

UV Sensor "UV-Cure_plus"

air flow cooled UV sensor for high UV irradiance and high temperature

GENERAL FEATURES



The "UV-Cure_plus" is an air flow cooled and purged UV sensor for high UV irradiance ($>100\text{mW}/\text{cm}^2$) and high operating temperature ($<170^\circ\text{C}$). Typically this sensor is used as a duty sensor in medium pressure lamp based UV curing systems. This sensor is designed and configured upon individual customer's requirements.

The pictures show an example.

Usually the sensor unit consists of a high temperature resistant Silicon Carbide (SiC) photodiode and an air flow driven cooling and window purge mechanism. This mechanism is used to reduce fouling effects caused by dust or vapors at the entrance window. A customized plug houses the sensor electronics that convert the photocurrent generated by the photodiode into the curing system's data bus. Available output options are MOD bus and CAN bus as well as analog output (0...5V or 0...10V voltage output or a 4...20mA current loop).

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 a filtered SiC sensor (UVC, UVB+C or UVA only) is to be selected. For measurement of radiation above 390nm GaP based detectors are used.

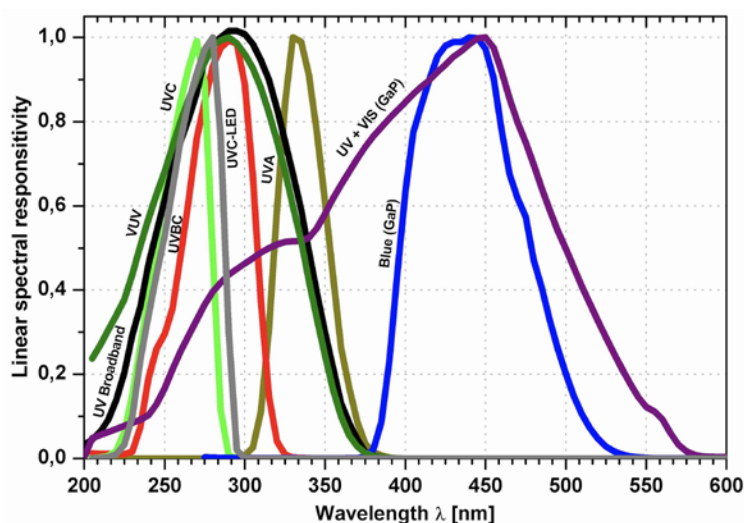


Figure 1: available spectral responsivities

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

SR	Peak	$\lambda_{S_{low}}$	$\lambda_{S_{high}}$
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

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GENERAL SPECIFICATIONS

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FIXED SPECIFICATIONS Parameter Value

Dimensions	to be customized
Field of view	to be customized
Air pressure	typically 30mbar, depending on individual design
Weight	typically 100g, depending on individual design
Temperature coefficient (30 to 170°C)	0.05 to 0.075%/K
Operating temperature	-20 to +170°C
Storage temperature	-40 to +170°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, UVB+C, UVC, Bluelight or UV+VIS (see Fig. 1 at page 1)
Measurement range	to be customized

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 to be customized

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 to be customized

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 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 to be customized

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 to be customized

Sensor Probes Overview

LABORATORY & EXPERIMENTS



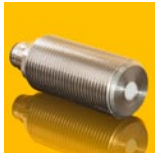
UV-Surface

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

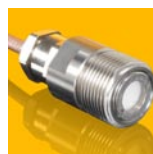
Waterproof side looking UV sensor for monitoring of lamp bundles, for operation in a cladding tube or directly in water, M20x1.5 thread.

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.