

# STAND-ALONE UV INDEX TRANSMITTER



- measurement of the UV Index
- the UV sensor (sglux ERYCA) is featured by a spectral responsivity close to the erythema action curve as defined by ISO17166:2019
- calculation of the UV Index according the WHO requirements [1]
- data transmission via cellular radio to a server using the MQTT protocol
- solar powered with integrated battery
- various approaches to display the UV Index measured by the unit

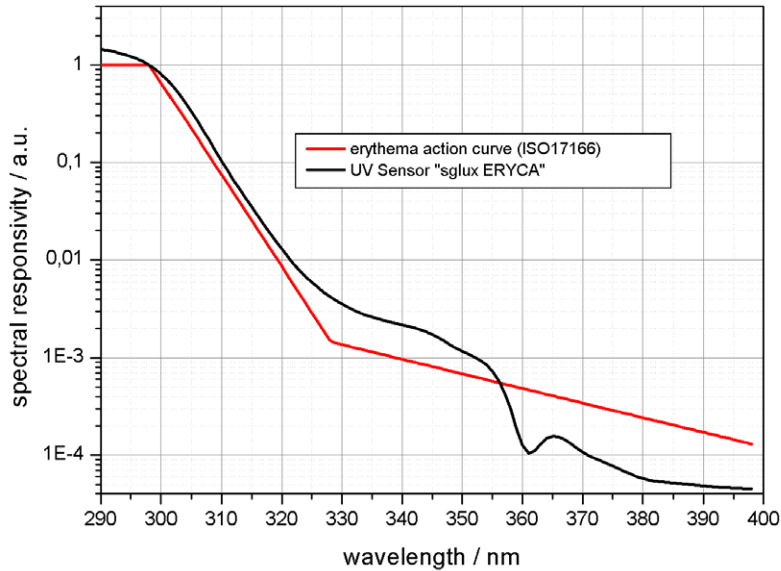
## PRODUCT DESCRIPTION

The solar cell powered stand-alone UV Index transmitter measures the UV Index according to the standard ISO17166:2019 and the WHO requirements [1]. The UV Index quantifies the risk of sunburn at a given solar UV exposure spectrum. The unit transmits the current UV Index via cellular radio using the MQTT protocol to a server where the obtained values are stored. By default this server is hosted by sglux. Alternatively the user's server can be used. The unit does not require any wiring to the building where it is placed. It can also be used where lightning protection requirements exclude wires on the roof of a building. The unit bases on the UV sensor "sglux ERYCA" that is featured by a spectral responsivity very close to the erythema action curve (picture 1). Set-up and use of the UV Index transmitter does not require specific metrological or computer knowledge.

## SPECIFICATIONS

sensor	SiC based UVI sensor "sglux ERYCA" with interference filter according to ISO17166 and WHO requirements, spectral responsivity close to the erythema action curve as defined by ISO17166
measurement uncertainty	+/-10%
measurement range	0.00 ..... 1.00 W/m <sup>2</sup> biological effective UV irradiance
field of view	cosine weighted
calibration	at sun, PTB traceable
resolution	2 mW/m <sup>2</sup>
temperature range	-30°C ... 70°C
power supply	10 W solar cell with battery, 5 days operation time at full clouding of the solar cell
transmitted values	biological effective UV irradiance in W/m <sup>2</sup> , battery voltage, charging current, battery status, internal temperature. Additional values (e.g. external temperature, humidity) can be measured and transmitted.
wireless connection	via cellular radio. A SIM card with a suitable data plan is required.
weight	5 kg without sinker stone, mast mounting is possible
height	80 cm

