Introduction

The applications of UV sensors are quite varied and therefore the required sensitivity, environmental endurance, spectral response, field of view and electronic output interface must be tailored for individual conditions of use.

This publication presents a variety of different standard UV sensors considering these varying requirements and covering a broad range of industrial UV sensor applications.

All of the probes are amplified and shielded against electromagnetic interference. The visible blind sensors are based on a Silicon Carbide (SiC) UV photodiode, which guarantees highest radiation hardness, long term stability and >10^{10} visible blindness (ratio of UV to VIS-IR sensitivity). Blue and GaP type sensors are based on a Galliumphosphide (GaP) UV photodiode.

Please find an individual four step configuration procedure at page 5 which allows the prospective user to select among different probe mechanical designs (STEP1), to select the correct spectral response (STEP 2), to select the different output types (STEP 3) and to select a sensitivity range (STEP 4).

Usually the sensors are directly connected to the customer's data bus (via voltage, current, CAN or USB output). Alternatively, developers and scientists use the sglux controllers and display modules.

The sglux calibration laboratory offers NIST and PTB traceable calibration services.

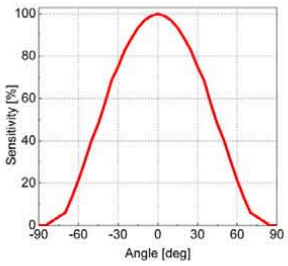
UV Sensor "UV-Surface"

Standard surface-mount 180° FOV UV Sensor

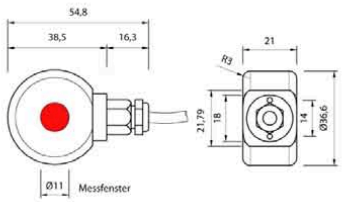
The sensor **UV-Surface** is a cosine corrected sensor to be used for industrial or scientific UV radiation measurements of radiation arriving at a surface, horizontal or vertical or any orientation. On request it is also available in a submersible version. Available calibrated (NIST or PTB traceable) on request.

Picture

Field of View



Drawing



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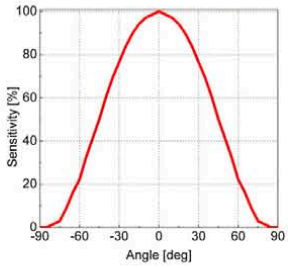
UV Sensor "UV-Air"

Axis oriented in-chamber UV Sensor

The sensor **UV-Air** is a cosine corrected axial looking UV sensor with a male thread (M22x1,5) with many mounting possibilities inside UV radiation chambers. Available calibrated (NIST or PTB traceable) on request.

Picture

Field of View



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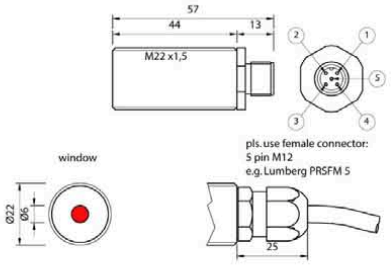


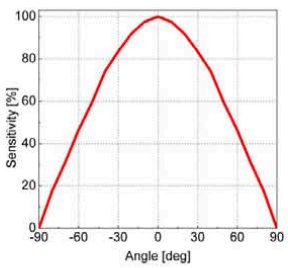
UV Sensor "UV-Cosine"

Waterproof UV Sensor for outdoor use

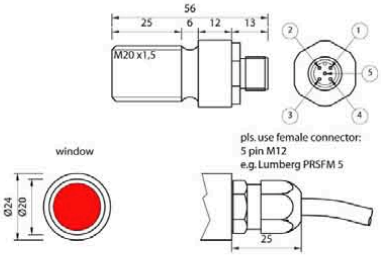
The sensor **UV-Cosine** is an outdoor cosine corrected waterproof sensor (IP68 at window side, IP65 at plug side, or, on request IP68 for submerge applications). The PTFE housing is stain repellent. Available calibrated (NIST or PTB traceable) on request.

