UTARGET™ AUTO

Before use, please take the time to read this datasheet and make sure you understood the advice and cautions of use.

User security

- Do not directly watch the beam of light or through any optical instrument.
- Avoid any contact with the LEDs or its lens.
- Code IP40: protected against solid corpses larger than 1 mm and non-protected against water intrusion.
- Use the product in an environment where the working temperature is between +15°C and +35°C and there is little humid air (<80%): if those conditions are not respected the product can be damaged.
- Do not use the product in an environment where smokes and oil vapors are present.
- Never try to repair by yourself any potential damages on the product.
- Make sure to use the right power supply before connecting the product.
- Do not reverse the electrical polarity – check your connections and the conventions before turning on the product.
- Make sure you have the correct connector to link the product to the power supply.

Any incorrect use cancels the warranty.

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Technical Overview

The UTARGET™ AUTO exists in 2 versions:

- **Manual version is delivered in a complete kit and held like a pen by hand. It is connected to a main socket.**
- **Automated version is integrated into an automatic process and controlled by a PLC or a footswitch.**

		UTARGET™ AUTO
Electronics	***Power supply***	24V DC
	Illumination mode	Continuous with a DIM process [0-24V]
	Connector	Lemo 4 pins
	Power consumption	~ 4W
Optics	***Wavelength***	365 or 385 or 395 or 405 nanometers
	Irradiance	Up to 2000 mW/cm²
Mechanics	***Diameter***	36 mm (head) and 22 mm (body)
	Length	150 mm
	Material	Device body: Aluminum alloy
	Weight	130 g
Thermal	***Cooling system***	Passive
Environment	**Working temperature**	+10°C to +45°C
	Working Humidity	< 80% for temp < 35°C
	IP Code	IP40

Product reference

UTARGET™ AUTO Manual: **KIT - UTARGET - XXX* - AUTO**

- 365
- 385
- 395
- 405

*XXX corresponds to the wavelength of the product

KIT-UTARGET-XXX

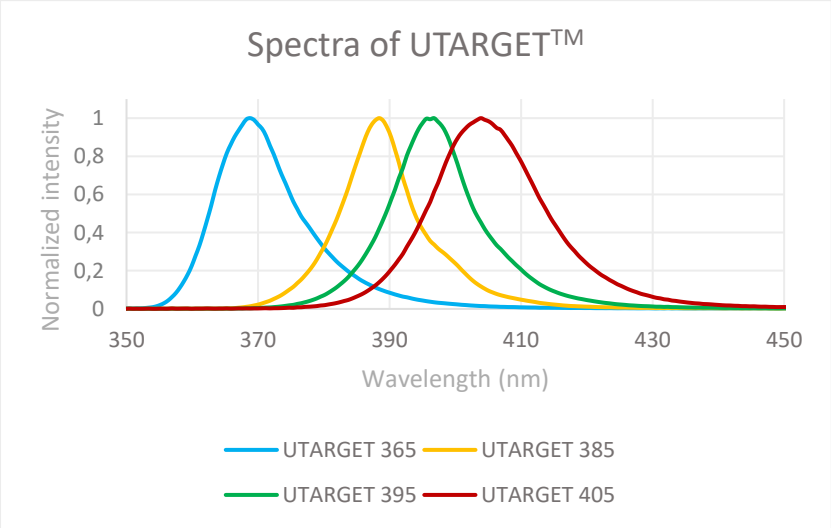
UTARGET™ AUTO Automated: **UTARGET - XXX* - AUTO**

