

## UV test chamber BS-04



UV test chamber BS-04



dose controller UV-MAT Touch

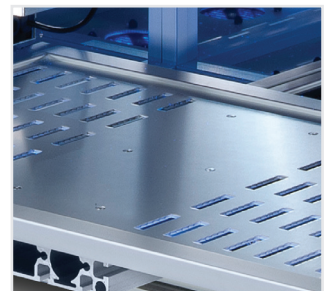
The UV test chamber BS-04 is large, robust equipment for the time- or dose-controlled irradiation of samples with UV light. The chamber can be fully equipped for one of the spectral regions UV-C, UV-B, or UV-A, to achieve the highest irradiance. Alternately, the use of two separately controlled lamp groups for different spectral regions allows for especially flexible operation of the chamber.

The interior UV test chamber has a large base area of 86 x 65 cm<sup>2</sup> and a height of 32 cm. The sliding sample carrier facilitates loading and unloading. With a load of up to 20 kg, this can withstand all demands. The sample chamber operating temperature is about 25°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.

For the BS-04 we offer two irradiation controllers, the UV-MAT and the UV-MAT Touch. Both irradiation controllers can control two spectral ranges separately and achieves a consistent dose regardless of lamp aging, contamination or temperature. The dose is measured with calibrated sensors. For this purpose,



Large and secured front door



sliding sample carrier

se, the sensor already contains an extremely precise analog-digital converter and a temperature sensor. The memory in the sensor contains all sensor identifications and the calibration history.

The UV-MAT Touch also records the irradiations and can be controlled by the PC. This makes multi-stage irradiations and the documentation of the irradiation possible.

Applications:

- Irradiation of bacteria and cell cultures
- Photostability testing
- UV and daylight materials testing
- UV curing, sealing, and bonding
- Irradiation with UVA-352 / UVB-313

## TECHNICAL DATA BS-04

Interior chamber	86 x 65 x 32 cm
Sliding sample carrier	78 x 60 cm
Dimensions	95 x 73 x 70 cm
Weight	~ 80 kg
Power consumption	400 W
Mains	110 - 230 V <sub>AC</sub> , 50/60 Hz
Operation temperature	10 bis 40 °C
Humidity	< 80% non-condensing
Lamp lifetime UVC	up to 9.000 h
Lamp lifetime UVB	up to 4.000 h
Lamp lifetime UVA	up to 4.000 h
Number of lamps	20
Sample temperature	25 °C +/- 5 °C
Spectra ranges	2
Irradiance UVA	8 mW/cm <sup>2</sup>
Irradiance UVA Actinic	10 mW/cm <sup>2</sup>
Irradiance UVB	5 mW/cm <sup>2</sup>
Irradiance UVC	12 mW/cm <sup>2</sup>
Sample temperature	The cooling uses ambient air typically the temperature of the samples is ambient + 5 °C

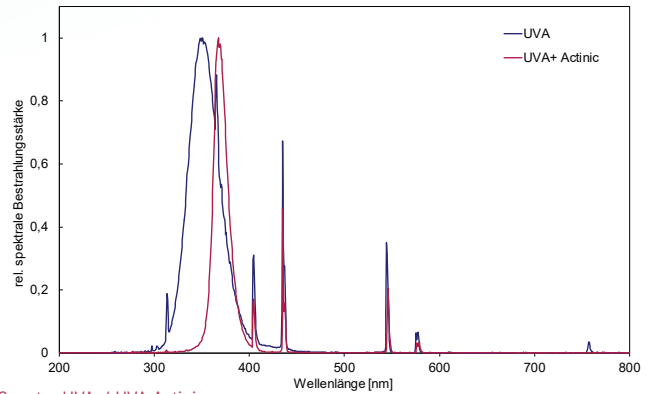
Listed irradiance values are max values.

