

Reference Radiometer

RRM according to DVGW and ÖNORM

GENERAL FEATURES



Properties of the Reference Radiometer

The Reference Radiometer RRM is designed to check and recalibrate duty sensors for water sterilisation systems according to DVGW and ÖNORM. This mobile radiometer consists of a handheld unit with sensor type selection switch and two sensor heads. The sensors are built according to DVGW W294-3 and ÖNORM M5873. They are identical in construction with the duty sensors. The radiometer is calibrated to microbicidal weighted irradiance at $\lambda = 254 \text{ nm}$ against a PTB traceable standard. Medium pressure calibration can be done on request.

HAND-HELD DISPLAY DEVICE

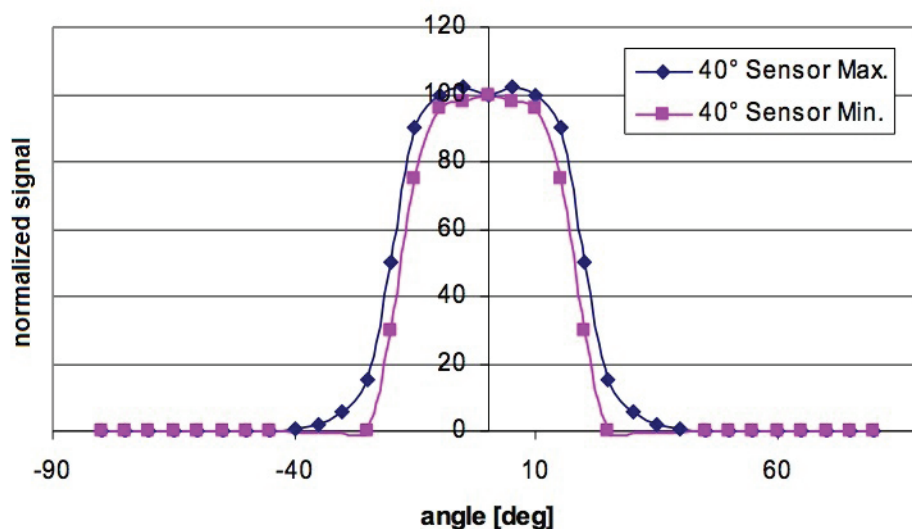
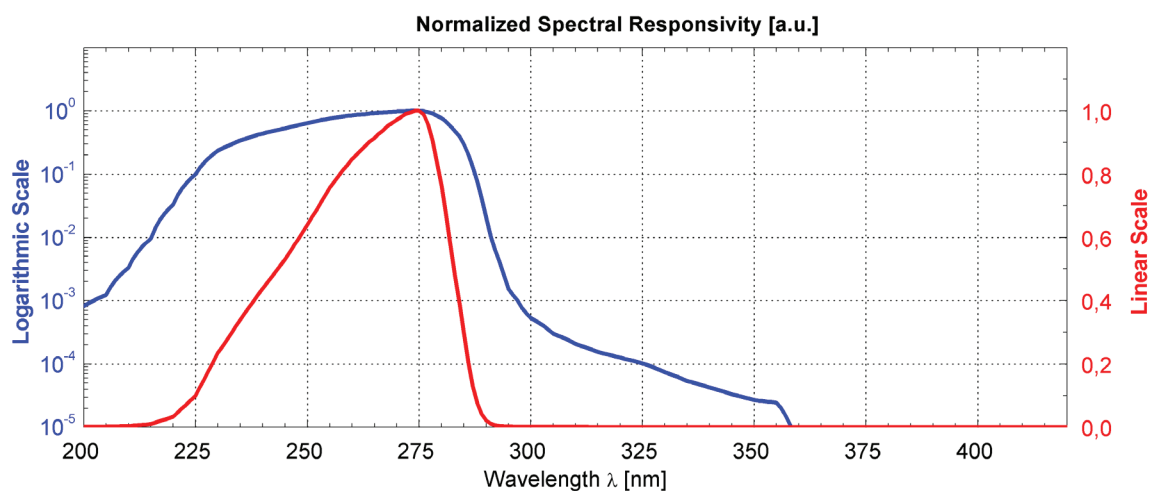
- 20 / 200 / 2,000 / 20,000 W/m² ranges, selectable with rotary switch
- Display with 3 ½ digits
- Hold function: to be activated with main switch at left side of case (off - on - hold)
- Battery powered: 9V type 6F22 or similar, displays „Batt“ when battery runs down, battery has to be changed

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PLUG-IN SENSOR UNIT - according to DVGW W294-3

- Sensor with coaxial cable plugs into hand-held display device
- Range of sensed wavelength: 220 ... 290 nm, spectral sensitivity according to DVGW W294-3
- Wavelength of calibration: 254 nm
- Field of view: 40°
- Sensor: SiC-photodiode with filter