- 365
- 385
- 395
- 405

*XXX corresponds to the wavelength of the product

Optical characteristics

Spectra

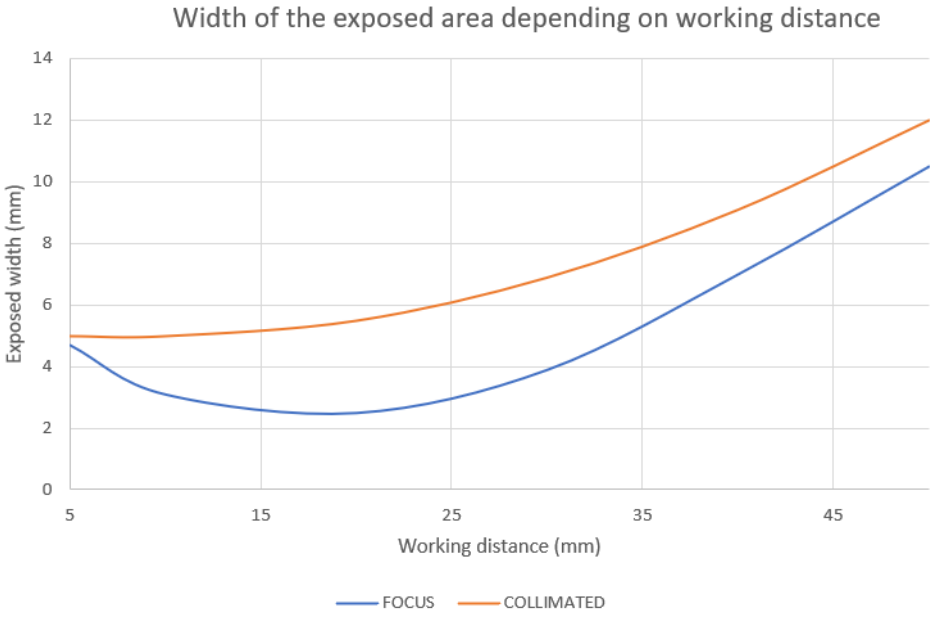


	Pic Wavelength	Full width at half maximum
UTARGET 365	368 nm	14 nm
UTARGET 385	388 nm	10 nm
UTARGET 395	397 nm	14 nm
UTARGET 405	404 nm	18 nm

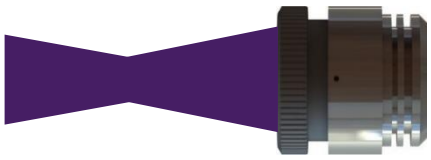
For other wavelengths (UVC / UVB / UVA / VISIBLE / IR), feel free to ask us!

Size of the exposed area

Thanks to its optical system, you will be able to change the size of the spot emitted by the UTARGET™. In the following graph, the area exposed is the area where the irradiance is higher than 50% of the maximum irradiance.



