Digital UV SENSOR "DIGIPROBE"

High resolution UV measurement in a wide dynamic range

Digiprobe in a UV-Surface housing

The Digiprobe is a digital UV Sensor for high resolution radiation measurement in a wide dynamic range. It is used for high precision measurements and universal use at varying radiation levels. It allows precise measurement of UV power over a range of 5 decades, from 10nW/cm² to an intensity of 1mW/cm² with a resolution of 10nW/cm². A temperature sensor is integrated in the sensorhead, providing a numerical temperature compensation of the irradiation measurement value.

The detector signal is digitalized directly at the measuring point to minimize electro-magnetic disturbances. A shield includes the housing and cable and provides excellent EMI resistance. The sensor delivers a CAN signal for integration into CAN bus networks and allows parallel operation of up to 254 sensors. A „Digibox" CAN to USB converter is provided with each Digiprobe. Up to ten sensors can be connected to this CAN to USB converter box to transfer the measurement data to a PC.

The easy to use software „DigiLog" displays the data and the trend of intensity and temperature with time. The software can be used for changes of measurement and calibration parameters. All calibration dates and sensor information are stored in the sensorhead.

The detectors for UV measurement base upon a radiation hard Silicon Carbide (SiC) UV photodiode with long term stability and a visible blindness above 10^{10} (ratio of UV to Vis-IR sensitivity).

The Digiprobe can be used for high precision UV measurements in laboratories as well as in industrial applications were varying measurements within a wide dynamic range are demanded.

Feature Overview

Measurement	Wide dynamic range, high resolution, temperature measurement, temperature compensation, radiation hard Silicon Carbide (SiC) detector, spectral sensitivity: UV broadband, UVA, UVB, UVC, UV-Index (or V-λ with Si photodiode)
Software	DigiLog, multi-channel trends, calibration function, data logging
Output	CAN bus signal
Accessories	Digibox for conversion of output into a USB signal

Manufacturer: **sg***lux* GmbH, Berlin Agent: **Boston Electronics**
(800)347-5445 or +1(617)566-3821 uv@boselec.com www.boselec.com
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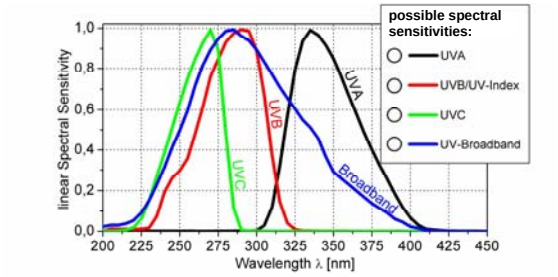
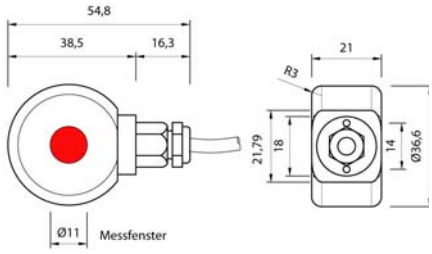
Specifications	Wert	Einheit
Data interface	CAN/USB	-
degree of protection	IP67	-
Operation temperature	-40….+80	°C
storage temperature	-40… +85	°C
power supply	4,5…20	V_{DC}
power consumption (24V)	25	mA
weight	0,16	kg
max. measurement rate irradiation	13,75	Hz
max. measurement rate temperature	13,75	Hz

Spectral Sensitivity



The Digiprobe is available with the following spectral sensitivities:
UVA, UVB, UVC, UV broadband, UV-Index and V- λ characteristic

Drawing



Digibox - USB Converter Box

Converter box CAN to USB. Available with up to eight channels. The power is supplied via the USB connection. One Digibox CAN to USB converter is delivered with each Digiprobe.

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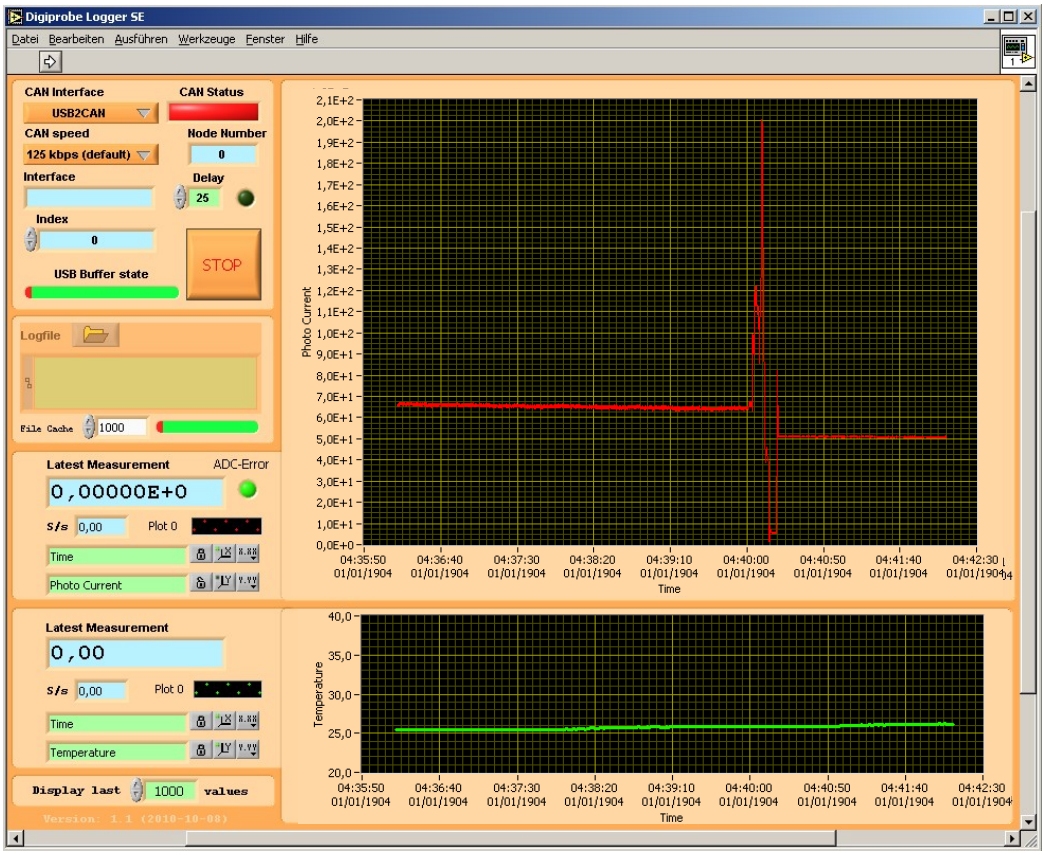
Software



