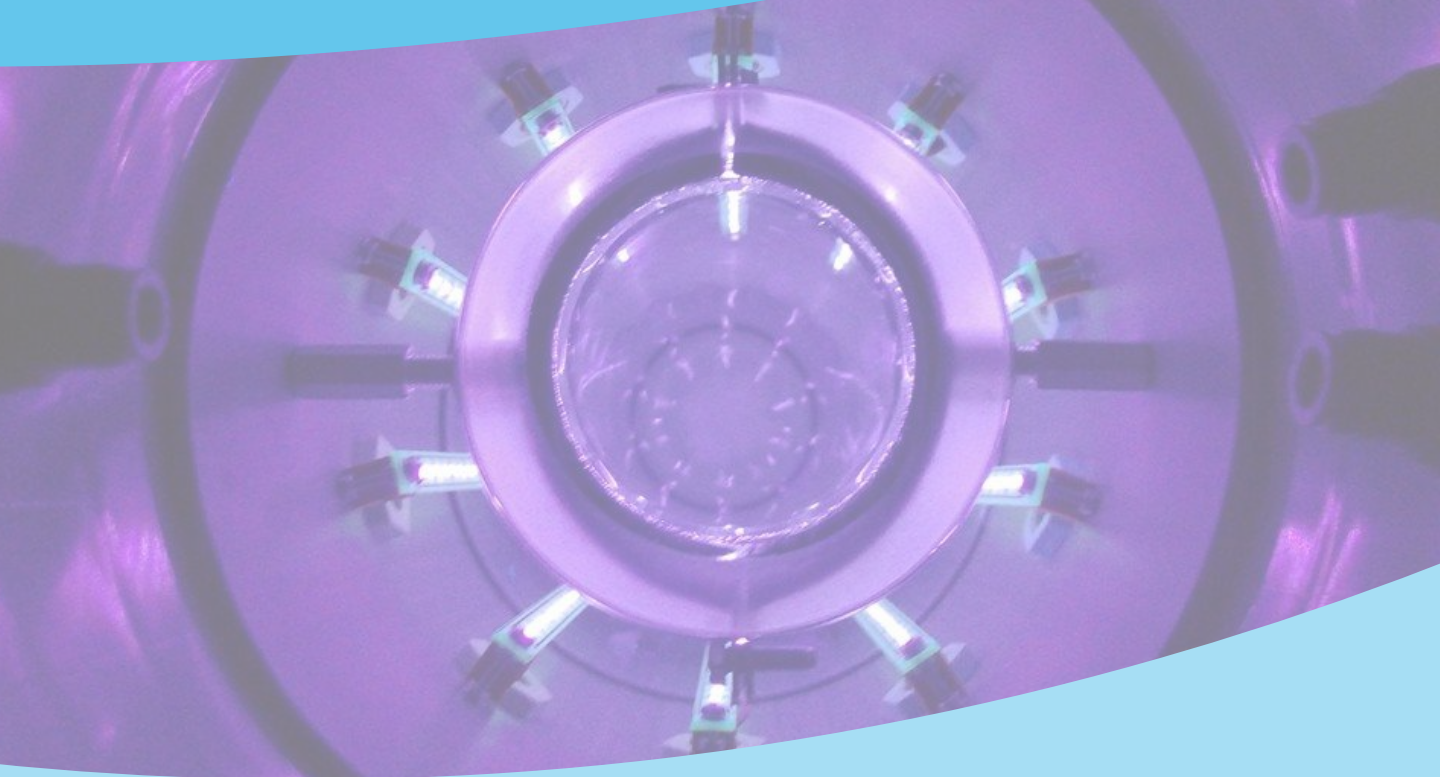


# External radiation



External illumination



LED technology



Adjustable  
radiation intensity

## The equipment

Apria Systems has designed a series of flexible photoreactors with **external radiation and LED technology**. We offer a wide range of **tailor-made** models to adapt the equipment to the needs of our clients.