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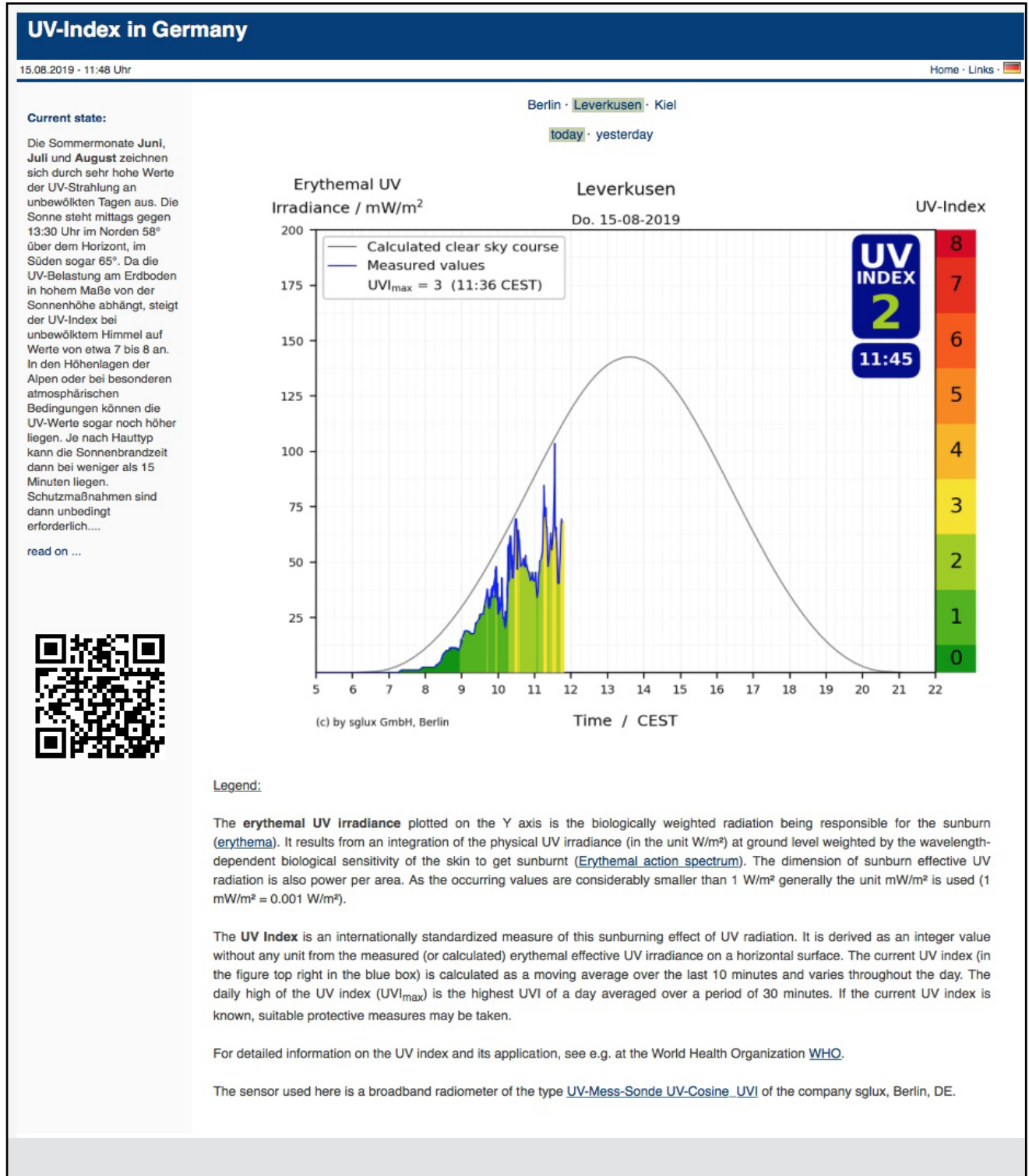
picture 1 spectral responsivity of the sglux ERYCA sensor compared with the erythema action curve according to ISO17166:2019

## ▶ APPROACHES FOR DISPLAYING OF THE OBTAINED UV INDEX VALUE

The reasons to purchase and operate a UV Index measuring unit are quite various. As various are the approaches to display the obtained UV Index values. A scientific approach is to get the values from the server and to analyze and publish them according to the specific research interest or according to a public authority task. This approach requires good meteorological and database administration skill. As a free of charge plug & play solution for not (yet) skilled persons we offer a web based desktop display as shown on picture 2. It shows the current and the previous day's UV Index. The text shown on picture 2 can be deleted or modified according to the customer's requirements.

Other possible approaches to display could be a smartphone optimized web site or a smartphone app. Also possible is a display optimized to a wall mounted monitor. If used on construction areas, public pools etc. a mechanical display using a clock hand can be a suitable solution because at presence of bright sunlight electronic displays are hard to read. sglux is happy to produce such special software and hardware for customized application.

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picture 2 Example of the web based desktop display, colors and UV Index calculation according to the WHO requirements

[1]: WHO (2002): GLOBAL SOLAR UV INDEX - A PRACTICAL GUIDE.