UV Sensor "UV-Cure"

UV sensor for high UV irradiance (>100mW/cm²)

GENERAL FEATURES

The "UV-Cure" is a UV sensor for high UV irradiance (>100mW/cm²) and moderate operating temperature (<80°C). Typically this sensor is used as a duty sensor in LED and cooled medium pressure lamp based UV curing systems. It will be configured upon individual customer's requirements which are clarified within the order process. Configurable parameters are the signal output type, the measurement range and the spectral responsivity. The signal output is configurable as a 0...5V or 0...10V voltage output or a 4...20mA current loop. Digital output sensors are available with a MOD bus, a CAN bus or a USB interface.

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. A PTB traceable calibration can be ordered. 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 responsivites. Table 1 shows the position of the peak and the 10% of maximun 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 a filtered SiC sensor (UVC, UVB or UVA only) is to be selected. For measurement of radiation above 390nm GaP based detectors are used.

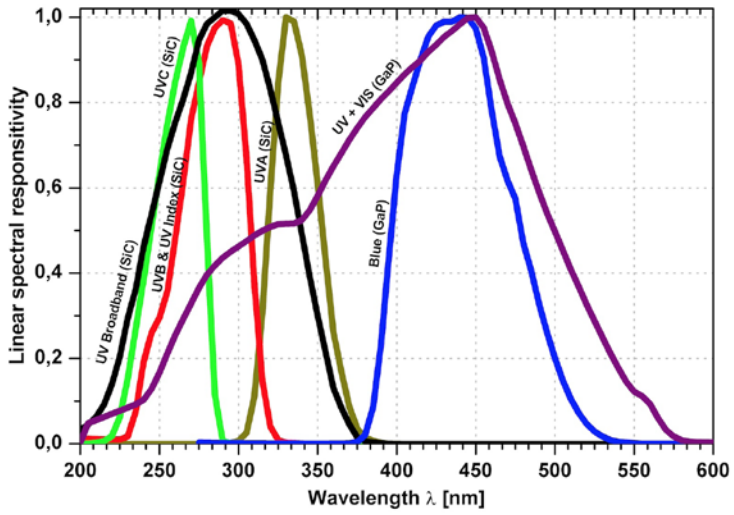

Figure 1: available spectral responsivities

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

SR	Peak	λ_S_{low}	λ_S_{high}
BroadB	280	221	358
UVA	331	309	367
UVB	280	231	309
UVC	275	225	287
UV+VIS	445	240	560
BLUE	445	390	515

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GENERAL SPECIFICATIONS

Fixed Specifications **Parameter**	**Value**
Dimensions	Please refer to drawing on page 4.
Field of view	Please refer to graph on page 4.
Weight	90 g
Temperature coefficient (30 to 65°C)	0.05 to 0.075%/K
Operating temperature	-20 to +80˚C
Storage temperature	-40 to +80˚C
Humidity	< 80%, non condensing
Time constant	0.1s +/-20% - other time constants on request, device has 1st order low pass characteristics
Configurable Specifications **Parameter**	**Value**
Spectral sensitivity	Broadband UV, UVA, UVB, UVC, Bluelight or UV+VIS (see Fig. 1 at page 1)
Measurement range	This sensor is designed for measurement of high irradiance. Any range between the lowest range of 10µW to 10mW/cm² and the highest range 20mW/cm² to 20W/cm² is configurable for analog sensors Any range between the lowest range of 1µW to 10mW/cm² and the highest range 2mW/cm² to 20W/cm² is configurable for digital sensors

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	2m cable version: V-=brown, V+=white, V_{OUT}=green, shield=black plug version 0-5V: GND=1(brown), V+=4(black), V_{OUT}=3(blue)
Dark offset voltage	< 3 mV
Measurement range	3 orders of magnitude
Signal Output 0 to 10 V	available on request

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Signal Output 4 to 20 mA	4 to 20mA current loop for PLC controllers - The current is proportional to the irradiance.
Supply voltage	24 VDC +/-10% (down to 12V possible if compliance voltage and loop resistance is considered)
Current consumption	=signal out
Connections	cable version: Iout=brown, V+=white, shield=black 2 m cable length, other lengths available (max.20 m) plug version: Iout=1(brown), V+=4(black)
Measurement range	3 orders of magnitude
Sensor compliance voltage	8.5 V
Max. loop resistance	645 Ohm @ 24V and 145 Ohm @12V
offset	4 mA +/- 0.01 mA
Signal Output USB	USB output with USB-A (to computer) or µUSB connector (to smartphone)
Supply voltage	5V (USB powered)
Current consumption	< 17 mA
Connections	USB2.0-A connector (to computer, free software "UVPLOT" is available) or USB2.0-micro-B connector (to a smartphone device like the Radiometer SXL55) 2m cable length.
Measurement range	4 orders of magnitude
Signal Output CAN bus	CAN Bus with VSCP protocol for integration into a bus system or to be used with the sglux UVTOUCH or the sglux Digibox
Supply voltage, current consumption	5 to 24 V +/- 10%
Connections	8-pin M16 x 0.75 connector: Pins 1&7 = CAN low, Pins 3&8 = CAN high, Pin 6=V+, Pins 2&4&5 = GND, 2m cable length, other lengths available
Measurement range	4 orders of magnitude
Available displays and converters	UVTOUCH and Digibox
Signal Out MOD bus	MOD bus RTU over RS-485 (connection parameters programmable)
Supply voltage, current consumption	5 to 24V +/-10%, typ. 20mA, max. 25mA
Connections	5-pin M12 connector at sensor side and Binder cable M12-A Series 763 with open wires, Shield =1 (shield), V+ = 2 (red), GND = 3 (black), B = 4 (white), A = 5 (blue)

