

# RCH-005

<https://www.gigahertz-optik.de/en-us/product/RCH-005>

**Product tags: UV**



# Description

## Detectors for High Irradiance Light Sources

High power irradiances light sources are in use for several applications

- Solar Simulators
- High speed Imaging
- Environmental Simulation
- UV Curing

## Irradiance and Irradiance Dose Quantification

As a light source ages its light output changes so in a critical process the source irradiance and energy needs to be quantified to ensure a constant incident irradiation over the entire lamp operating time.

## Selection of Spectral Ranges from 250 nm to 400 nm

The effective radiation in a UV process typically falls within a narrow wavelength range within the lamp's total emission spectrum. Therefore optical bandpass filters are used to limit the detector's sensitivity to that narrow spectral range of interest.

## UV-Energy and Heat Resistant Detector Design

High energy UV radiation places special demands on the radiometers used to measure these high power sources. Conventional UV irradiance detectors exhibit drift and instability over time and use. Gigahertz-Optik has developed a detector design based on an integrating element called RADIN that is able to withstand these high temperatures and high UV radiation. The RADIN element is exposed to the UV signal while the active detector is capsulized outside of the irradiated zone and coupled to the RADIN input optic by fiber light guide.

## RCH-0xx Series Detectors with Flexible Light Guide

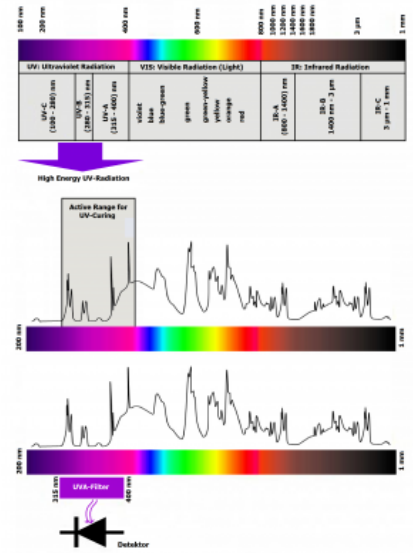
The RCH-0 detectors are equipped with a 50 cm / 20 inch long flexible light guide between the RADIN element and the photodiode/filter capsule. The flexible light guide allows the sensor element to be placed remotely. The rigid light guide version is recommended for all applications where bending of the light guide is not required to get the RADIN element into position for measurement.

## RCH-1xx Series Detectors with Rigid Light Guide

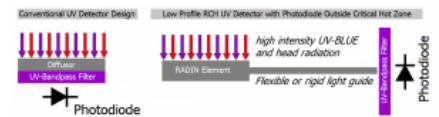
The RCH-1 detectors are supplied with a 22 cm / 8.7 inch long rigid light guide between the RADIN element and the photodiode/filter capsule.

## Traceable Calibrations

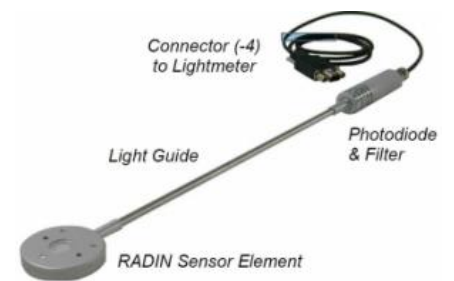
Calibration of irradiance in  $W/cm^2$  and  $W/m^2$  is performed at Gigahertz-Optik's Calibration Laboratory for Optical Radiation Quantities.



*Optical radiation is spectrally defined as covering from UV-C to far infrared. In UV Curing applications only the high energy radiation in the UV-C to BLUE range is initialization the polymerization. UV Curing detectors should only detect UV within the specified wavelength range of the irradiation source.*



*Conventional UV detectors are built with a diffuser, UV bandpass filter and photodiode which are directly irradiated by the high intensity ultraviolet and heat radiation which can reduce life time and cause damage and temperature drift. Gigahertz-Optik's RCH series UV detectors are built with a low profile housing and UV and temperature stable Radiation Integrator. The photodiode and UV bandpass filters are located outside the critical hot zone coupled to the RADIN diffuser by a flexible or rigid light guide.*