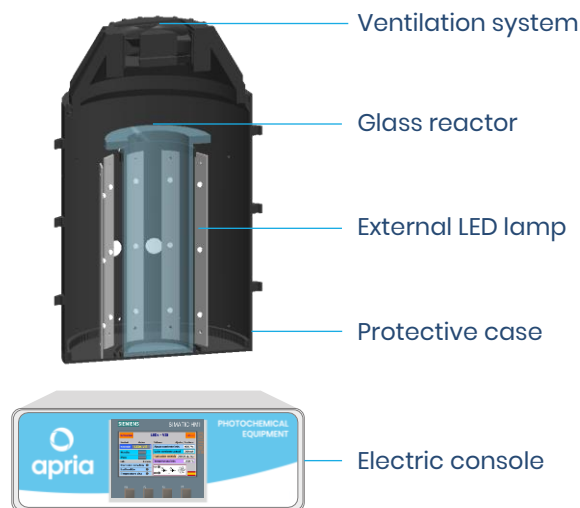
Each photoreactor has one **external lamp** (LEDs arranged in several strips) with up to two **different types of light**.

Each kind of light has independent control, and its radiation **intensity can be regulated**, offering an adjustment to the needs of the treatment.

The **temperature of the LEDs is monitored** and controlled through a system of forced air convection, allowing to maximize their efficiency and lifetime.



## Elements of the system



## Operation

1. Introduce the fluid to be treated in the reactor
2. Locate the reactor inside the protective case and close the upper cap
3. Turn-on the electric console
4. Select the working type of light, adjust its radiation intensity, and switch-on the lamp
5. Perform the photochemical treatment

Extremely  
easy

We offer a wide range of alternatives to adjust our equipment to your needs

## Reactor characteristics

Operation mode	Batch
Configuration	Single / double wavelength / exchangeable lamps
Volume (mL)	200 – 1,000
Flowrate (m <sup>3</sup> /h)	Up to 1
Irradiated area	Variable
Number of LEDs	20 – 160
Adjustable radiation intensity	Yes, through an electric console with PLC
Refrigeration system for the LEDs	Forced air convection
Optional items	Magnetic stirring / Online measurements (pH, O <sub>2</sub> , etc.)