Picture

Field of View



Drawing



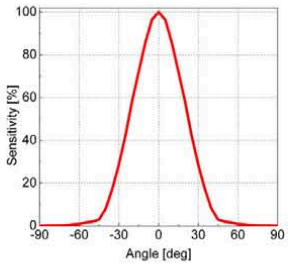
UV Sensor "UV-Water-G3/4"

10 bar water pressure proof UV Sensor

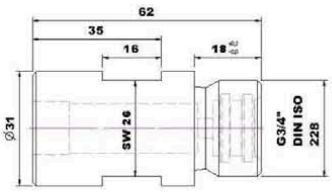
The sensor **UV-Water-G3/4** is a waterproof (10 bar or 150 psi) UV sensor to be included into pressurized water systems (G3/4" thread). This UV sensor is suited for use in food and beverages machinery. Available calibrated (NIST or PTB traceable) on request. Only available with plug connection.

Picture

Field of View



Drawing



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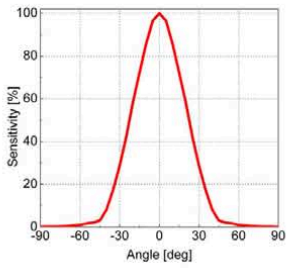
UV Sensor "UV-Water"

10 bar waterprooof UV Sensor

The sensor **UV-Water** is a waterproof (10 bar or 150ps) UV sensor to be included into pressurized water systems (G1/4" thread). It can only be used with low-pressure lamps up to 40W. This UV sensor is suited for use in food and beverages machinery. On request it is also available in a submersible version. Available calibrated (NIST or PTB tracelable) on request.

Picture

Field of View



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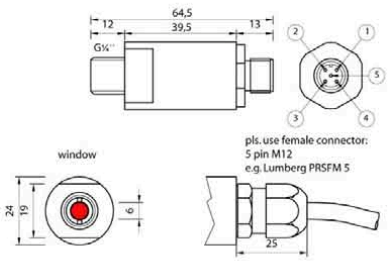


UV Sensors "UV-DVGW" and "UV-DVGW-160"

UV Sensors for DVGW and OENORM certified water purifiers

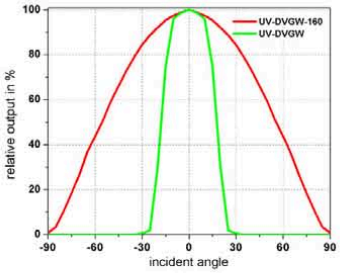
The sensors **UV-DVGW** and **UV-DVGW-160** are special types suitable for use with DVGW and OENORM certified water purifiers. They comply with the standards DVGW W294-3(2006) and OENORM 5873-2. Always delivered calibrated according to DVGW or OENORM requirements.

Pictures

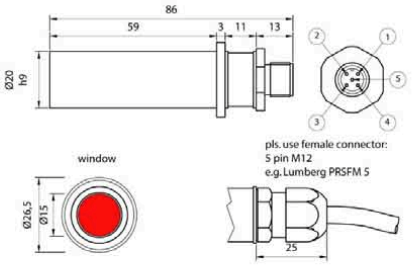
UV-DVGW
40° sensor according to DVGW W294-3

UV-DVGW-160
160° sensor according to DVGW W294-3 and ÖNORM 5873-2

Field of View



Drawing



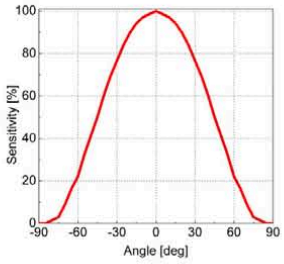
UV Sensor "UV-Cure"