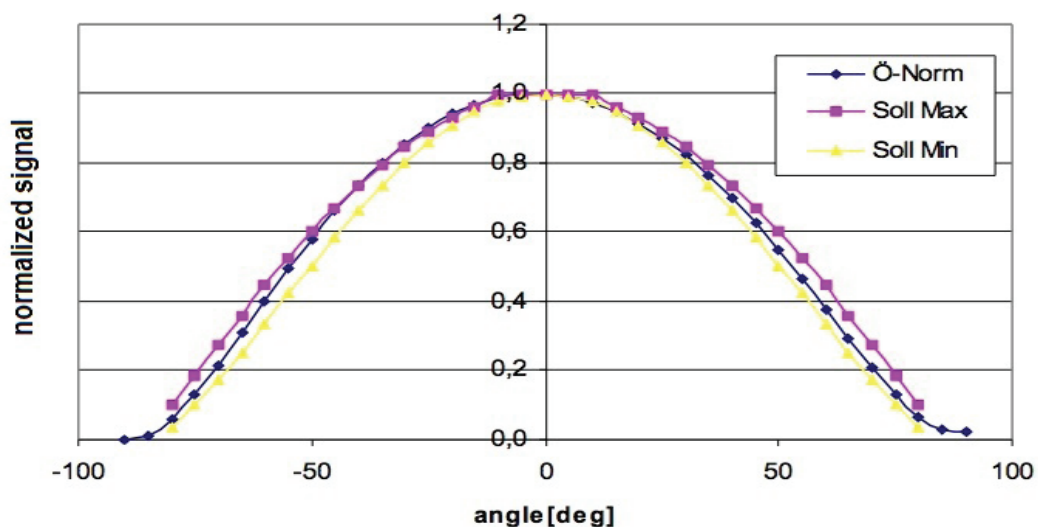
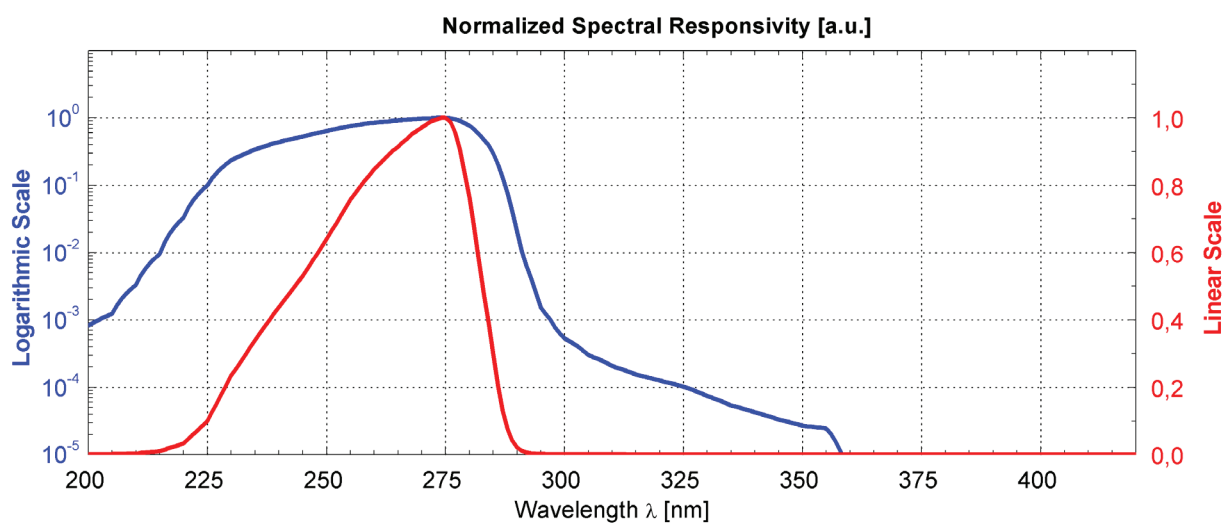
DVGW Sensor: sensor field of view

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PLUG-IN SENSOR UNIT - according to ÖNORM 5873

- SiC-based sensor with coaxial cable plugs for hand-held display device
- Wavelength range: 220 ... 290 nm, spectral sensitivity according to ÖNORM 5873 / DVGW W294-3
- Wavelength of calibration: 254 nm
- Field of view: 160°



ÖNORM Sensor: sensor field of view

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CALIBRATION

- Radiation source: Hg-low-pressure, quasi-parallel radiation (using sufficient distance and screen)
- Calibration of sensor at 2 W/m^2 microbicidal weighted irradiation
- Calibration by substitution with PTB calibrated reference sensor
- Relative expanded uncertainty of measurement ($k=2$): 6%
- Re-calibration is recommended after 1 year.

OPERATING INSTRUCTIONS

Plug one of the sensor units into the hand held display device (coaxial connector) and select the corresponding sensor type with the left rotary switch (DVGW or ÖNORM). Please select the measurement range according to the expected measurement values using the rotary switch.

Note: In case of saturation, please select a higher measurement range (although the device will not be damaged if saturated).

Switch the device on (sliding switch, left side of case, middle position). The display shows the measurement value in the selected range. Please note that there can be a significant settling time until stable values are shown (up to 3 sec. in the 20 W/m^2 range). In this most sensitive range an offset error of ± 2 digits is tolerable.

Using the sliding switch position “Hold” the current measurement value displayed will be shown until the sliding switch is put back into middle position.

Please switch the device off after use. **There is no timed automatic power down.**

In case of low battery voltage (below $2/3 U_{\text{max}}$) the sign “Batt” appears in the display. Please change battery to avoid measurement errors. The device will power down automatically if the battery runs down further on. The lifetime of a new battery (alkali) is approximately 100 hours.

Please keep the sensor measurement window clean. If necessary clean it with a soft fabric.