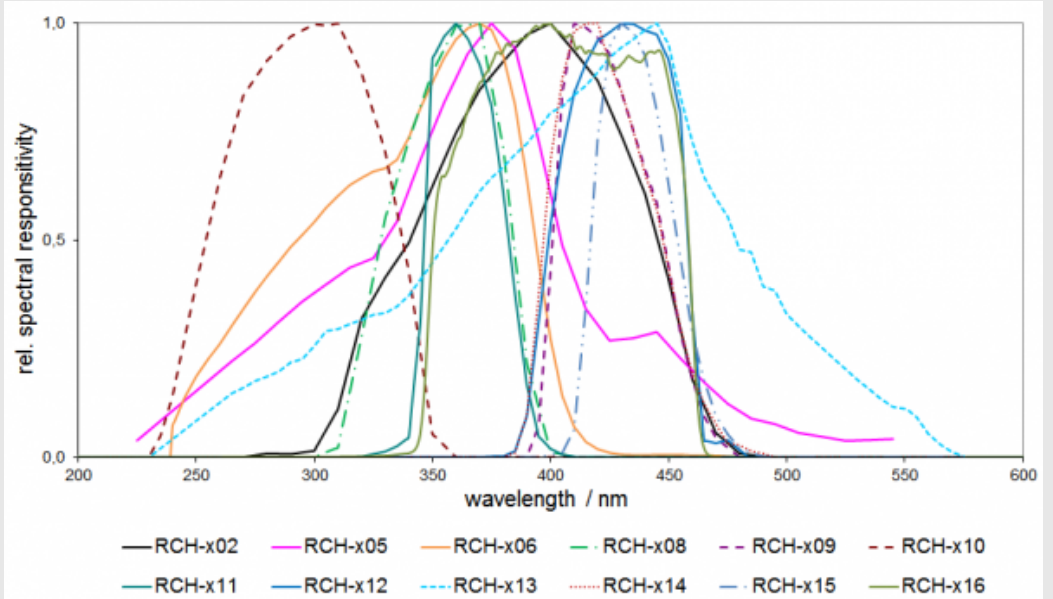


RCH-0 Head with Flexible Light Guide

## Specifications

### Product

spectral responsivity



Input optics

9 mm, diffuser

Dimensions

Measurement head:  
Height: 8 mm / Diameter: 37 mm  
Detector element:  
Length: 65 mm / Diameter: 15 mm

Light Guide

Flexible: 50 cm / 20 inch

typical responsivity

UVA BLUE (320 - 460) nm: tbc. A/(mW/cm<sup>2</sup>)

