

UV Sensor "TOCON-Probe"

Minature UV Sensor

GENERAL FEATURES



The "TOCON-probe" is a miniature UV sensor with a male threaded body (M12x1) with a 0...5 V voltage output. It works with an amplified UV photodetector from the sglux "TOCON"-series. The sensor will be configured upon individual customer's requirements which are clarified within the order process. Configurable parameters are the measurement range and the spectral responsivity. The determination of the individual dynamic range needs customer's assistance, e.g. information about the source to be measured and a typical distance between the sensor and the source.

This sensor is not adjustable. However, a PTB traceable determination of the sensor's individual sensitivity available. Figure 1 shows the different options regarding the spectral responsivity of the sensor. Our sales team is happy to assist our customers selecting the best suitable responsivity for the specific application. Alternatively, technical reports and selection guides are available on our website providing further assistance.

SPECTRAL RESPONSIVITY SELECTION OPTIONS

Figure 1 shows the available spectral responsivities. Table 1 shows the position of the peak and the 10% of maximum margins. For UV measurement, by default, unfiltered broadband SiC is applied. If a UV source also emits radiation that must not contribute to the sensor's signal (e.g. UV medium pressure lamps used for water or air purification that also emit non germicidal UV radiation) a filtered SiC sensor (UVC, UVB+C or UVA only) is to be selected. For measurement of radiation above 390 nm GaP based detectors are used.

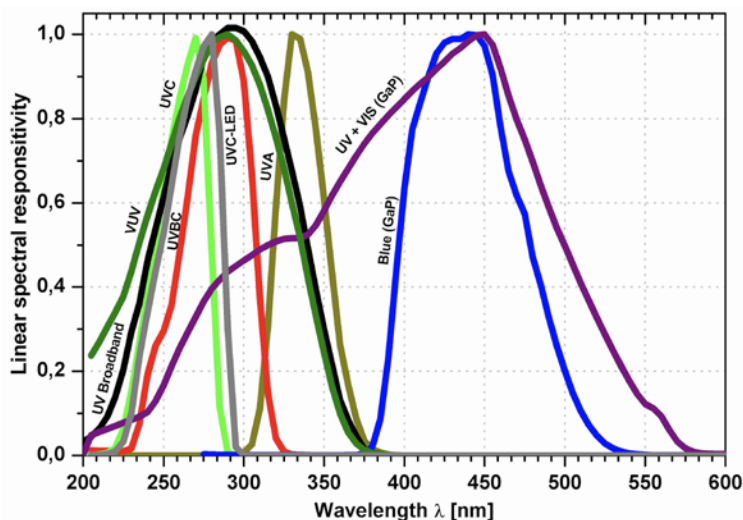


Table 1: position of peak responsivity and 10% of maximum margins, values in nm

SR	Peak	$\lambda_{S_{low}}$	$\lambda_{S_{high}}$
BroadB	280	221	358
UVA	331	309	367
UVBC	280	231	309
UVC	275	225	287
UVC-LED	285	225	298
VUV	280	170	355
UV+VIS	445	240	560
BLUE	445	390	515

Figure 1: available spectral responsivities

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GENERAL SPECIFICATIONS

▶ 2/3

FIXED SPECIFICATIONS Parameter Value

Dimensions	Please refer to drawing on page 4.
Field of view	Please refer to graph on page 4.
Weight	30g
Temperature coefficient (30 to 65°C)	<-0.3%/K for SiC / <-0.5%/K for GaP
Operating temperature	-20 to +85°C
Storage temperature	-40 to +100°C
Humidity	< 80%, non condensing
Time constant	0.1s +/-20% - other time constants on request, device has 1st order low pass characteristics
IP protection class	60

CONFIGURABLE SPECIFICATIONS Parameter Value

Spectral sensitivity	Broadband UV, UVA, UVBC, UVC, UV-Index, Bluelight or UV+VIS (see Fig. 1 at page 1)
Measurement range	The measurement range of a TOCON probe depends on the selected TOCON sensor. The following ranges are available from stock (others on request): 18 pW/cm ² to 18 nW/cm ² 180 pW/cm ² to 180 nW/cm ² 1.8 nW/cm ² to 1.8 μW/cm ² 18 nW/cm ² to 18 μW/cm ² 180 nW/cm ² to 180 μW/cm ² 1.8 μW/cm ² to 1.8 mW/cm ² 18 μW/cm ² to 18 mW/cm ² 180 μW/cm ² to 180 mW/cm ² 1.8 mW/cm ² to 1.8W/cm ² 18 mW/cm ² to 18 W/cm ²

SIGNAL OUTPUT SPECIFICATIONS

Signal Output 0 to 5 V	0 to 5V voltage output proportional to the irradiance
Supply voltage	7.5 to 24 VDC (0 to 5V output)
Current consumption	< 30mA
Connections	V-=2 (white), V+= 4 (black), V _{OUT} = 3 (blue)
Dark offset voltage	< 3 mV
Measurement range	3 orders of magnitude