Focused position



Collimated position

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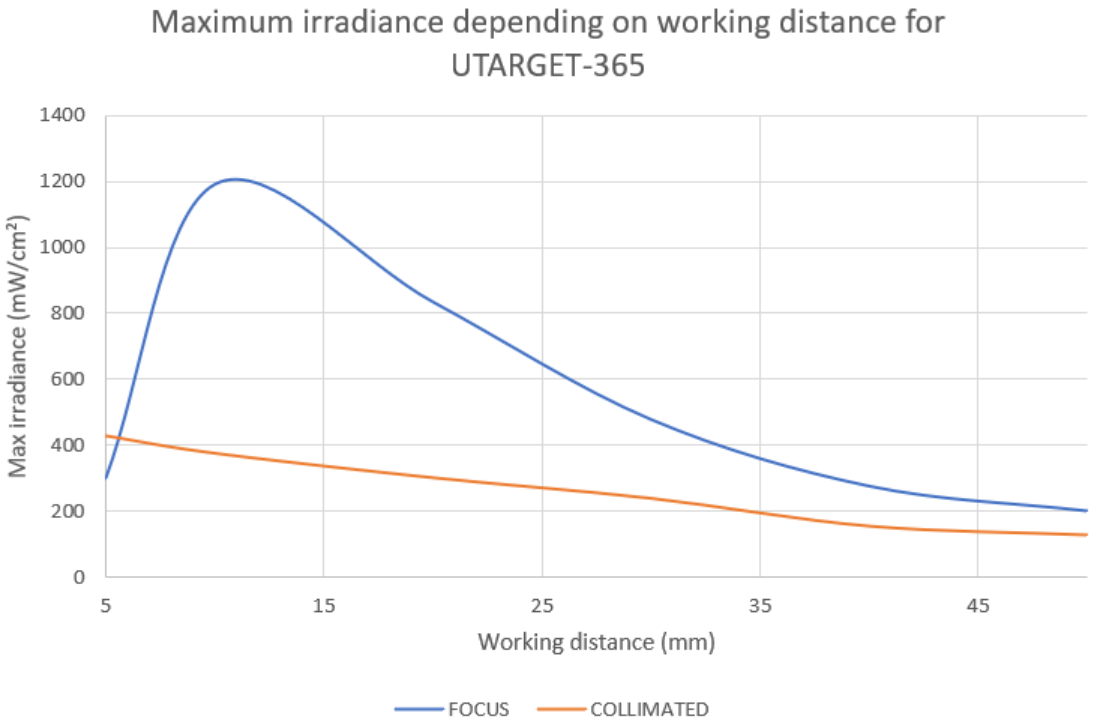
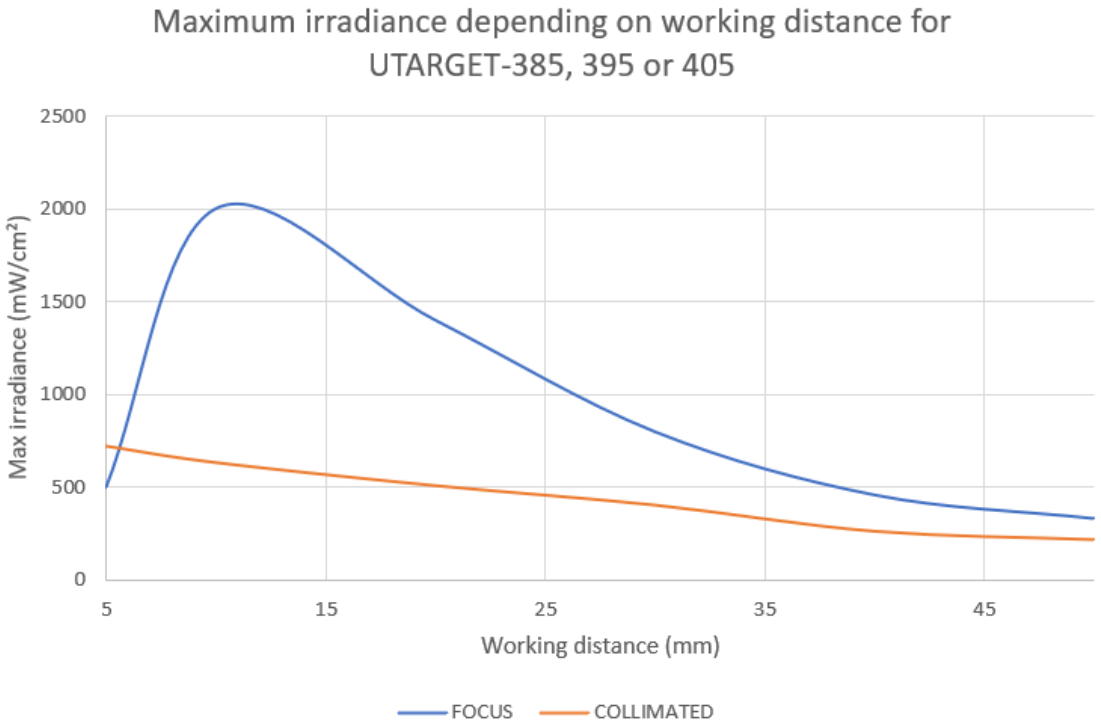
Photometry





