

# Photodiode Transducers

Catalog

## GENERAL INFORMATION

Photodiodes convert incident electromagnetic radiation into electrical charge carriers. If photodiodes are short circuited an electrical current (photocurrent) proportional to the incident radiation intensity (number of photons per second) is induced. These photocurrents are generally small and cover the range from femtoampere (fA) to microampere ( $\mu\text{A}$ ). Signal transducers transform this weak photocurrent to robust standard signals for reliable data transmission and simple data acquisition.

The voltage which is present on the open pins of a photodiode without a short circuit (photovoltage) can be easily measured with a voltmeter but is strongly non-linear correlated to the radiation intensity and thus not very useful for the measurement thereof. The transducers produced by sglux employ transimpedance amplifiers which short the photodiodes and therefore provide a linear relationship between the incident radiation intensity and the output signal.

We produce analogue transducers with voltage output „VOLTCON (0 ... +4 V)“, „Multiboard (0 ...  $\pm 4$  V)“, „Digiboard (0 ...  $\pm 3$  V)“ and „RADIKON (0 ... +10 V)“ and current loop output „AMPCON (4 ... 20 mA)“.

Furthermore we produce digital transducers which convert the photocurrent into digital representation transmitted to a computer via USB (Digiprobe, SGCD4). These transducers offer an increased dynamic range compared with the analogue transducers.

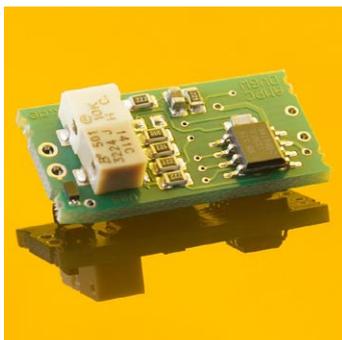
To control industrial UV applications our „Sensor Monitor 5.0“ supports multiple functions such as limit control, dosage control, lamp monitoring.

## PRODUCT OVERVIEW



### VOLTCON

Transducer photocurrent-to-voltage 0 – 5 V, three measurement ranges available: 50 nA, 5  $\mu\text{A}$  and 500  $\mu\text{A}$ . (W = 26 mm, L = 13 mm, H = 8 mm)



### AMPCON

Transducer photocurrent-to-current 4 – 20 mA, three different measurement ranges available: 25 nA, 2.5  $\mu\text{A}$  or 250  $\mu\text{A}$ . (W = 26 mm, L = 13 mm, H = 8 mm)

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## Multiboard

Two-channel transducer photocurrent-to-voltage  $0 - \pm 4$  V, jumper selectable measurement ranges from 400 nA to 40  $\mu$ A. Best suited for experiments if the photocurrent to be measured is yet unknown. (W = 60 mm, L = 45 mm, H = 12 mm)



## Digiboard

Transducer for the conversion of a photocurrent to a voltage of  $0 - \pm 3$  V or a photocurrent to a frequency. The programmable limit switch with hysteresis allows the Digiboard to be used as a simple controller unit. The measurement ranges from 300 nA to 30  $\mu$ A can be configured by jumpers. A potentiometer allows trimming of the voltage output to a defined value. The frequency output offers a high dynamic range of 6 decades. (W = 60 mm, L = 50 mm, H = 12 mm)



## SGCD4

The SGCD4 is a switchable gain photocurrent digitizer that converts small DC currents (e.g. generated by photodiodes) into digital values transmitted via USB to a computer for displaying and recording. Four different current measurement ranges are user selectable by software. The device is delivered with a PTB traceable current calibration. (W = 80 mm, L = 130 mm, H = 28 mm)



## Radikon-simple

The Radikon-simple is based on the VOLTCON or AMPCON and comes with a rugged shielded housing with BNC connector. (W = 48 mm, L = 44 mm, H = 33 mm)

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## RADIKON

The RADIKON is a multifunctional transducer with an adjustable limit switch and an isolated input stage. Possible input signals are photocurrents (up to 5  $\mu$ A), voltages (0 to 10 V) or current loops (4 to 20 mA). To the outside it offers an 0 - 10 V output and a 230 V relay contact.



## Sensor Monitor 5.0

Measuring and control module for monitoring and automation of irradiation processes. The device provides the display of irradiance and dose information for up to two UV sensors as well as three programmable relays for control of multi-stage irradiation processes. (W = 144 mm, L = 86 mm, H = 72 mm)



## Photodiode Amplifier Dual

The Photodiode Amplifier Dual is based on the Multiboard and comes with a rugged shielded housing, well suited for experimental setups.



## Photodiode Amplifier Connect

The Photodiode Amplifier Dual is based on the Digiboard and comes with a rugged shielded housing, well suited for experimental setups.