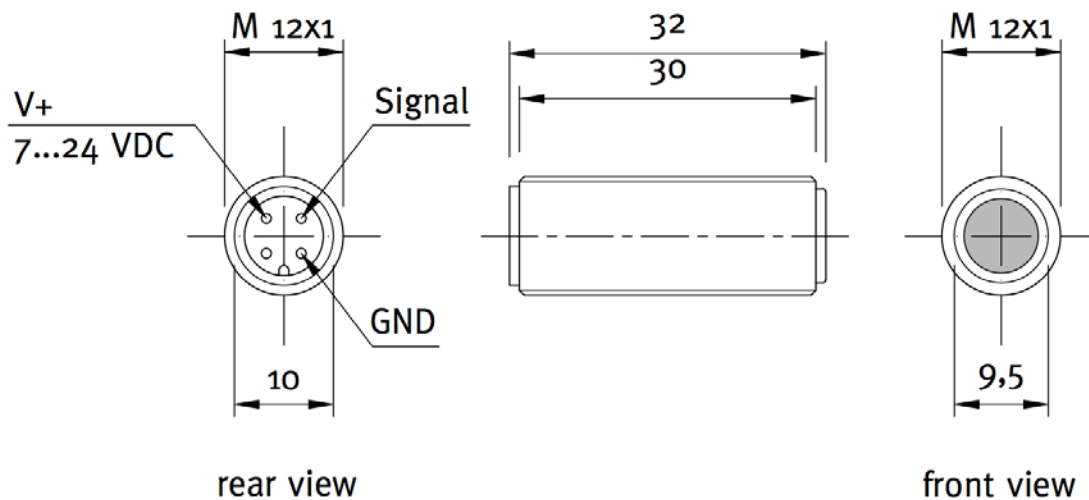
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▶ FIELD OF VIEW

The field of view depends on the applied TOCON.

▶ DRAWING (values in mm)



cable configuration :
black : V+
white : ground
blue : signal

Sensor Probes Overview

LABORATORY & EXPERIMENTS



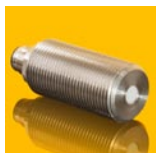
UV-Surface

Universal radiometric UV sensor for calibration and reference measurements, cosine correction. Often used with radiometer SXL55.



UV-Cosine

Waterproof dirt repellent UV sensor for outdoor measurement, cosine field of view. Also available as UVI sensor (ERYCA), M20x1.5 thread.



UV-Air

Axial measuring screw-in UV sensor very good EMC properties, M22x1.5 thread.



TOCON-Probe

Miniature UV sensor with 0 to 5 V voltage output, M12x1 thread.

SPECIAL APPLICATIONS



UV-Arc

Waterproof UV sensor for measurement of electric arcs between overhead contact wires and pantograph, complies with EN 50317, G3/4" thread.



sglux ERYCA

High accuracy UV-Index sensor, measurement uncertainty is <5%. The sensor complies with ISO 17166, M20x1.5 thread.



UVI-Solo

Like sglux ERYCA but configured as a ready-to-mount system (available for pole or railings assembly).



uvLink One

Wireless UV sensor with a display unit for intensity and dose measurement.

DUTY SENSORS MONITORING

UV DISINFECTION OF AIR, SURFACES AND WATER



UV-Sanitize

UV sensor for monitoring of air and surface UV disinfection systems, configurable for monitoring of Hg low pressure lamps, excimer lamps or xenon flash lamps, M20x1.5 thread.



UV-Water-G3/4

UV sensor for operation in pressurized water (10 bar), for Hg medium and low pressure lamps.



UV-Water-PTFE

PTFE UV sensor for operation in pressurized water (10 bar), only for Hg low pressure lamps or LEDs, G1/4" thread.



UV-ÖNORM / UV-DVGW

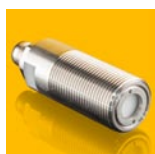
UV sensor for DVGW(160°) and ÖNORM certified water purifiers, also available as UV-DVGW (40°). The sensors comply with ÖNORM M5873, DVGW W294(06), DIN19294



UV-Radial

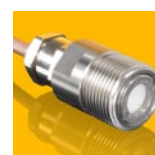
Waterproof side looking UV sensor for monitoring of lamp bundles, for operation in a cladding tube or directly in water, M20x1.5 thread.

HIGH UV RADIATION



UV-Cure

UV sensor for high irradiance (>100mW/cm²) for LED curing or cooled medium pressure lamps, M22x1.5 thread (temperature sensor available).



UV-Cure_HT

Like UV-Cure but for temperatures up to 170°C, e.g. for uncooled medium pressure systems, M22x1.5 thread.