

UV-LED chamber BSL-02



With the UV LED chamber BSL-02, we offer you a versatile irradiance chamber on a basis of high quality UV LEDs. The most common UV curing adhesives can be applied, due to the high irradiance of 400 mW/cm².

Compared to our irradiance chambers of the series BS, the series BSL-02 offers the 40-fold irradiance. In addition, the high irradiance allows for very short exposure times.

With the typical UV LED characteristics like „Instant-Start“, the dimmability and the long service life, the BSL-02 is ideal for laboratory tests and the manual production.

The irradiance is adjustable from 2% to 100%. The integrated timer controls the irradiance precisely. For even better results, we recommend one of our calibrated UVA+ sensors. The dose control is already integrated in the UV-MAT Touch and UV-MAT control units in the BSL-02 UV LED chamber. By means of an optional sensor, the UV-MAT measures the irradiance continuously, and stops the irradiance at the set target dose.

For different applications, wavelengths of 365 nm, 385 nm, 395 nm, 405 nm and 450 nm are available.

Optionally, two wavelengths can be controlled separately. That way, the irradiance chamber can be optimal customized for the requirements of the photoinitiator. We offer the BSL-02 in two versions:

0 to 400 mW/cm² (Version HO)

0 to 200 mW/cm² (Version ECO)

Due to the low heat input of the UV-LEDs and the temperature of approximately 40° in the sample chamber, thermal damages of the samples are minimized. Because of the high homogeneity of the irradiance, the samples can be placed in any position.

The BSL-02 has compact outer dimensions, but provides sufficient room in the sample chamber. The floor space is 46 x 32 cm and the height is 25 cm. In the completely closed and monitored irradiation chamber, the operating personnel are fully protected from the UV radiation.

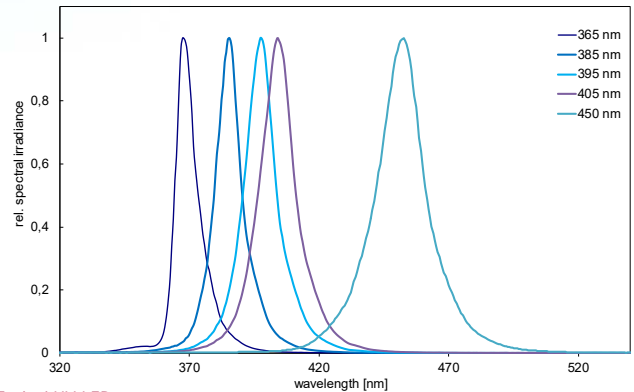
APPLICATIONS

- UV curing and UV bonding
- Sealing and encapsulating
- Laboratory investigation
- Manual bonding

TECHNICAL DATA BSL-02

Interior chamber	46 x 32 x 25 cm
Dimensions, chamber	55,5 x 40 x 43 cm
Weight	~ 40 kg
Power consumption	600-1200 W
Mains	100 - 240 V, 50/60 Hz
Operation temperature	10 to 40 °C
Storage temperature	-10 to 60 °C
Humidity	< 80% non-condensing
Cooling	air cooling
Sample temperature	~40 °C +/- 10 °C. Additional heating up by high UV irradiance
Classification	group 0 according DIN EN 12198:2000
PC interface	USB 2.0
Timer	0,01 s to 9999 h
Resolution	0,01 s
Internal security circuit	Over-temperature, door contact

The typical irradiances in an interior height of 30 mm are indicated. The irradiance can be increased by the short distance to the light source. The information corresponds to a complete fitting with LEDs of 365, 385, 395, 405 or 450 nm. In case of two wavelengths, the irradiation chamber is equipped with one LED type per half.



Typical UV-LED spectra

SPECIFICATIONS UV-LEDs

Wavelength	365, 385, 395, 405, 450 nm
Emission, peak tolerance	+/- 5 nm
Emission, FWHM	10 - 20 nm

IRRADIANCE HO

365 nm	200 mW/cm ²
385 nm, 395 nm, 405 nm	300 mW/cm ²
450 nm	400 mW/cm ²

IRRADIANCE ECO

365 nm	100 mW/cm ²
385 nm, 395 nm, 405 nm	150 mW/cm ²
450 nm	200 mW/cm ²



Uniformity of irradiation

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.

TECHNICAL DATA UV-MAT TOUCH

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

TECHNICAL DATA UV-MAT

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

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 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.



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.

