

# X1-1-UV-3725

<https://www.gigahertz-optik.de/en-us/product/x1-1-uv-3725>

**Product tags:**



# Description

## General

UV-C disinfection, primarily from 254 nm low-pressure mercury lamps (also referred to as Ultraviolet Germicidal Irradiation UVGI), is an effective technique for the disinfection of air and surfaces. For example, it is being increasingly used in healthcare facilities to combat Healthcare Acquired Infections (HAI's). UV-C lamps in the Heating Ventilation and Air Conditioning (HVAC) systems can prevent the transmission of airborne pathogens such as tuberculosis bacteria and influenza viruses. Portable UV-C lamp systems are used in the process of decontaminating patient rooms or surgical suites.

To ensure the germicidal effect is maintained, particularly with respect to lamp ageing, the UV dose must be checked. This is achieved by measuring the UV irradiance at the location of exposure using a suitably qualified UV radiometer. Additionally, the potential risk to skin and eyes from relatively low UV intensity must also be determined if there is the possibility of human exposure to the UV radiation. Carrying out both measurements with one device requires UV radiometers with a very large dynamic range.

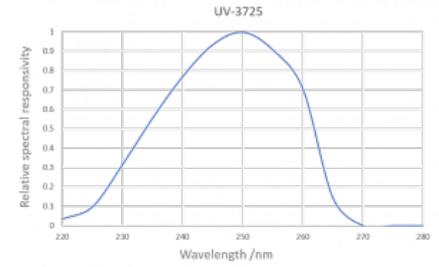
## Product description UV-3725 Irradiance Detector for UV-C low pressure mercury-vapor lamps

The model UV-3725 offers all properties and characteristics of the UV-37 Series detectors. They were specially developed for radiometric measurement tasks in the UV spectral range and have proven themselves over many years in industrial and scientific use.

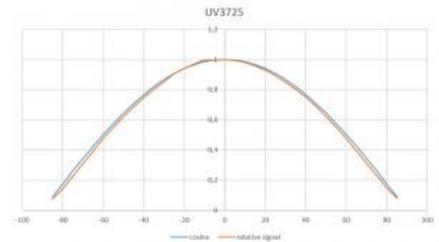
The UV-3725 detector contains a photodiode with an optical band-pass filter, which is only sensitive in the effective spectral range of germicidal UV-C low-pressure mercury-vapor lamps.

To measure the irradiance, the input optic of the detector is a diffuser with a cosine field of view, which must be positioned in the desired measurement plane. The diffuser, the optical correction filter and the photodiode are pre-aged with UV radiation to significantly reduce the inevitable aging process resulting from exposure to UV radiation. The UV-3725 detector therefore shows very little aging effects even when used intensively. Changes are recorded and corrected as part of the recommended annual recalibration.

The photodiode of the UV-3725 detector offers a strictly linear relationship between the measurement signal and the irradiance in the range from a



*Typical spectral responsivity of UV-3725 detector*



*Typical field of view with excellent cosine correction*



*Mobile UV radiometer with separate measuring device and detector for measuring the irradiance and dose of germicidal mercury lamps.*

few pico-amps ( $10^{-12}$  A) to several micro-amps ( $10^{-6}$  A). When connected to a Gigahertz-Optik X1 optometer, it offers a linear measuring range of up to at least 2000 mW / cm<sup>2</sup> with a resolution of 0.001  $\mu$ W / cm<sup>2</sup>.

## Calibration

Reliable measurements in absolute units require the calibration of a measuring device with traceability to the standards of a National Metrology Institute, NMI. The Gigahertz-Optik measuring laboratory has been accredited since 1993 by the PTB (Physikalisch-Technische Bundesanstalt) and the DAkkS as a calibration laboratory for measuring spectral sensitivity and spectral irradiance. Since then, all factory calibrations have been closely based on the calibration standards and quality management of the accredited calibration laboratory. The factory calibrations from Gigahertz-Optik therefore offer maximum traceability and have been recognized worldwide for many years.