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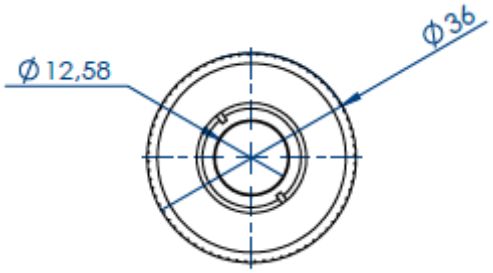
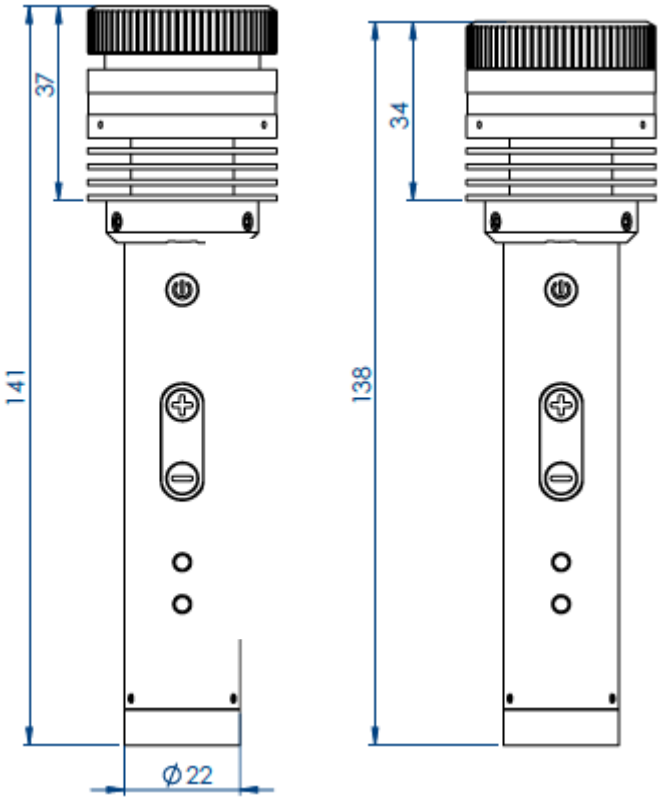
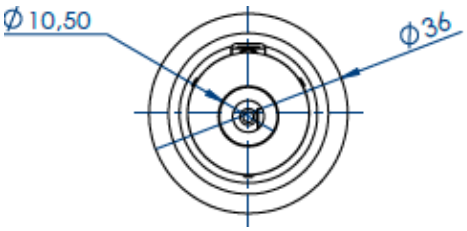
Mechanical dimensions



Focused position **Collimated position**



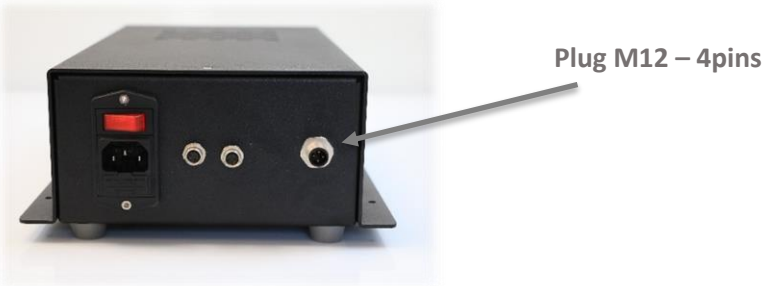


Dimensions are the same for both versions of the UTARGET AUTO

How to use: UTARGET AUTO

With the UPOWER™

The UTARGET™ AUTO can be provided with its power supply UPOWER™.