Sensor for high UV-Irradiation with integrated temperature sensor

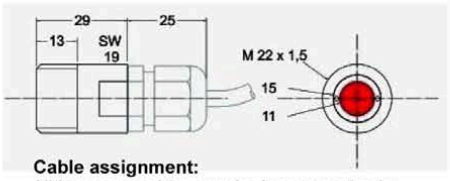
The sensor **UV-Cure** is an axial looking UV sensor for measurement of high UV radiation at high temperatures (up to 170°C/338°F) in curing and drying processes. It has an integrated temperature sensor and a diffuser of radiation hard and temperature resistant microporous silica glass. A male thread (M22x1,5) allows many mounting possibilities inside UV radiation chambers. Available calibrated (NIST or PTB traceable) on request. Only available with photocurrent output.

Picture

Field of View



Drawing



Cable assignment:
***UV sensor*: white anode, brown cathode**
***temperature sensor*: black, blue**

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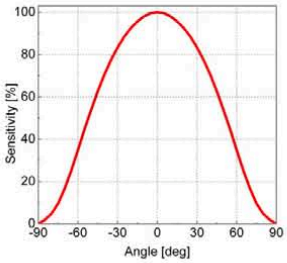
UV Sensor "TOCON-probe"

Pre-amplified UV Photodetector with housing

The sensor **TOCON-probe** is a pre-amplified UV Photodiode inside a robust stainless steel M12x1 thread body. It is configured with an integrated sensor connector (Binder 5-Pin plug) and comes with 2m connector cable. The sensor is easy to mount and connect (only with voltage output available, V_{in} max. = 5V).

Picture

Field of View



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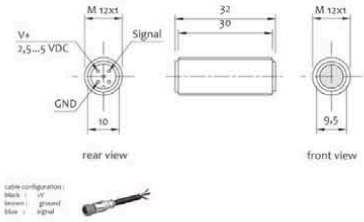


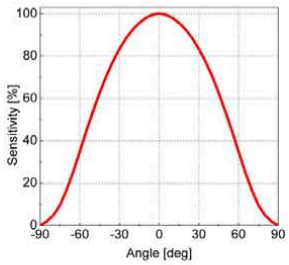
UV Sensor "UV-Minilog"

UV Datalogger with PC Software

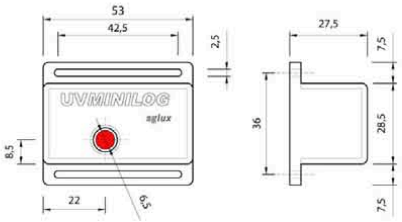
The sensor **UV-Minilog** is a battery powered UV datalogger with a large internal data storage (2 million readings). It can log data for up to 18 months without recharging. It is IP67 waterproof and comes with free PC software. The UV-Minilog can be equipped with all UV sensors to be selected at STEP 2 and STEP 4 of page 6 configuration guide. Available calibrated (NIST or PTB traceable) on request.

Picture

Field of View



Drawing



Specifications, valid for all UV Sensors

Fixed Specifications

Parameter	Value
Dimensions	Pls. refer to the drawing above.
Temp. Coefficient	0.035%/K analogue sensors <0.1%/K digital sensors
Operating Temp.	-20…+80°C (170°C)
Storage Temp.	-40…+80°C
Humidity	<80%, non-condensing for Air versions; 100% immersed for submersible

Configurable Specifications

Parameter	Value
Absolute Sensitivity	1nW/cm^2 … 10W/cm^2
Spectral Sensitivity	UV-broadband, UVA, UVB, UVC, UV-Index, blue light, GaP (blue+visible)
Signal Output	0…5V, 4…20mA, USB, 125kbits CAN bus
Connections	2m cable or 5pin male plug; 8Pin plug with 2m cable (digital sensors)

Please find the configuration guide at page 5 of this catalogue.

