

## Irradiation chamber BS-02



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dose controller UV-MAT

The irradiation chamber BS-02 is compact, robust equipment for the time- or dose-controlled irradiation of samples with UV or visible light. The chamber can be fully equipped for one of the spectral regions UV-C, UV-B, UV-A, or daylight D65 to achieve the highest irradiance. Alternately, the use of two separately controlled lamp groups for different spectral regions allows for especially flexible operation of the chamber. With interchangeable lamps, the BS-02 is really flexible. No tools are required for lamp replacement.

The interior irradiation chamber has a base area of 46 x 32 cm and a height of 20 cm. The sample chamber operating temperature is about 25°C - 30°C so that thermal damage to the specimen is avoided. Due to the high uniformity of the irradiation, the samples may be positioned in any order.

The irradiation control UV-MAT can control two spectral ranges separately and achieves a constant dose independent of lamp aging, contamination or temperature. The dose is measured with calibrated sensors. For this purpose, the sensor already contains an extremely precise analog-digital converter and a temperature sensor.



compact dimensions



Large and secured front door

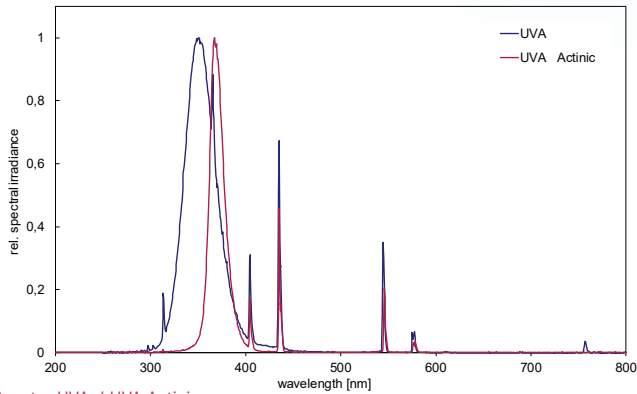
The memory in the sensor contains all sensor identifications and the calibration history.

The UV-MAT can optionally be controlled by a PC. This allows multi-stage irradiation and documentation of the irradiation.

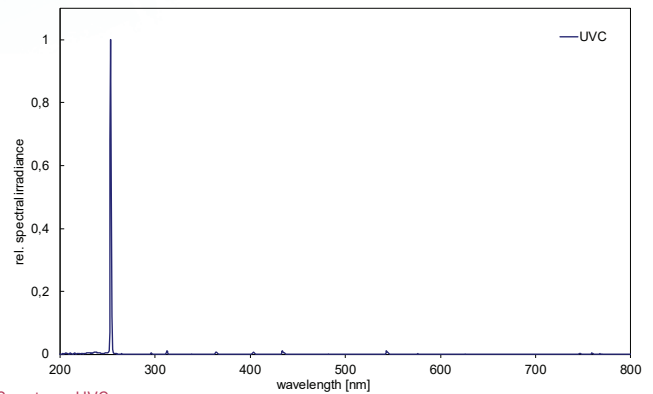
### Applications:

- Irradiation of bacteria and cell cultures
- Photostability testing
- UV and daylight material testing
- Post-treatment for rapid prototyping / 3D printing
- UV curing, sealing, and bonding
- UVC aging and disinfection

