# X1-RCH-116 LED UV Curing Meter

https://www.gigahertz-optik.com/en-us/product/x1-1-rch-116-4/

**Product tags: UV , VIS**

# Description

## UV Curing Industry uses UV-A and Blue Light Radiation

In **optical curing applications**, liquids (e.g. inks, coatings and adhesives) are excited by irradiation with **high-intensity UV-A and blue light radiation**. The UV curing or Blue Light curing process is activated by photoinitiators absorbing the UV or blue light energy which triggers the polymerization reactions (see Photoinitiators for UV and visible curing of coatings: Mechanisms and properties). In the past, only gas discharge lamps provided sufficient intensity within the photoinitiators' wavelength range for this purpose. Today, these are increasingly being replaced by **LEDs for UV Curing** that emit in the UV and blue spectral range. In order to ensure optimal triggering of the polymerization, the irradiance of the UV lamp must be set in accordance with the corresponding process parameters. In continuous operation, the constancy of the irradiance must be regulated and readjusted when necessary depending on the aging of the lamps. The required UV radiometer, especially its detector, must be able to withstand the high-intensity UV and blue light radiation as well as the relatively high temperatures.

See also our application page about **accurate UV Curing and Blue Light Curing Measurements**.

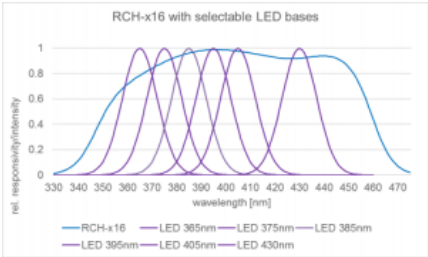
*UV Curing Radiometer with a separate RCH-116-4 detector for measurement of high-power LED lamps in UV-A and blue light radiation curing*

## Curing Radiometer with Detector for Measurement of UV Curing Systems

The X1-1 RCH-116-4 UV Radiometer features an X1 four-channel optometer and an **RCH-116 high intensity and high temperature resistant irradiance detector**. This combination is ideal for measuring irradiance of high power Curing LEDs in the UV-A and blue light range. UV curing light sources appear in different geometries. **Our detector design allows precise measurements of curing with UV light applications by spot light sources, line arrays and floodlight systems.**

- Accurately measure of high irradiance levels of up to 40,000 mW/cm²
- Spectral responsivity 365 nm - 440 nm (UV to blue)
- Cosine corrected field of view ($f_2$) for low measurement uncertainty with extended area radiators
- Calibrated at six UV LED and blue LED peak/centroid wavelengths for LED UV curing and UV led curing systems
- Performs accurate measurements for 6 standard LED wavelengths
- Sensor's housing serves as a handle
- High-end signal amplifier supports usable dynamic range from less than 1 mW/cm² to 40,000 mW/cm²
- Portable UV Curing Meter suitable for use in the field

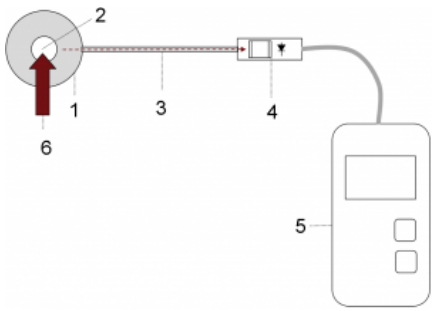
One of the outstanding features of the RCH-116-4 UV and Blue Light Curing Detector is its proven concept of a passive radiation absorber coupled to a UV sensor. This provides stability even in high temperature and intense UV and Blue radiation environments. In addition to the passive radiation absorber, the device also has a cosine-corrected field of view. In addition to the CW measurement function, the device also has a dose measurement function. The radiometer can be used with other detectors from the RCH High Temperature and Intensity Detector Series. e.g. for gas discharge lamps. Remote control of the device is possible via its user software and a software development kit is offered for integration of the device in the user's own software.




*Typical spectral responsivity of detector RCH-116 with the six calibration wavelength for lowester measurement uncertainty respectively highest accuracy for common LEDs in UV and Blue-light curing application*

## Calibration of a UV Curing Meter

One essential quality feature of photometric devices is their precise and traceable calibration. The RCH-116-4 detector is calibrated for standard **Curing LED wavelengths: 365 nm, 375 nm, 385 nm, 395 nm, 405 nm, and 430 nm**. The calibration is performed by **Gigahertz-Optik's ISO 17025 calibration and testing laboratory allows highest accuracy** since is




*1) RCH-116-4 detector 2) Passive radiation absorber 3) fiber 4) Handle (with UV photodiode and filters) outside the UV radiation area*

accredited by DAkkS (D-K-15047-01-00) for the *spectral responsivity* and *spectral irradiance* according to ISO/IEC 17025. The calibration and calibration values are confirmed by a calibration certificate for every detector.

## Specifications

| | |
|---|---|
| **General** | |
| Short description | Handheld UV Curing radiometer with a separate detector measurement of high-power LED lamps in UV-A and blue light radiation curing |
| Main features | Detector with passive radiation absorber suited for high temperature and precise UV sensor |
| Measurement range | 1 mW/cm² to 40,000 mW/cm². LED wavelengths: 365 nm, 375 nm, 385 nm, 395 nm, 405 nm, and 430 nm |
| Typical applications | Monitoring and regulation of LED emitters in UV-A and blue light radiation curing |
| Calibration | Irradiance W/cm². Factory calibration. Traceable to international calibration standards |

## Downloads

| Type | Description | File-Type | Download |
|---|---|---|---|
| X1-1-RCH-116 Technical Datasheet | X1-1-RCH-116 Brochure | pdf | https://www.gigahertz-optik.com/assets/Uploads/TD-X1-1RCH-116-EN-sheets.pdf |

## Purchasing information

| Article-Nr | Modell | Description |
|---|---|---|
| **Product** | | |
| 15298890 | X1-1 | Optometer setup for Curing applications, 2 x 1.5 V AA batteries, USB cable, manual |
| 15297984 | RCH-116-4 | Detector with rigid light guide for Curing Applicaiton. Cable -4 type connector. Calibration with calibration certificate. |
| 15295239 | BHO-05 | Hardcase for X1 type instrument and one RCH-1 type detector. |
| **Re-calibration** | | |
| 15300468 | K-RCH116-S | Calibration of irradiance sensitivity in A/(W/cm²) and A/(W/m²) at 365nm, 375nm, 385nm, 395nm, 405nm and 430nm. Calibration certificate.<br><br>Option: Calibration of the relative spectral responsivity. |
| 15300671 | K-X11-C | Current calibration and adjustment of Gigahertz-Optik´s optometer X1-1 by use of a calibrated current source. Calibration certificate. |
| **Software** | | |
| 15298167 | S-X1 | User software for X1 Optometer. |

| Article-Nr | Modell | Description |
| --- | --- | --- |
| 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. |

## Contact, Calibration, Service & Support

We are known worldwide for excellent technical consulting and after sales support. Contact us to find together the best solution for you. Our services:

- Technical Consulting & Sales
- After-Sales Support
- Calibrations & Re-Calibrations (ISO/IEC 17025 Calibration Services, factory calibration, Calibration of Third-Party Products)
- Repairs & Updates
- OEM & Feasibility Consulting of Customized Solutions

Send us your inquiry or contact us by phone or e-mail. We would welcome your feedback too or review us on Google.

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