

# UV-Index Measurements

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## ▶ DEFINITION OF THE UV-INDEX

The UV Index is defined by ISO 17166 and quantifies the risk of sunburn (Erythema Solare) at a given solar UV exposure spectrum. Please check the video at the right column of this page for further information.

## ▶ APPROACHES TO MEASURE THE UV INDEX

Precise measurement of the UV Index is usually based on data generated by spectrometers. These spectrometers measure the ultraviolet spectrum of the sun. Subsequently the UV Index is calculated by multiplication and integration of this spectrum with the human skin's erythema action curve. A handy alternative to spectrometer based UV Index measurement is using radiometers such as photodiode based integrating sensors. This method requires precision matching of the photodiode's spectral responsivity with the erythema action curve of the human skin and a cosine field of view. This precision is needed because the spectrum of the source (the sun) varies strongly depending on time of day, place, date, clouds, shadow and the local ozone layer thickness. A radiometer sold as an "UV Index Sensor" that does not precisely match the erythema action curve is not a valid UV Index Sensor, it is just a UV Sensor. As a result of many years of R&D the sglux ERYCA UV Index sensors nearly perfectly match the erythemal action curve. The mean error is 1.3% only.

## ▶ SGLUX ERYCA RADIOMETER BASED GLOBAL METEOROLOGICAL NETWORK

Since 2014 Berlin's first UV Index measuring station works on the roof of sglux's building. This station bases on a UV Index sensor probe ("UV-Cosine\_UV-Index") and a LAN transmitter module ("SKYLINK UV-transmitter"). Since October 2015 a duplicate station works in the Southern hemisphere, in Florianopolis, a city in the South of Brasil. On our website the values of these two stations are displayed.

## ▶ OUR PRODUCTS

Our components and systems for measurement of the UV Index are listed on page 2. It starts with a selection of UV-Index photodiodes (external amplifier needed). Easiest to use components are the UV-Index TOCONs (photodiodes with internal amplifier for 0 to 5V voltage output). The sglux UV-Cosine\_UV-Index probe is a waterproof sensor ready-to-mount outdoors with cosine field of view. To display and control the sensor's signal sglux offers the UVTOUCH and UV Control Pad displays as well as datalogger units. Our "SKYLINK UV transmitter" unit converts the sensor's signal into a web graph and transmits this graph to one or more multiple webpages. All items will be delivered calibrated on request.

Contact sglux and discover YOUR opportunities to precisely detect and report the sun's UV-Index.

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## ▶ PHOTODIODES AND SENSORS (MEASUREMENT MEAN ERROR < 1.3%)



### **SiC UV photodiodes**

UV-Index photodiodes, different active chip areas and housings, with erythema filter



### **SiC TOCONs**

UV-Index hybrid sensor in a TO5 housing with 0 - 5 V signal output, with erythema filter



### **TOCON\_PTFE24V\_UVI**

UV-Index hybrid sensor (TOCON) in PTFE housing (male thread M12x1), EMC safe, with erythema filter



### **TOCON\_UVI**

UV-Index hybrid sensor (TOCON) in PTFE housing (with G1/4" thread), EMC safe, with erythema filter



### **UV-Surface\_UVI**

top looking surface-mount UV sensor probe with cosine FOV, EMC safe, with erythema filter



### **UV-Cosine\_UVI**

waterproof UV-Index sensor probe with cosine FOV, EMC safe, for outdoor use, with erythema filter

## ▶ UV-INDEX DISPLAYS AND NETWORK COMPUTERS



### **UV-Index reference radiometer**

Reference radiometer for UV-Index measurements, incl. calibrated (PTB traceable) UVI sensor probe



### **Skylink UV transmitter**

network computer with UV-Index sensor