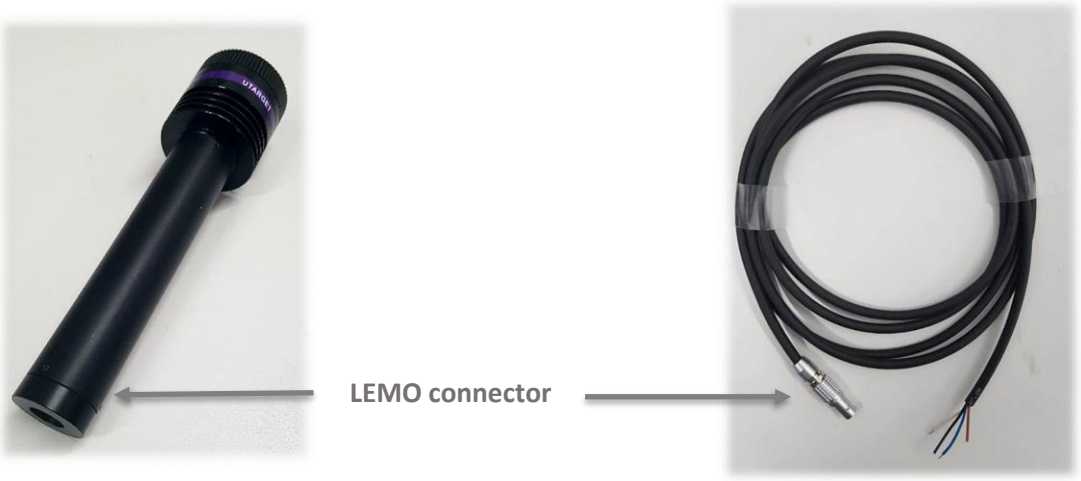
Steps	Illustrations
Connect the cable M12 – 4 pins between the UTARGET and the UPOWER. The connector for the UTARGET™ AUTO side is a LEMO connector.	
Plug the UPOWER™ to a 230V outlet.	
The UTARGET™ AUTO is ready to be used. To turn the UTARGET on, you can either use the buttons ON on the UPOWER, or use a foot pedal (more details in "ACCESSORIES") or connect the UPOWER to your PLC.	
How to choose the light intensity Use the light intensity controller buttons on the UPOWER to control the light intensity from 20% to 99%.	

How to choose the exposure time Use the TIMER interface on the UPOWER to choose the exposure time. The red timer is fixed, and the orange timer is the one that you can change. To validate the time, push the reset button on the timer.	
How to lock the UPOWER Turn the lock key in order to lock the timer configuration. The word “LOCK” appears on the timer screen.	

Without the UPOWER™

The UTARGET™ AUTO cans be used without the UPOWER to directly supply it by yourself by using a PLC.

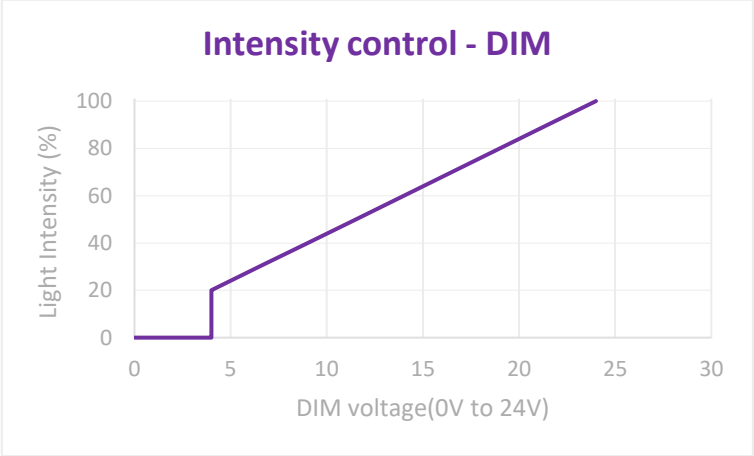
To connect your PLC to the UV product, use the cable by following the board below.



Cable color	***Input / Output signal***	***Designation***	***Signal***	
Brown	In	Power supply +	24V DC	
White	Out	Temperature Fault	24V	No Fault
			0V	Fault
Blue	In	Power supply -	0V	
Black	In	Intensity Control - DIM	0 → 24V or look at the graph below	

Signals (Automated version only)

Intensity Control



The UTARGET™ is supplied with a 24V constant voltage source.
Using the DIM pin, the light intensity can be controlled:

- 0V to 4V – OFF (0%)
- 4V to 24V – 20% to 100%

Max DIM power consumption: 30 mW @24V

Accessories

Photo	Description	UTARGET™ AUTO KIT	UTARGET™ AUTO
Glasses 	Safety glasses, prevent UV damages to your eyes. Reference: **UGLASS-02**	✓	✓
Cables Manual version  	Reference: • **USPWR-36W-24V-102-EU** for the power supply (36W electrical transformer) and its cable to connecting to main supply • **UCAB-LEMOM12-FM-4-DD-L2** for the 1,5 meter cable connecting the electrical transformer to the UTARGET.	✓	
Cables Automated version 	Both sides connectors (UPOWER™ link): Reference: **UCAB-LEMOM12-FM-4-DD-L** **2** / **5** / **10** — Depending on the length you want (in meters) One side with bare wire (towards PLC): Reference: **UCAB-LEMO-FD-4-D-L** **2** / **5** / **10** — Depending on the length you want (in meters)		✓
Support 	The support allows you to put down the UTARGET™ between uses Reference: **HOLDER-UTAR**	✓	✓

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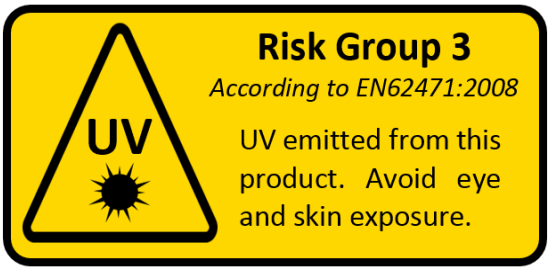
Eyes & Skin Safety



UWAVE products come under the standard DIN EN 62471:2008 which classified sources of optical radiation into risk groups subject to their potential photo biological hazard. Due to the emission of high UV irradiation, our products belong to Risk Group 3 (hazardous even for momentary exposure) therefore special safety measures, detailed in the following, must be observed.

To protect the eyes and skin staff everyone in the area must wear **protective equipment**. Protective **goggles** should comply with the standard EN 170 (Personal eye-protection - Ultraviolet filters - Transmittance requirements and recommended use). The goggles must protect eyes against direct and side irradiation.

Don't look directly at the product's output window because of a risk of becoming blind.
Don't expose skin too long without protection to avoid skin burning or cancer.

Due to the high emission power, the area near the LEDs can reach high temperature during operation. Avoid touching directly the product and especially the output window.

Legal obligations

Under the law at present, workers' exposure must be lower than the Exposure Limit Value (Directive 2006/25/EC of the European Parliament). Depending on the wavelength of the product and the body part insolated, **Limit Values are summarized in the tables below:**

	Eye	Skin
Wavelength	315 – 400 nm (UVA)	180 – 400 nm (UVA, UVB, UVC)
Exposure Limit Value	10 000 J/m²	30 J/m²

Case study with a LED at 365 nm with an Optical Power of 10 mW/cm²:

For the **eyes**, the maximal exposure time (Δt), the Exposure Limit Value (ELV), and the Optical Power (P) of a UV product are linked by the formula:

$$\Delta t = \frac{ELV}{P}$$

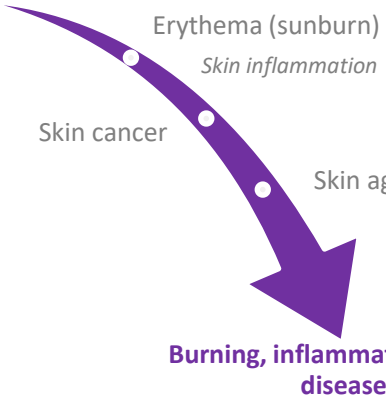
For **skin**, the Optical Power is normalized by skin's sensitivity factors for each wavelength.
The maximal exposure time per day is calculated below:

	Eyes	Skin
Optical Power (normalized for skin)	10 mW/cm²	4,7 µW/cm²
Maximal exposure time per day	**1 min 40 s**	**12 min**

With a UV product with an optical power of 10 mW/cm², the Exposure Limit Value per day is **reached in 2 minutes for eyes and 12 minutes for skin** without any safety equipment. Therefore, protective equipment is needed when a UWAVE UV LED equipment is used.