## TECHNICAL DATA UV-MAT

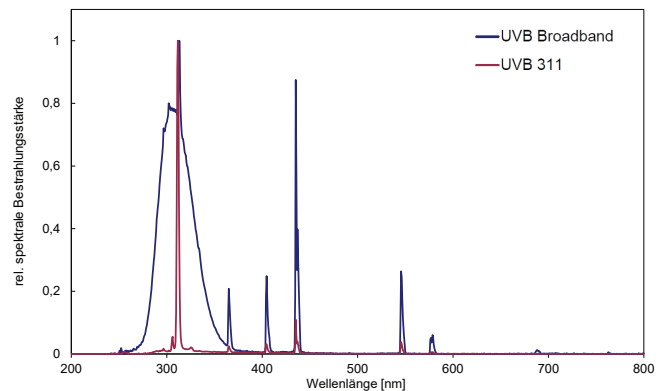
Sensor connectors	24 bit, fully digital
Number of sensors	2
Dose range	0 - 1.000.000 J/cm <sup>2</sup>
Dose resolution	1 mJ/cm <sup>2</sup>
AD conversion	24 bit
PC interface	USB 2.0
Sensor identification	yes
Dimensions	185 mm x 251 mm x 100 mm
Operation temperature	5 - 60 °C
Spectral ranges	
UVC	200 - 280 nm
UVB	280 - 315 nm
UVA	315 - 400 nm

## TYPICAL TECHNICAL DATA

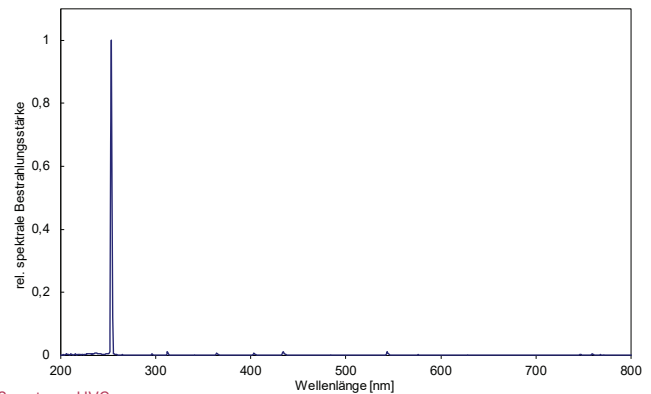
Calibration uncertainty	4,5 - 7,0% (k=2)
Linearity error	< 1%
Aging / year	< 3%



Spectra UVA / UVA Actinic



Spectra UVB broadband / UVB 311



Spectrum UVC

With interchangeable lamps, the BS-04 is extremely flexible. For the lamp replacement no tools are required.



Our calibrations are available as factory and ISO 17025 calibrations and are traceable to PTB standards.



## UV-MAT TOUCH

The UV-MAT Touch user interface is a high-resolution capacitive touchscreen. A powerful Cortex ARM processor ensures durability and updateability. This means that new functions can be installed directly on site. The UV-MAT Touch and the PC software are Windows 10/11 compatible.

Numerical and graphical single and multi-channel irradiations, oscillograms and the settings are clearly displayed. The parameterization is done intuitively directly on the UV-MAT Touch and is password protected.



## TECHNICAL DATA UV-MAT TOUCH

<b>Display</b>	Capacitive touch display
	5" WVGA
<b>Display output</b>	Irradiance + dose
	Oscilloscope view
<b>Data recording rate</b>	adjustable: 1 s - 1 h
<b>Recording duration</b>	> 24000 h
<b>Memory interface</b>	1 USB flash drive (up to 32 GB)

## TECHNICAL DATA UV-MAT

<b>Display</b>	graphical, 128 x 64 px
	monochrom
<b>Display output</b>	Irradiance + dose
	-
<b>Data export</b>	via USB
<b>Recording duration</b>	-

## FEATURES IN DETAIL

Did you know? The UV-MAT and the UV-MAT Touch use the same sensors. Therefore, these can be used on both devices.

