High Intensity Irradiance / UV-Curing

High Intensity Irradiance Detectors for UV-Curing Applications

Gigahertz-Optik offers irradiance detectors specially designed for hostile ambient conditions involving high intensity irradiation and high temperature.
The detectors consist of two main components, the passive RADIN element and the detector that are connected by a flexible or rigid light guide.
The light guide protects the detector and corrective band pass filter from heat damage and also reduces measurement errors due to the temperature coefficient (drift) of the photodiode.
RADIN itself is high UV irradiation and temperature stable up to 100° C with short peak measurements to 200° C. The low profile (9 mm) RADIN sensor element permits irradiance measurement close to the sample surface of the probe and offers a cosine adapted field-of-view.
Irradiances of up to 40 W/cm^2 can be measured.
For spot curing applications, adapters are available for simple positioning of different size light guide nozzles in front of the RADIN sensor.

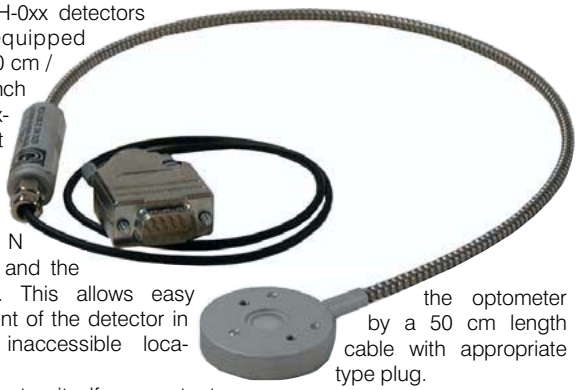
Three Different Package Designs

The RCH type detectors are offered in three different packages for use in the most common UV curing applications.

Three Different Spectral Sensitivities

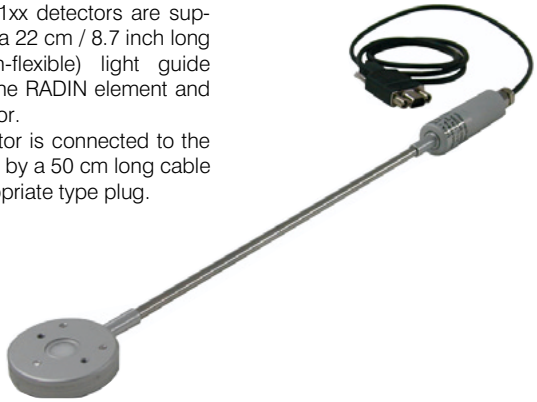
Detector spectral responses are available for the most common 365 nm peak UVA as well as UV broadband and BLUE ranges.

RCH-0: Low Profile with Flexible Light Guide



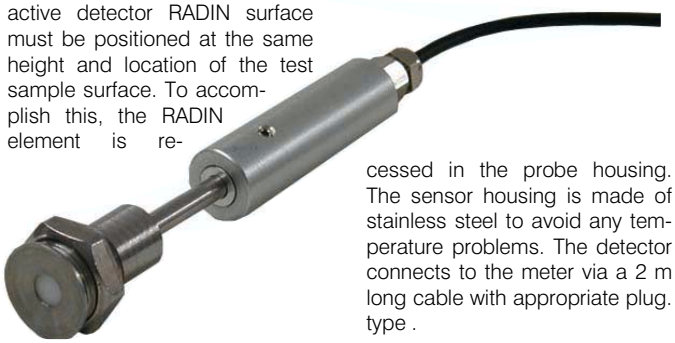
The RCH-0xx detectors are equipped with a 50 cm / 20 inch long flexible light guide between the RADIN element and the detector. This allows easy placement of the detector in remote inaccessible locations.
The detector itself connects to the optometer by a 50 cm length cable with appropriate type plug.

