UV Sensor "UV-Cure_plus"

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

sglux The UV Experts

Boston Electronics

GENERAL FEATURES

The “UV-Cure_plus” is an air flow cooled and purged UV sensor for high UV irradiance (>100mW/cm²) and high operating temperature (<170°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 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.

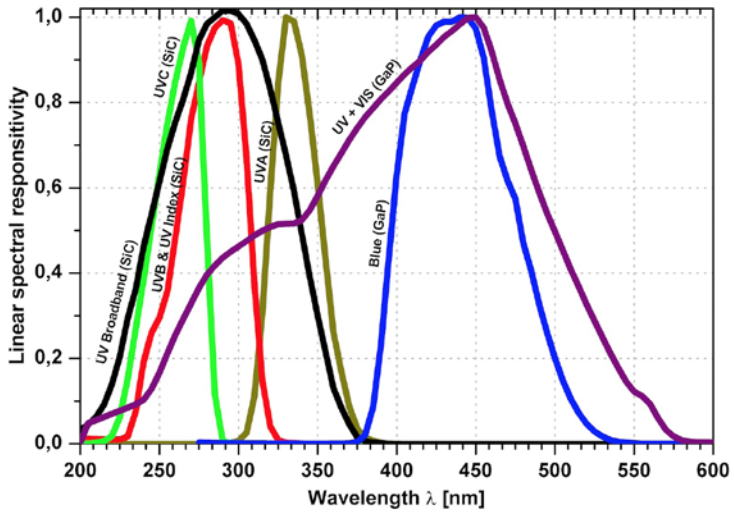

Figure 1: available spectral responsivities

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	to be customized
Field of view	to be customized
Air pressure	typically 30mbar, depending on inidvidual design
Weight	typically 100g, depending on inidvidual 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
Configurable Specifications **Parameter**	**Value**
Spectral sensitivity	Broadband UV, UVA, UVB, 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

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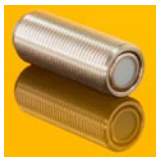
LABORATORY & EXPERIMENTS

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.