The provided software “DigiLog” is an easy to use tool for displaying and logging of irradiation and temperature data. The measurements and the data presentation can be customized and the output data is logged in a file.

The irradiation is displayed in the upper graphic window and the temperature is shown below. In the left command column, the user can change various settings for the presentation and the logging. All functions are described in the following passage.

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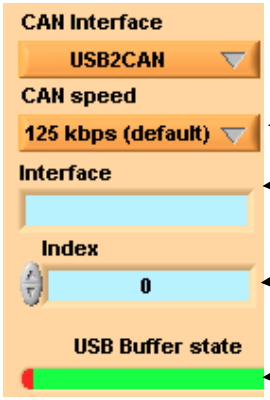
Software Functions in Detail



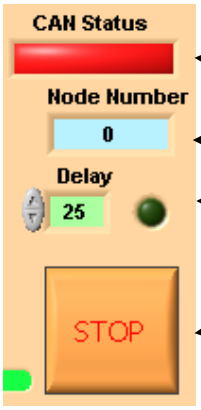
Choice of interface

Transfer rate

Name of the active interface. If connected to multiple Digibox interfaces, a selection is shown at the program start.

Index, if started at "0", this index equals to the number of passed measurements; can be increased for catenation of measurement dates.

Before the data transfer is done, a date pack (configurable under "Delay") is buffered. This bar shows the relative buffer status.



State of the Digibox green=connected; red=disconnected

Number of the used node (measurement channel)

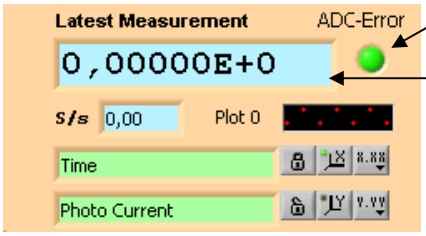
Amount of buffered data (see above.)

Button to start or end the measurement

File, in which the logging dates are written. Please type in the desired file before starting the measurement. It can be written into an already existing file.

The file cache shows the frequency in which the file is opened and written on.

The number of data before writing into the file can be set here.

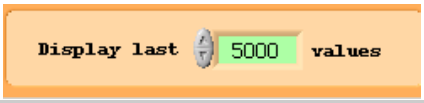


Error display at data transfer

Display of the actual measurement value

Settings of the format of time and measurement value, setting of axis labels and display frequency

The same settings are possible for the temperature measurement



Amount of displayed values

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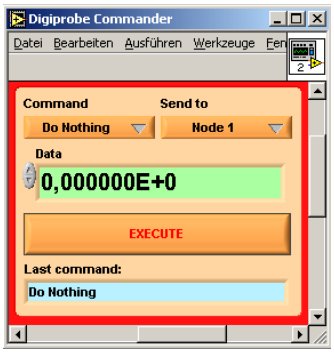
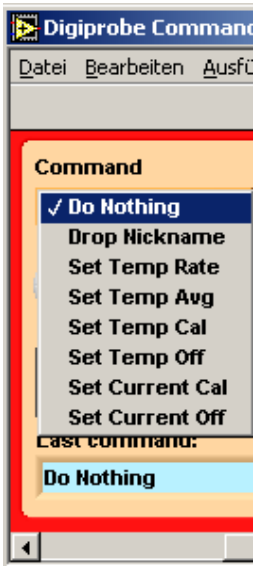
Software – Command Window





In the command window all basic settings like changing of calibration values are done.

Caution: ***values are changed permanently. Preset calibration values will get lost!***

procedure:

1. Chose command
2. Chose node (measurement channel), which should receive the command.
3. Setting of new value (if applicable: note preset value)
4. click "execute"

At the Command drop-down menu the following choices can be done:

No action
New node name[1)]
Measurement rate temperature [2)]
Averaging, currently without function
Calibration temperature sensor
Offset calibration of temperature sensor
Calibration irradiation sensor [3)]
Offset calibration of irradiation sensor

[1)] The default node name can be changed here. This may be necessary if conflicts occur caused by multiple remitted names.

[2)] This measurement rate is chosen in relation to the measurement rate of the irradiation, which is measured constantly with 13,75Hz. Irradiation and temperature are measured after another.
That means:
1=measurement with 13,75Hz
2=measurement after each 2nd irradiation measurement
…

[3)] Calibration of irradiation:

1- set calibration value to 1, set offset to 0,
2- dark measurement, determine offset
3- balance offset
4- determine calibration value
5- set calibration value

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