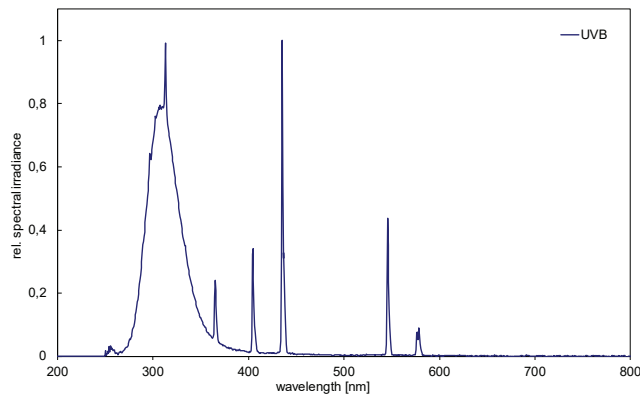
## SPECTRA



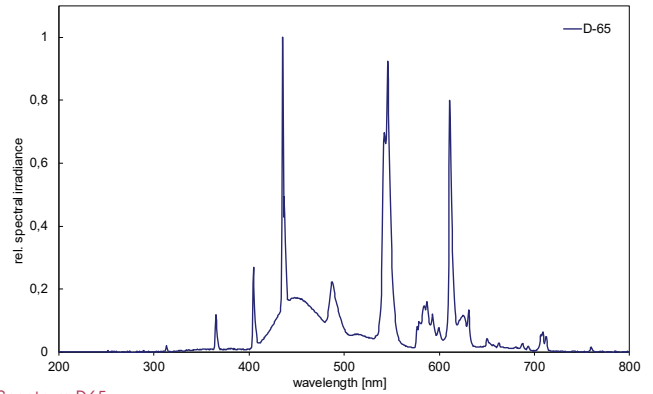
Spectra UVA / UVA Actinic



Spectrum UVC



Spectrum UVB



Spectrum D65

## TECHNICAL DATA BS-02

Interior chamber	46 x 32 x 20 cm
Dimensions	58 x 40 x 47 cm
Weight	~ 32 kg
Power consumption	180 W
Mains	110 - 230 V <sub>AC</sub> , 50/60 Hz
Operation temperature	10 to 40 °C
Humidity	< 80% non-condensing
Lamp lifetime	up to 10.000 h
Number of lamps	8
Sample temperature	25 °C +/- 5 °C
Irradiance UVA	8 mW/cm <sup>2</sup>
Irradiance UVA Actinic	8 mW/cm <sup>2</sup>
Irradiance UVB	5 mW/cm <sup>2</sup>
Irradiance UVC	10 mW/cm <sup>2</sup>
Irradiance D65	25.000 lux
Sample temperature	The cooling uses ambient air typically the temperature of the samples is ambient + 5 °C

Listed irradiance values are max values.

## TECHNICAL DATA UV-MAT

Measuring range	0 - 200 mW/cm <sup>2</sup>
Dose range	0 - 1.000.000 J/cm <sup>2</sup>
Dose resolution	1 mJ/cm <sup>2</sup>
AD conversion	24 bit
Sensor connectors	2, fully digital
PC interface	USB 2.0
Sensor identification	yes
Display	graphical, 128 x 64 px
Spectral ranges	UVC, UVB, UVA, or LUX
Dimensions	185 mm x 251 mm x 100 mm
Operation temperature	0 - 40 °C

With interchangeable lamps, the BS-02 is extremely flexible. For the lamp replacement no tools are required.



## INCLUDED ACCESSORIES

The irradiation chamber is modular expandable and thus optimal for different applications.

The following functions are always included:

### UV-MAT

The irradiance controller UV-MAT continuously measures the irradiance and stops the irradiation at the set target dose. Irradiation doses can be set separately for two spectral ranges. Included: Timer, dimming and operating mode switch



### TIMER



As an alternative to dose controlled irradiation, the UV-MAT offers an adjustable timer. This timer is suitable for time-controlled irradiations between 1 s and 999 days.

### SENSORS

Calibrated radiometric sensors are available for each spectral range. The integrated diffuser ensures the required cosine correction. Excellent long-term stability is achieved through the use of appropriate materials. The sensors are calibrated with traceability to PTB (the German national test authority); after being calibrated, they are supplied with a factory calibration certificate.



### CONTROL AND DIMMING



Two lamp groups can be controlled and dimmed separately.