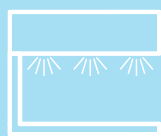
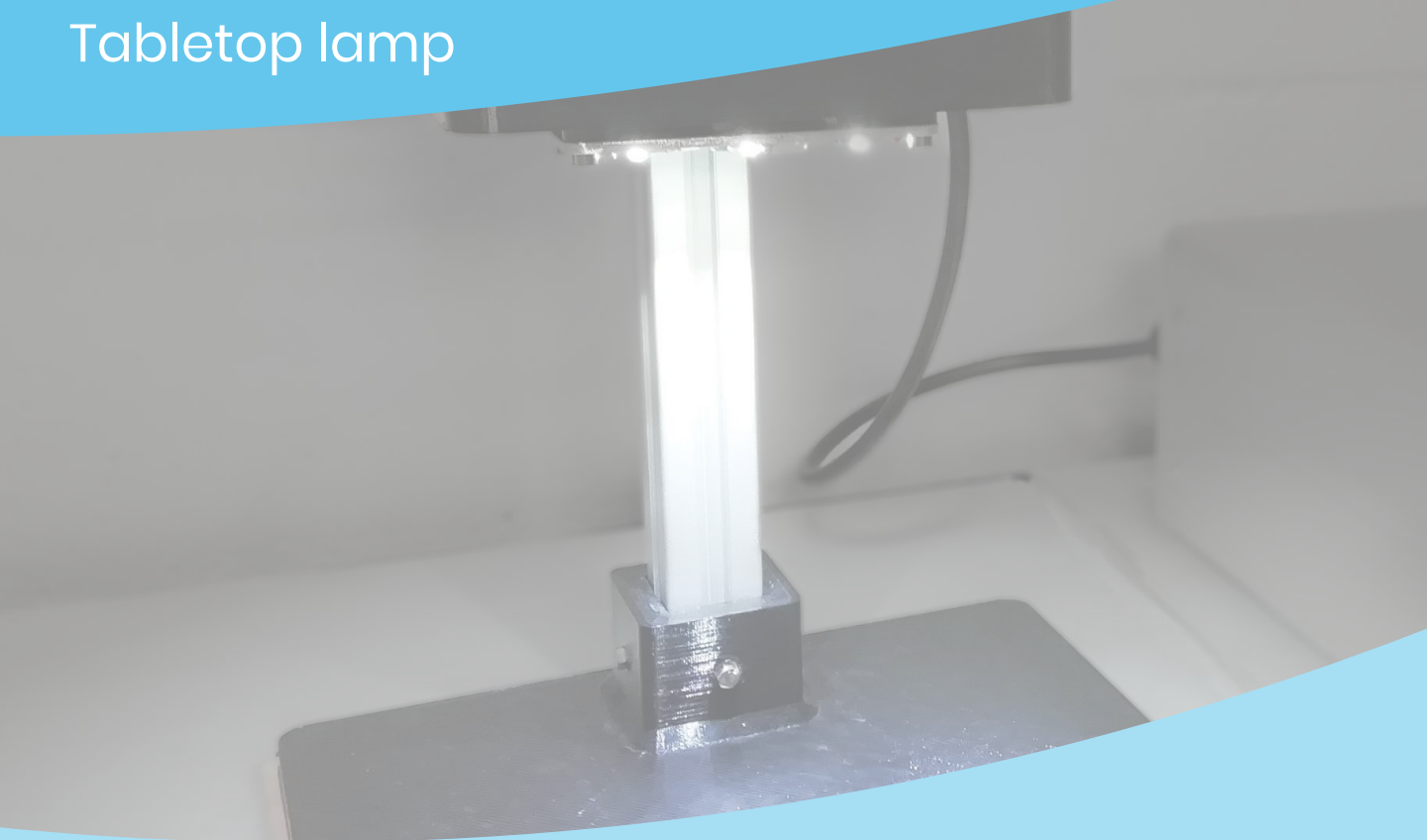
## Source of light

Type of light	Wavelength (nm)	Peak (nm)	Radiant flux / LED
UV-C	263 – 268	265	100 mW
	268 – 280	275	
UV-B	295 – 305	300	32 mW
UV-A	365 – 370	365	1,200 mW
Violet	400 – 410	405	1,260 mW
White	400 – 700	450	315 lm
Blue	453 – 460	457	1,350 mW
Green	520 – 530	523	450 mW
Red	618 – 630	623	935 mW
IR	835 – 875	850	930 mW



## External radiation

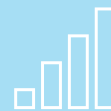
### Tabletop lamp



External illumination



LED technology



Adjustable  
radiation intensity

## The equipment

Apria Systems has designed a series of flexible tabletop lamps with **LED technology**. We offer a wide range of **tailor-made** models to adapt the equipment to the needs of our clients.

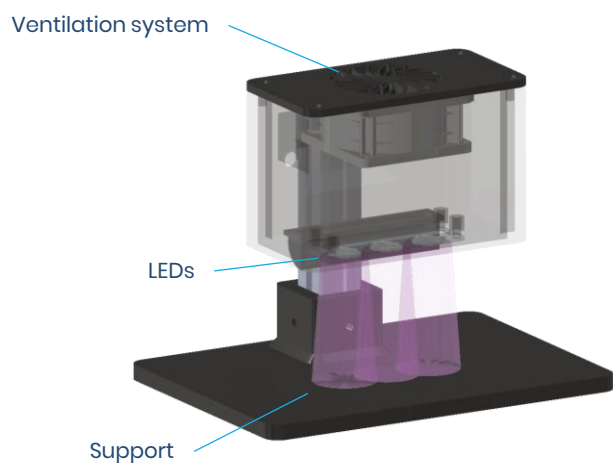
Each lamp has several **LEDs** with up to two **different types of light**. The **radiation intensity can be regulated**, offering an adjustment to the needs of the treatment.