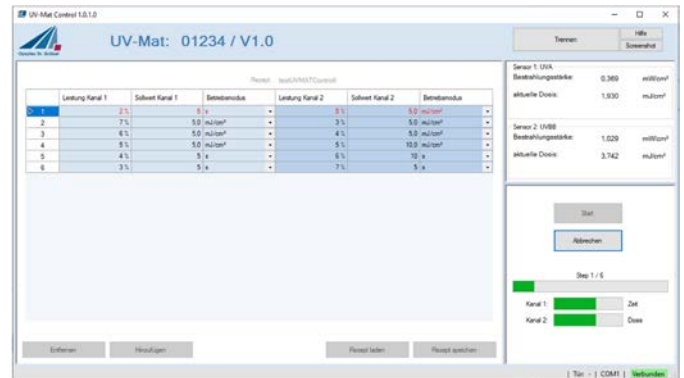
COMMON TECHNICAL DATA UV-MAT

Sensor connectors	24 bit, fully digital	PC interface	USB 2.0
Number of sensors	1	Sensor identification	yes
Dose range	0 - 1.000.000 J/cm ²	Dimensions	185 mm x 251 mm x 100 mm
Dose resolution	1 mJ/cm ²	Operation temperature	5 - 60 °C
Timer	0,01 s to 9999 h		

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.



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

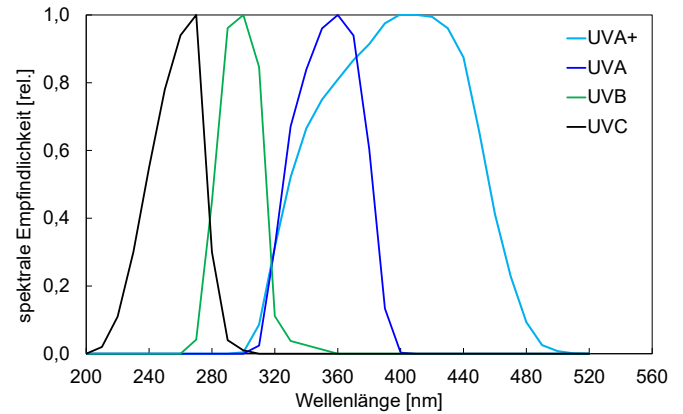
Display	Capacitive touch display	monochrom, 128 x 64 px
Memory	USB flash drive	-
Number of channels	2	2
Irradiance, dose and temperature measurement	✓	✓
Time and dose controlled irradiations	✓	✓
Recordings of measurements	✓	-
Oscilloscope view	✓	-
Screenshots can be saved on USB flash drive	✓	-
Pause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

TECHNICAL DATA SENSORS

The calibrated radiometer sensors are available for any LED wavelength. 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. Opsytec Dr. Gröbel GmbH has an accredited calibration laboratory. As an option, calibration according to ISO 17025 with DAkkS calibration certificate is possible.

Sensor type	UVA+
Spectral range	330 - 455 nm
Measuring range, typ.	0 - 10 W/cm ²
Resolution	1 µW/cm ²
Dose measuring range	0 - 100 MJ/cm ²
Dynamic range	up to zu 10 ⁷
AD conversion	24 bit
Temperature sensor	integrated
Dimensions	Ø 40 mm, h 35 mm
Optical surface	Ø 6 mm
Weight	160 g
Connection cable	1,8 m
Operating temperature	0 to 40 °C
Storage temperature	-20 to 60 °C
Humidity	<80%, non-condensing



Spectral sensitivity UVA+ sensor

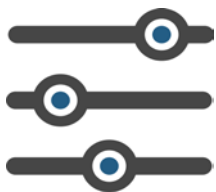
The specified measuring ranges are our recommended measuring ranges. These can be adapted on customer request. Please ask us or specify this when ordering.

ATTACHMENTS & OPTIONS

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

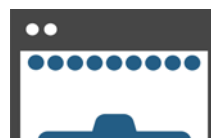
We gladly support you with your individual configuration.

DIMMING & SPECTRAL MATCHING



The LEDs are available for various applications. Optionally, two wavelengths are available so that mixing and switching are possible. The LEDs can be dimmed continuously from 2% to 100%.

INTERTGAS-BOX



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

Separate gas inlets and outlets allow the measurement of O₂ concentration at gas outlet. Available with top window made of high quality glass for UVA / VIS irradiations.

PART NUMBERS

BSL-02 HO Version	860902L-HO xxx nm
BSL-02 ECO Version	860902L-ECO xxx nm
UV-MAT TOUCH	820930L
UV-MAT	820920L

PC-Software UV-MAT TOUCH	860901
UVA+ Sensor	814445
DAkkS calibration	17025
Option 2. wavelength	860801X2
Inert gas box	860802i