The differences are:



UV-MAT Touch



UV-MAT

	UV-MAT Touch	UV-MAT
<b>Display</b>	Capacitive touch display	monochrom, 128 x 64 px
<b>Memory</b>	USB flash drive	-
<b>Number of channels</b>	2	2
<b>Irradiance, dose and temperature measurement</b>	✓	✓
<b>Time and dose controlled irradiations</b>	✓	✓
<b>Recordings of measurements</b>	✓	-
<b>Oscilloscope view</b>	✓	-
<b>Screenshots can be saved on USB flash drive</b>	✓	-
<b>Pause and restart of irradiations</b>	✓	-
<b>Add notes and comments to the irradiation</b>	✓	-
<b>Remote control from PC</b>	✓	-
<b>Irradiation logs</b>	USB flash drive	PC
<b>User control &amp; admin mode</b>	✓	-
<b>Easy firmware upgrades</b>	✓	✓

## INCLUDED ACCESSORIES

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

The following functions are always included:

### DOSE CONTROLLER



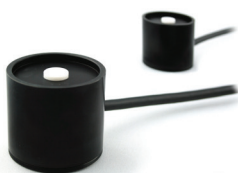
The irradiation controller UV-MAT continuously measures the irradiance and stops the irradiation at the set target dose.



The dose control UV-MAT Touch offers alternatively all functions of the UV-MAT, but simplifies the operation and documentation of the irradiations.

### 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.

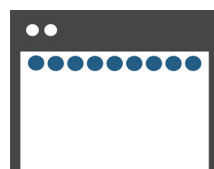
Example: 4 UVA and 4 UVB lamps.

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.

### TIMER



Alternative to the dose control, we offer a settable timer. This timer is suitable for a simple irradiation between 0,01 s and 9999 h. Timer is included in the standard system.

### IRRADIATION LOGS



The irradiations can be recorded with a PC.

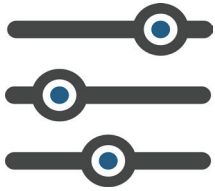
The UV-MAT Touch also records irradiations on a USB flash drive without a PC.



## OPTIONAL ACCESSORIES

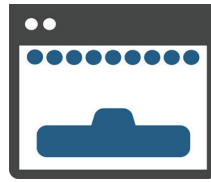
The following functions are optionally available:

### 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.

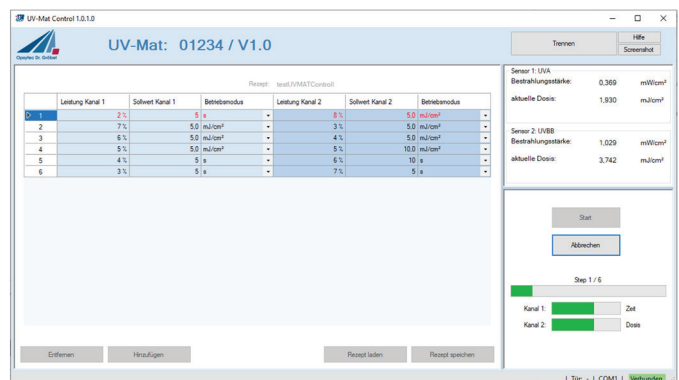
Separate gas inlets and outlets allow the measurement of O<sub>2</sub> concentration at gas outlet. Available with top window made of high quality glass for UVA / VIS irradiations or UV fused silica for UVB and UVC irradiations.

### PC SOFTWARE FOR UV-MAT TOUCH

Complex, multi-stage irradiations, e.g. a pre-irradiation with UV-A at low irradiance and then a high-intensity UV-C 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 Touch 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-04</b>	860904
<b>UV-MAT Touch</b>	820930
<b>UV-MAT</b>	820920
<b>PC-Software UV-MAT TOUCH</b>	860901
<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!