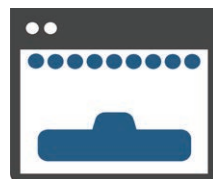
Example: 4 UVA and 4 UVB lamps.

The lamps are dimmable. The irradiance can be reduced to approx. 30%.

### SENSOR HOLDER

The sensor holder fixates one or two radiometer sensors laterally in the irradiance chamber. The sensors are removable for the measurement of the irradiance on the material to be irradiated. That way, the irradiance can be determined at the desired location. Via a factor, the UV-MAT can be adjusted.

### LAMPS



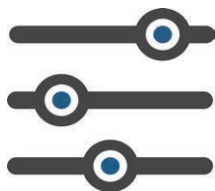
We offer the right lamps for different applications. With interchangeable lamps, the BS-02 is extremely flexible. Examples:

UVA-352 is used for the UV aging process with indoor applications and UVB lamps for the accelerated outdoor applications. UVC is used for the UV disinfection. With D65 you can execute light fastness tests, e.g. acc. to ICH Q1B.

## OPTIONAL ACCESSORIES

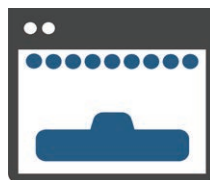
The following functions are optionally available:

### ATTENUATOR



Attenuators each reduce the irradiance to approx. 30%. We offer area attenuators and lamp attenuators. Both attenuators reduce the irradiance to 30% each. Use e.g. for the irradiation of cell cultures.

### INERT GAS BOX



Working under inert-conditions is possible with our removeable inert gas boxes.

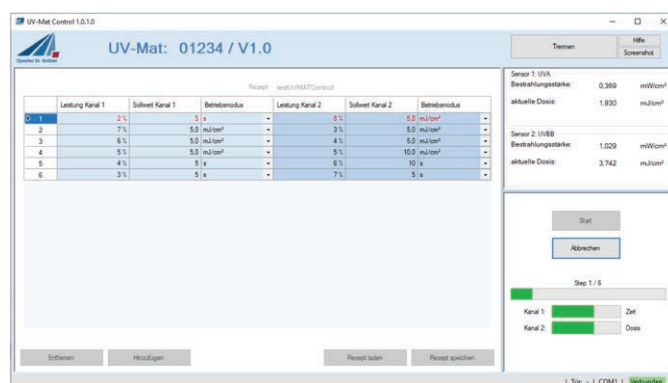
Separate gas inlets and outlets allow the measurement of O<sub>2</sub> concentration at gas outlet. Available with top window made of high quality glass for UVA / VIS irradiations or UV fused silica for UVB and UVC irradiations.

### REMOTE CONTROL OPTION

Complex, multi-stage irradiations, e.g. a pre-irradiation with UVA at low irradiance and then a high-intensity UVC irradiation can be easily and individually parameterized with the remote control option. Up to 30 dose- or time-controlled steps and pauses are possible.

At the same time the irradiation is logged and stored on the PC.

PC connection: USB 2.0



### OPTIONS

All irradiation chambers can be equipped with different options.

For example, for cell or virus irradiation and other laboratory applications, the dose control UV-MAT and attenuators are often used to achieve an extremely uniform and reproducible irradiation.

Medical applications benefit from the irradiation documentation, which is automatically controlled remotely.

We would be pleased to support you with your individual configuration of an irradiation chamber.

### PART NUMBERS

<b>BS-02</b>	860902
<b>Remote control, USB</b>	860900
<b>Radiometric sensors</b>	8144XX
<b>ISO 17025 calibration</b>	17025
<b>Lamps / spare lamps</b>	8608XX
<b>Inert box UVA or UVC</b>	86802-iA / -iC
<b>Attenuator for lamps</b>	870000
<b>Area Attenuator</b>	870001

Our calibrations are available as factory and ISO 17025 calibrations and are traceable to PTB standards. IP65 sensors, further measuring and spectral ranges available. Just ask us!