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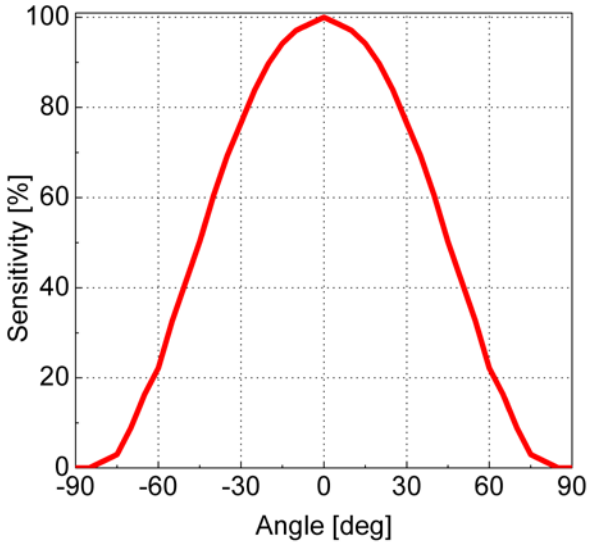
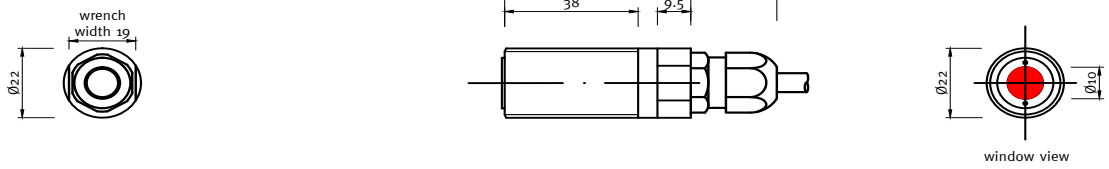
FIELD OF VIEW

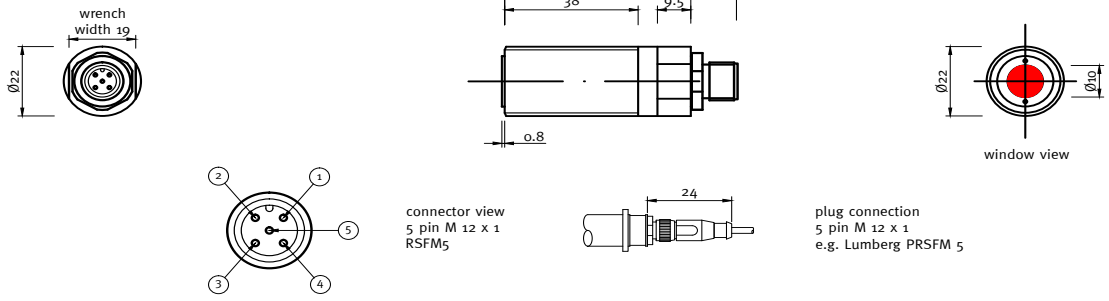


DRAWING (values in mm)

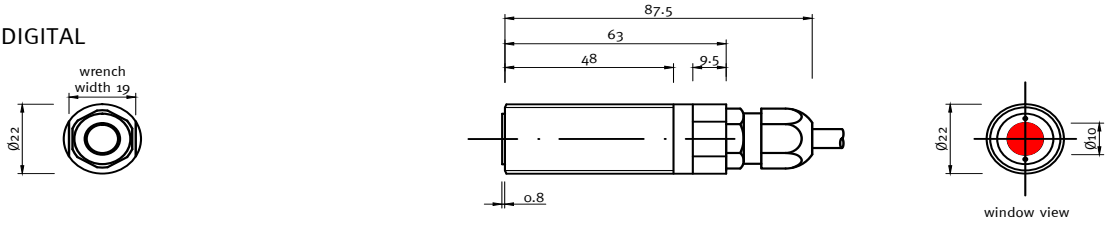
ANALOG CABLE



ANALOG PLUG



DIGITAL



CAN

USB

Sensor Probes Overview

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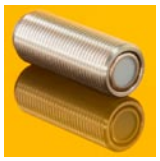
LABORATORY & EXPERIMENTS

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).

UV-Wireless
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.