 2.61 |
| <i>Staphylococcus aureus</i> ATCC 6538 | 1 | 1.3×10 ⁶ | 1.9×10 ³ | 99.85 | 2.83 |
| | 2 | 1.5×10 ⁶ | 1.8×10 ³ | 99.88 | 2.91 |
| | 3 | 1.4×10 ⁶ | 2.0×10 ³ | 99.86 | 2.85 |
| <i>Candida albicans</i> ATCC 10231 | 1 | 2.4×10 ⁶ | 3.2×10 ³ | 99.87 | 2.88 |
| | 2 | 2.1×10 ⁶ | 4.1×10 ³ | 99.80 | 2.71 |
| | 3 | 2.2×10 ⁶ | 4.4×10 ³ | 99.80 | 2.70 |

This product complies with the following European directives:

| | |
|-----------------------------|---|
| EMC - Directive 2014/30/EU | Luminaires safety |
| EN 55015:2013/A1:2015 | EN 60598-2-20:2015 Used in conjunction with |
| EN 61547:2009 | EN 60598-1:2015+A1:2018 |
| RoHS - Directive 2011/65/EU | EN 62031:2020. IEC TR 62778:2014 |
| IEC 62031 | |

The UVC light cones overlap, making the active area uniform





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DIFFERENT LIGHTING