RCH-115

https://www.gigahertz-optik.com/en-us/product/rch-18

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

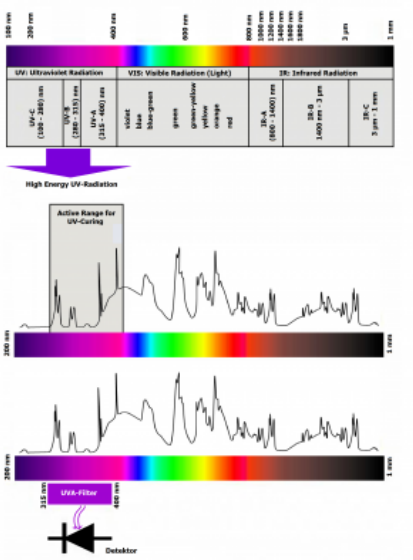
The RCH-0 detectors are equipped with a 50 cm / 20 inch long flexible light guide between the RADIN element and the photodiode/filter capsule. The flexible light guide allows the sensor element to be placed remotely. The rigid light guide version is recommended for all applications where bending of the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

RCH-1xx Series Detectors with Rigid Light Guide

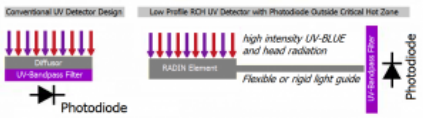
The RCH-1 detectors are supplied with a 22 cm / 8.7 inch long rigid light guide between the RADIN element and the photodiode/filter capsule.

Traceable Calibrations

Calibration of irradiance in W/cm² and W/m² 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-1 Head with Rigid 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	Rigid: 22 cm / 8.7 inch
typical responsivity	BLUE Peak 436 nm: tbc. A/(mW/cm²)
max. Irradiance	40 W/cm²
Max. signal current	100 µA
Miscellaneous	
temperature range	up to + 100 °C (short-term)
Cable Length	50 cm
Connector	-1,-2 or -4
Info	If a different light source needs to be measured than calibrated (spectral distribution), spectcral missmatch correction factors should be applied in order to achieve a low measurement uncertainty. At very high humidity fault-currents of the radiometer at low measurement currents are possible and need to be consiered. At higher temperature a temperature correction of the detector signal might be necessary in order to achieve a low measurement uncertainty.
Humidity	<80%, non-condensing

Purchasing information

Article-Nr	Modell	Description
Product		
-	RCH-115-1	Detector with -1 connector and rigid light guide
-	RCH-115-2	Detector with -2 connector and rigid light guide
15297449	RCH-115-4	Detector with -4 connector and rigid light guide
Re-calibration		
15300219	K-RCHn15-I	Calibration with Certificate