RCH-1: Low Profile with Rigid Light Guide



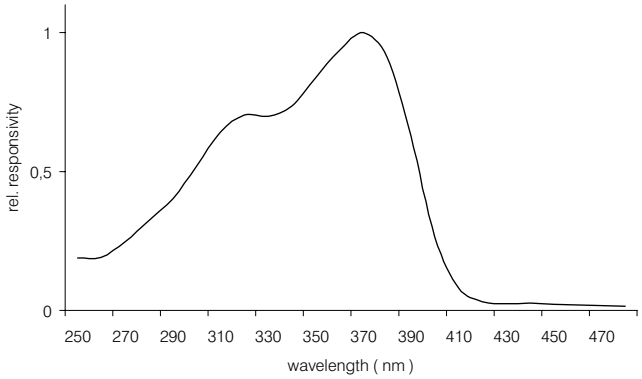
The RCH-1xx detectors are supplied with a 22 cm / 8.7 inch long rigid (non-flexible) light guide between the RADIN element and the detector.
The detector is connected to the optometer by a 50 cm long cable with appropriate type plug.

RCH-5: In-Line Detector

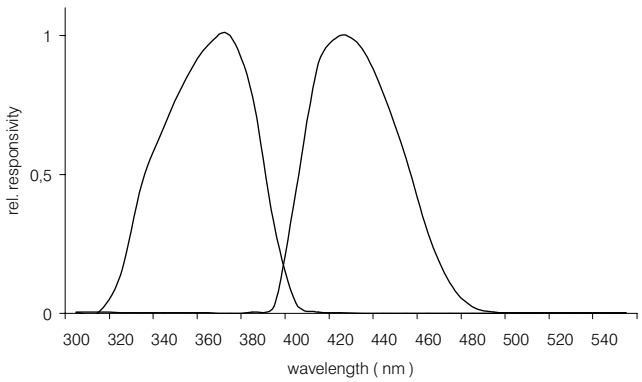


The RCH-5xx detectors are designed for applications where the active detector RADIN surface must be positioned at the same height and location of the test sample surface. To accomplish this, the RADIN element is recessed in the probe housing. The sensor housing is made of stainless steel to avoid any temperature problems. The detector connects to the meter via a 2 m long cable with appropriate plug. type .

06: UV Broadband Sensitivity



08/09: UVA 365 nm Peak & BLUE Sensitivity



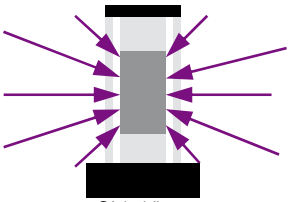
X9 2 with RCH-1xx *detector and light-guide adapter. Specifications and description in chapter Optometer*

RCH-1xx, RCH-1xx & RCH-5xx: High Intensity Irradiance Detectors

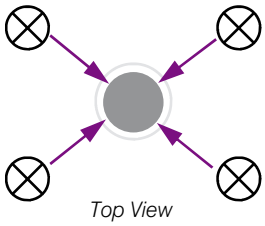
Ordering Information & typical Specifications													
Model	λresp	Resp.	Max. E & T		Typ. Sensitivity	Imax	Sensing Area	Light Guide	cable	Front adapter		plug	package
	Broadband	Page	W/cm²	°C	nA/mW/cm²	mA	Diffuser	cm / inch	m	Dia.	Page		page
RCH-006	UV Broadband	14	40	100	0.3	0.1	9 mm Ø	50 / 20	0.5	5,7,10	91	1,2,4	91
RCH-008	UVA Peak 365 nm	14	40	100	0.3	0.1	9 mm Ø	50 / 20	0.5	5,7,10	91	1,2,4	91
RCH-009	BLUE Peak 430 nm	14	40	100	0.2	0.1	9 mm Ø	50 / 20	0.5	5,7,10	91	1,2,4	91
RCH-106	UV Broadband	14	40	100	0.3	0.1	9 mm Ø	22 / 8.7	0.5	5,7,10	91	1,2,4	91
RCH-108	UVA Peak 365 nm	14	40	100	0.3	0.1	9 mm Ø	22 / 8.7	0.5	5,7,10	91	1,2,4	91
RCH-109	BLUE Peak 430 nm	14	40	100	0.2	0.1	9 mm Ø	22 / 8.7	0.5	5,7,10	91	1,2,4	91
RCH-506	UV Broadband	14	40	100	0.065	0.05	6 mm Ø	-	2	-	-	1,2,4	91
RCH-508	UVA Peak 365 nm	14	40	100	0.096	0.1	6 mm Ø	-	2	-	-	1,2,4	91
RCH-509	BLUE Peak 430 nm	14	40	100	0.065	0.1	6 mm Ø	-	2	-	-	1,2,4	91
K-RCHxxx-I	Calibration of irradiance sensitivity in A/W/cm². Includes K-SR in new detector order. xxx = detector model												
KDW-S2	Calibration of spectral irradiance sensitivity at one or multiple wavelengths without or in combination with accessory components												
KDW-R2	Calibration of integral irradiance sensitivity with accessory components.												