According to the requirements of individual industrial, research and healthcare sectors, part of the measuring laboratory is accredited by the DAkkS as a test laboratory according to DIN EN ISO / IEC 17025. For this reason, in addition to the factory certificate, Gigahertz-Optik can optionally offer a DIN EN ISO / IEC 17025 test certificate for the UV radiometer X1-1 with UV-3725.

Each UV-3725 detector is individually calibrated for its spectral irradiance responsivity at 254 nm.

### **X1 Optometer**

The measuring device X1 evaluates the signal from the UV-3725 detector and displays the measured irradiance in absolute units (mW / cm<sup>2</sup>). The high-quality signal amplifier of the meter supports the very large dynamic range of the detector and thus offers a measuring range of up to > 2000 mW / cm<sup>2</sup> with a resolution of 0.001  $\mu$ W / cm<sup>2</sup>. In addition to the irradiance, the dose can also be displayed in mJ / cm<sup>2</sup>. The meter has a peak hold display function. The ergonomic housing of the device with its two AA batteries supports mobile use. Alternatively, the measuring device can be operated via its USB interface with the available application software for PCs. A software development kit (SDK) enables the meter to be integrated into user-defined software.

## Specifications

### General

Short description	UV radiometer for UV-C low-pressure Hg germicidal lamps
Main features	Mobile measuring device with separate detector. Easy to use. Large measuring range for high radiation intensities for disinfection efficacy of Hg lamps and low radiation levels for the evaluation of UV hazard.
Measurement ranges	For 254 nm low pressure Hg lamps. Linear measuring range up to > 2000 mW / cm <sup>2</sup> with instrument X1. N.E.I. 0.004 μW / cm <sup>2</sup> . Resolution 0.001 μW / cm <sup>2</sup>
typical applications	UVGI for disinfection of air and surfaces
Calibration	Calibration of the absolute responsivity at 254 nm and the relative spectral responsivity.
<b>Measurement Head</b>	
Broadband detector	UV-3725 UV detector for low-pressure Hg germicidal lamps. <a href="#">UV-3725 data sheet</a>
<b>Accessories</b>	
Display	X1-1-V03 Handheld meter for display of irradiance mW / cm <sup>2</sup> and dose J / cm <sup>2</sup> with peak-hold function. <a href="#">X1-1 data sheet</a>

## Downloads

Type	Description	File-Type	Download
Drawing	UV-3725	pdf	<a href="https://www.gigahertz-optik.de/assets/Uploads/102960.pdf">https://www.gigahertz-optik.de/assets/Uploads/102960.pdf</a>

## Purchasing information

Article-Nr	Modell	Description
<b>Product</b>		
15312097	UV-3725-5	Detector with -5 type connector. Calibration with factory calibration certificate.
15312065	X1-5	Instrument for use with UV-3718-5, 2 x 1.5 V AA batteries, USB cable, manual.
15298465	UV-3725-4	Detector with -4 type connector. Calibration with factory calibration certificate.
15311738	X1-1-V03	Instrument for use with UV-3718-4, 2 x 1.5 V AA batteries, USB cable, manual
15297539	BHO-11	Hardcase for X1 instrument and UV-3718 detector connected to the meter.
15312240	KP-UV3725X1-E-I	Option: DIN EN ISO/IEC 17025 Test Certificate (DAkkS) for 254 nm Hg lamps. Contact sales team for other wavelength options. In combination with X1 optometer.
<b>Re-calibration</b>		
15300518	K-UV3725-S	Re-calibration of irradiance responsivity in A/(W/m <sup>2</sup> ) and A/(W/cm <sup>2</sup> ) at 254nm with calibration certificate.

Article-Nr	Modell	Description
15300671	K-X11-C	Current calibration and adjustment of Gigahertz-Optik´s optometer X1-1 by use of a calibrated current source. Calibration certificate.
15312239	KKP-UV3725X1-E-I	DIN EN ISO/IEC 17025 Test Certificate (DAkkS) for 254 nm Hg lamps. Contact sales team for other wavelength options. Includes factory calibration. In combination with X1 optometer.
<b>Software</b>		
15298071	S-X1	User software for X1 Optometer.
15298071	S-SDK-X20	Software development kit for software implementation of the X20 electronic into custom made software. Support X1-1, X1-2, X1-PCB.