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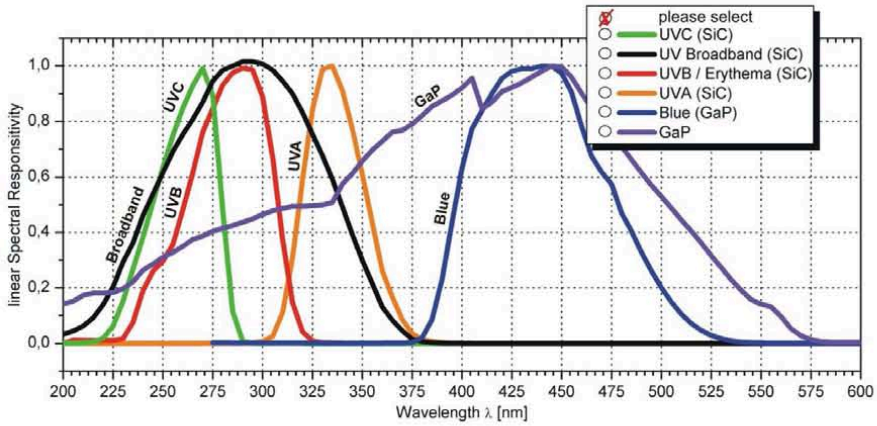
STEP 1 → Selection of probe mechanical design

Please tick your selection. Please find detailed description of the mechanical design above.

	Type	Description
○	UV-Surface	Standard surface-mount 180° FOV UV Sensor
○	UV-Air	Standard axias oriented in-chamber UV Sensor
○	UV-Cosine	Waterproof UV Sensor for outdoor use
○	UV-Water-G3/4	10 bar water pressure proof UV Sensor with G3/4" thread
○	UV-Water	10 bar water pressure proof UV Sensor with G1/4" thread for low-pressure lamps up to 40W
○	UV-DVGW/-160	UV Sensor for DVGW and OENORM certified water purifiers
○	UV-MINILOG	UV Datalogger with PC software
○	TOCON-probe	Pre-amplified UV photodetector in a M12x1 housing (*only with voltage output available*)
○	UV-Cure	Sensor for high UV-Irradiation with integrated temperature sensor (*only with photocurrent output*)

STEP 2 → Configuration of the Spectral Sensitivity



Please select one spectral sensitivity curve.

STEP 3 → Signal Output

Please tick your selection. The pin configuration for analog sensors is shown in the drawings on previous pages.

	Type	Description		Connection = "cable"		Connection = "male plug"
○	0…5V	0…5V V_{out} proportional to radiation input; V_{in} = 7…24VDC (TOCON_probe V_{in} max. = 5V), current consumption is <30mA	○	V_0=brown, V_+=white, Out=green, Shield=black	○	V_0=Pin1=brown V_+=Pin2=black Out=Pin3=blue
○	4…20mA	4…20mA current loop for PLC controllers; the current is proportional to the radiation, supply voltage is 24VDC	○	V_0=brown, V_+= white	○	V_0=Pin1=brown V_+=Pin2=black
○	USB	The signal is transmitted via USB to a computer. Software is included.	----------→		○	Standard USB-A plug, 1,5m cable
○	CAN bus	The signal is transmitted via CAN bus (VSCP protolcol), additional USB converter for computer use incl. software available (DIGIBOX)	----------→		○	Pin a=CAN low Pin b=CAN high Pin c=GND Pin d=Vsupply

STEP 4 → Sensitivity

We configure your UV sensor for intensities across 10 orders of magnitude from 1nW/cm² to 10W/cm². For good dynamic behaviour the min and max. intensity at the probe position needs to be known as precisely as possible. Please fill that value, if known, into the box below. If only a rough estimate is possible, please estimate it in the range selection fields. We will contact you for further refinement of the range.

max. radiation in mW/cm² or, if not precisely known, range estimation

○ [ ] ○ nax. up to 10µW/cm² ○ max. up to 100mW/cm² ○ max. up to 10W/cm²

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