max. Irradiance

40 W/cm<sup>2</sup>

Max. signal current

100  $\mu$ A

### Miscellaneous

temperature range

up to + 100 °C


Cable Length

50 cm

Connector

-1,-2 or -4

## Configurable with

Produktname	Product Image	Description	Show product
X1		<p>Four-channel USB optometer designed for mobile use.</p> <p>Features: Compact device for use with all photometric, radiometric, colorimetric, plant-physiologic and photo-biologic measurement heads from Gigahertz-Optik. USB interface. Battery operation or power supply USB.</p>	<a href="https://www.gigahertz-optik.de/en-us/product/X1">https://www.gigahertz-optik.de/en-us/product/X1</a>
X1-2		<p>Four-channel RS232 optometer designed for mobile use.</p> <p>Features: Compact device for use with all photometric, radiometric, colorimetric, plant-physiologic and photo-biologic measurement heads from Gigahertz-Optik. USB and RS232 interface. Battery operation or power supply USB.</p>	<a href="https://www.gigahertz-optik.de/en-us/product/X1-2">https://www.gigahertz-optik.de/en-us/product/X1-2</a>
P-9710		<p>High-quality device for measurement of CW-, single pulse and modulated radiation.</p> <p>Features: Optometer for all detector heads with calibration data plug. Measurement modes: CW, pulse energy, dose, peak-to-peak, effective luminous intensity (Blondel-Rey), data logger, battery, main power, RS232</p>	<a href="https://www.gigahertz-optik.de/en-us/product/P-9710">https://www.gigahertz-optik.de/en-us/product/P-9710</a>
P-2000		<p>Two-channel optometer.</p> <p>Features: For use with most photometric and radiometric detectors supplied by Gigahertz-Optik. Modes: CW, pulse energy from both single and multiple flashes, effective luminous intensity (Blondel-Rey), data logger and others.</p>	<a href="https://www.gigahertz-optik.de/en-us/product/P-2000">https://www.gigahertz-optik.de/en-us/product/P-2000</a>
P-9801		<p>Eight-channel optometer.</p> <p>Features: State-of-the-art 8 channel laboratory optometer with a signal amplifier and sample &amp; hold ADC per channel for clocked recording of the measurement signals. RS232 and IEEE488 interface. Trigger input and output.</p>	<a href="https://www.gigahertz-optik.de/en-us/product/P-9801">https://www.gigahertz-optik.de/en-us/product/P-9801</a>
P-9802		<p>Light meter for laboratory use with up to 36 measurement heads.</p> <p>Features: For use with up to 36 photometric and/or radiometric measurement heads. RS232 interface.</p>	<a href="https://www.gigahertz-optik.de/en-us/product/P-9802">https://www.gigahertz-optik.de/en-us/product/P-9802</a>
X1-RM		<p>Optometer in 3HE housing for use in 19" racks.</p> <p>Features: Its USB and RS232 remote interface and two additional RS232 device interfaces make the device highly flexible when it comes to system integration. Its four signal inputs enable use with all photometric, radiometric, colorimetric, plant-physiologic and photo-biologic measurement heads from Gigahertz-Optik.</p>	<a href="https://www.gigahertz-optik.de/en-us/product/X1-RM">https://www.gigahertz-optik.de/en-us/product/X1-RM</a>
X1-PCB		<p>Optometer module.</p> <p>Feature: The X1 optometer is available as a printed circuit board either with or without a housing and is suited for applications that do not require a keyboard or display. Four signal inputs enable connection with all measuring heads from Gigahertz-Optik.</p>	<a href="https://www.gigahertz-optik.de/en-us/product/X1-PCB">https://www.gigahertz-optik.de/en-us/product/X1-PCB</a>

Produktname	Product Image	Description	Show product
P-9202-4		<p>Fast response time trans-impedance signal amplifier.</p> <p>Features: High quality analogue amplifier with current-voltage conversion. Minimal diode offset voltage for short circuit operations. Bandwidths of up to 330kHz. 1µs rise time. Large I-U amplification range from 10pA/V to 1mA/V.</p>	<a href="https://www.gigahertz-optik.de/en-us/product/P-9202-4">https://www.gigahertz-optik.de/en-us/product/P-9202-4</a>
P-9202-5		<p>Universal trans-impedance signal amplifier.</p> <p>Features: High quality analogue amplifier with current-voltage conversion. Minimal diode offset voltage (1mV) for short circuit photodiode operations. 5µs to 20ms rise time depending on the amplification. Large I-U amplification range – 1×10<sup>-10</sup>A/V to 1×10<sup>-3</sup> A/V.</p>	<a href="https://www.gigahertz-optik.de/en-us/product/P-9202-5">https://www.gigahertz-optik.de/en-us/product/P-9202-5</a>
P-9202-6		<p>Highly sensitive trans-impedance signal amplifier.</p> <p>Features: High quality analogue amplifier with current-voltage conversion with minimal diode offset voltage (0.5mV) for short circuit photodiode operation of . 2.5s to 25s rise time depending on the amplification. Large I-U amplification range – 1×10<sup>-11</sup>A/V to 1×10<sup>-4</sup> mA/V.</p>	<a href="https://www.gigahertz-optik.de/en-us/product/P-9202-6">https://www.gigahertz-optik.de/en-us/product/P-9202-6</a>
X1-PCBC		<p>Optometer module.</p> <p>Feature: The X1 optometer is available as a printed circuit board either with or without a housing and is suited for applications that do not require a keyboard or display. Four signal inputs enable connection with all measuring heads from Gigahertz-Optik.</p>	<a href="https://www.gigahertz-optik.de/en-us/product/X1-PCBC">https://www.gigahertz-optik.de/en-us/product/X1-PCBC</a>

## Purchasing information

Article-Nr	Modell	Description
<b>Product</b>		
15295354	RCH-005-1	Detector with -1 connector and flexible light guide
15295355	RCH-005-2	Detector with -2 connector and flexible light guide
15297210	RCH-005-4	Detector with -4 connector and flexible light guide
<b>Re-calibration</b>		
15300709	K-RCHn05-I	Calibration with Certificate