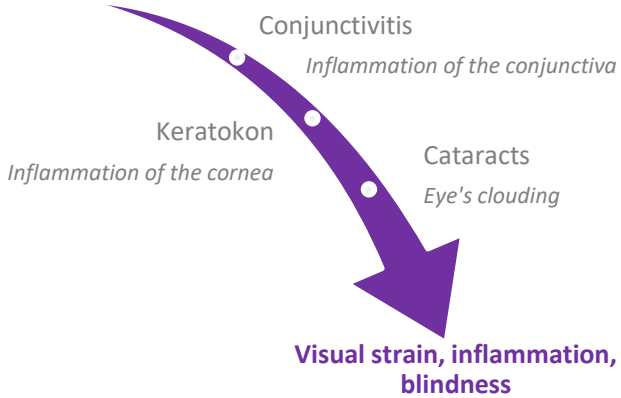
Possible health damages

Effects on skin along unprotected UV exposure



Burning, inflammation, chronic diseases

Effects on eyes along unprotected UV exposure



Visual strain, inflammation, blindness

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Protective equipment

Eyes protection

Safety goggles prevent UV damages to eyes. REF: UGLASS-02

- Certified NF EN 170 absorbing 99,9% of UV radiation and visible light up to 532nm
- Protect against side irradiation
- Resist to chemical products and scratches

Beyond 2 minutes per day of eye UV LED exposure at 10 mW/cm², protective goggles are necessary according to the European Directive 2006/25/EC.

Safety face shield prevents UV damages to eyes and skin's face. REF: UMASK-01

- Certified NF EN 170 absorbing 99,9% of UV radiation and visible light up to 400nm
- Protect against side irradiation
- Resist to scratches

Beyond 12 minutes per day of face UV LED exposure at 10 mW/cm², protective mask is necessary according to the European Directive 2006/25/EC.

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Body protection

Safety gloves prevent UV damages to exposed skin. REF: UGLOVE-01

- High protection against UV radiation
- Resist to chemical products and scratches

Beyond 12 minutes per day of hands UV LED exposure at 10 mW/cm², protective gloves are necessary according to the European Directive 2006/25/EC.

Safety jacket and trousers prevent UV damages to exposed skin, especially arms & legs.

- Certified UPF 50+ absorbing more than 90% of UV radiation
- Durable and resistant

REF (jacket): UJACK-01 REF (trouser): UTROUS-01

Beyond 12 minutes per day of arms & legs UV LED exposure at 10 mW/cm², protective clothes are recommended according to the European Directive 2006/25/EC.

Protection suit prevents UV damages to entire body, especially neck. REF: USUIT-01

- Certified UPF 50+ absorbing more than 90% of UV radiation
- Resist to chemical products

Beyond 12 minutes per day of neck UV LED exposure at 10 mW/cm², protective suit is recommended according to the European Directive 2006/25/EC.

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UV source isolation

UV shields are protective windows which isolate the UV insolated zone to protect all workers around.
They are made to measure to fit with your constraints.

REF: USHIELD-01

Beyond 2 minutes per day of eye UV LED exposure and **12 minutes of skin UV exposure** at 10 mW/cm², protective shields are necessary to protect staff without safety equipment according to the European Directive 2006/25/EC.

Warning stickers

Warning stickers inform workers of radiation danger and invite them of wearing protection equipment. They are available in 3 sizes:

- 55 mm x 25 mm — REF: USTICK-01
- 165 mm x 75 mm — REF: USTICK-02
- 290 mm x 130 mm — REF: USTICK-03

Expertise

Our UV LED experts from UWAVE can come and check your production lines to:

Measure UV irradiance to **determine the maximum UV personal exposure time** compared with limits (European Directive 2006/25/EC).

Determine the most **adapted solution** to protect workers' eyes and skin.

Contact us to get our expertise. We will find together the equipment which fits with your application.