The **temperature of the LEDs is monitored** and controlled through a system of forced air convection, allowing to maximize their efficiency and lifetime.

The lamp includes a support with **adjustable distance**.



## Elements of the system



## Operation

1. Set the sample to be irradiated under the lamp
2. Select the working type of light, adjust its radiation intensity, and switch on the lamp.
3. Perform the photochemical treatment

Extremely easy

We offer a wide range of alternatives to adjust our equipment to your needs

## Characteristics

Operation mode	Batch
Configuration	Single / double wavelength 7 exchangeable lamps
Volume (mL)	Variable
Irradiated area	Variable
Number of LEDs	1 - 10
Refrigeration system for the LED	Forced air convection
Optional items	Inclination of the lamp

## Source of light

Type of light	Wavelength (nm)	Peak (nm)	Radiant flux / LED
UV-C	263 - 268	265	100 mW
	268 - 280	275	
UV-B	295 - 305	300	32 mW
UV-A	365 - 370	365	1,200 mW
Violet	400 - 410	405	1,260 mW
White	400 - 700	450	315 lm
Blue	453 - 460	457	1,350 mW
Green	520 - 530	523	450 mW
Red	618 - 630	623	935 mW
IR	835 - 875	850	930 mW



## External radiation

### Tabletop lamp + collimation



External illumination



LED technology



On / off

## The equipment

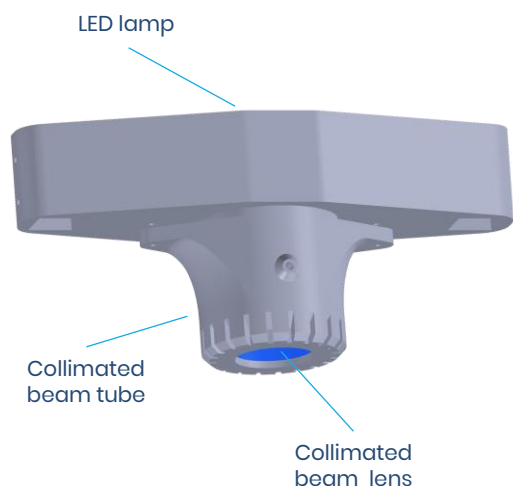
Apria Systems has designed a series of flexible tabletop lamps with **LED technology**. We offer a wide range of **tailor-made** models to adapt the equipment to the needs of our clients.

The **radiation intensity can be regulated** by adjusting the distance of the lamp to the reaction media, offering an adjustment to the needs of the treatment.

A **collimated beam device**, including its corresponding collimated tube and lens, is offered as an optional complement when homogeneous distribution of the light is required.



## Elements of the system



## Operation

### A. WITHOUT COLLIMATOR

- 1.\* Set the sample to be irradiated under the lamp
2. Turn-on the light
3. Perform the photochemical treatment

Extremely easy

### B. WITH COLLIMATOR

- \* Before step 1, place the collimated beam device in the lamp

We offer a wide range of alternatives to adjust our equipment to your needs

## Characteristics

Operation mode	Batch
Configuration	Single wavelength
Volume (mL)	Variable
Irradiated area	∅ = 5 cm
Number of LEDs	1
Adjustable radiation intensity	Yes, through distance
Optional items	Collimated beam device

## Source of light

Type of light	Wavelength (nm)	Peak (nm)	Radiant flux / LED
UV-C	263 – 268	265	100 mW
	268 – 280	275	
UV-B	295 – 305	300	32 mW
UV-A	365 – 370	365	1,200 mW
Violet	400 – 410	405	1,260 mW
White	400 – 700	450	315 lm
Blue	453 – 460	457	1,350 mW
Green	520 – 530	523	450 mW
Red	618 – 630	623	935 mW
IR	835 – 875	850	930 mW