ROD-360-UV18: 360 Degree F.O.V. UV-C_{254nm} Irradiance Detectors

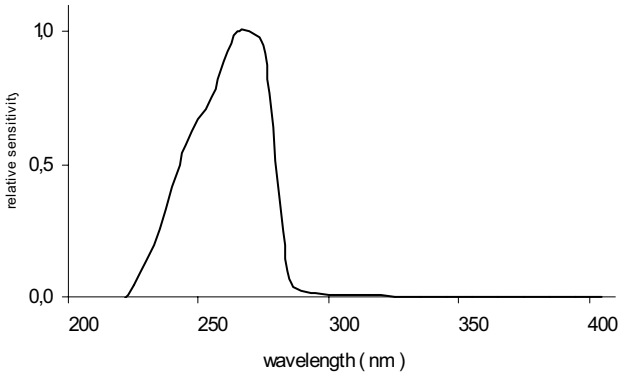
The ROD-360 is an unique irradiance detector which offers a 360 degree field-of-view.
A quartz-rod is used to collect all light irradiating it's diffuse detection window independent of the horizontal incident angle within the round angle. The vertical axis exhibits a diffuse viewing characteristic.

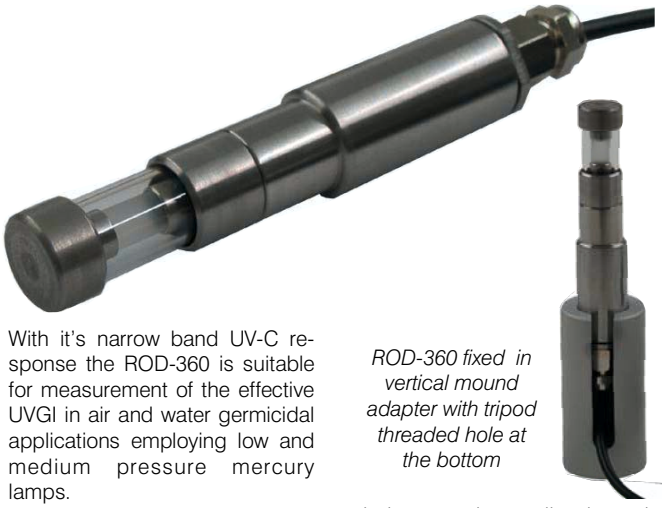


Side View



Top View





ROD-360 fixed in vertical mound adapter with tripod threaded hole at the bottom

With it's narrow band UV-C response the ROD-360 is suitable for measurement of the effective UVGI in air and water germicidal applications employing low and medium pressure mercury lamps.
Calibration is done using a 254 nm low pressure mercury light source.
The ROD-360 features a waterproof housing which allows measurements in humid or underwater applications. The 10 mm diameter clear quartz tube not only seals the detector rod but along with it's stainless steel housing the probe and active window can be easily cleaned. This makes the ROD-360 usable in gray water or other dirty measurement environments and also in medical applications.
A protective cap and mounting adapter is supplied to fixture the probe for vertical or horizontal use on a standard tripod or for integration into the application.

Ordering Information & typical Specifications										
Model	λresp	Wavelength Range	Typical Sensitivity		Imax	Sensing Area	cable	Operation Temp.	plug	package
	Narrow Band		nA/W/m²	µA/W/cm²	mA	Rod	m			page
ROD-360-UV18	UV-C	220-280 nm	0.8	8	0.1	5 Ø x 6.5 mm	2	0-40°C	1,2,4	92
K-ROD360-UV18-S	Calibration of the irradiance sensitivity in A/W/m² and. A/W/cm² Including K-SR in order with new detector.									
KDW-S2	Calibration of spectral irradiance sensitivity at one or multiple wavelengths									