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UV Monitor DUV 11.3

The monitor DUV 11.3 is intended in conjunction with a relative or absolute measuring UV sensor for the monitoring of UV radiation sources. It is suitable for installation in the front door of switch-boxes. The device was designed to allow optional custom changes to the hardware and software.



Technical data

| supply voltage | 115/230 V AC (± 10 %), 50/60 Hz | | | | |
|---------------------|---|--|--|--|--|
| equipment | input for sensors with relative measurement (diode) and absolute measurement (opt. Y1/2) operating hours counter (only full operating hours, short insertions to be ignored) relay (changeover), potential free, 230V / 6A (L- and C-free), programmed for switching with exceeding the lifetime hours and under-usage of the threshold of the UV intensity | | | | |
| inputs | diode: input sensitivity via jumper adjustable (internal amplification 1x, 10x, 100x) voltage: for sensors with option Y1 (0-4.5V), (supply via 5VDC from the monitor) current: for sensors with option Y2 (4-20 mA), (external 24VDC supply necessary) Input selectable via the menu (only one sensor connectable!) | | | | |
| outputs | output 4-20 mA: for measured value transfer to higher-level control output 5VDC: supply voltage for voltage sensors with option Y1 Note: sensor with option Y2 (current output) needs external 24VDC supply | | | | |
| dimension | 95 x 48 (B x H), mounting depth 100 mm | | | | |
| contact | screw terminal blocks | | | | |
| ambient temperature | 0 - 50°C | | | | |
| protection level | IP 20 | | | | |
| weight | 200 g | | | | |

Installation dimensions and connections:





Installation and commissioning

The monitor is designed for panel mounting. To be mounted via the appropriate opening (dimensions see drawing) with screw clips. With optionally available transparent cover the front can be protected from splashing. All connections are located on the rear panel.

The supply voltage can be either 230 V DC or 115 V DC. This is determined by the choice of the corresponding input. The connection panel also includes a connection for the sensor and the switching output (4-20 mA output and inputs for current and voltage sensors).

Please take care of the pin assignment for a correct cabling. Reversal of terminals can lead to destruction of the device.

Pre-setting for version V1.4 (standard)

no password input diode, jumper with amplification factor x10 UV-alarm at 50% life time-alarm after 8000 hours lout 20 mA = 100%

Operation and settings

All settings and the operation are to be set via the three front buttons. The unit turns automatically on when a supply-voltage is connected. Initially the monitor type and the software version will be shown on the LCD display. After a few seconds, the monitor enters the measuring mode and shows the threshold for the UV-alarm and the current irradiation value in percent. For a better readability, the display has an background lighting and the illustration of the irradiance is enlarged. Left of the UV value, the switching threshold (sw-p 50%) is displayed in small font. In measurement mode, the device can be disabled by pressing the Enter key and turned on.

Press the \blacktriangle button displays the selected lamp life and the elapsed operating time of the lamp for 5 seconds. By briefly pressing the Enter key, the menu is called. Use the \checkmark \blacktriangle keys to select menu items and set values. After input of the values and settings press the Enter key for confirmation and saving. An overview of the entire menu is shown in the section menu structure.

Use with relatively measuring sensors (diode):

Since the diode input has already been set at the factory, no change for the first setup is necessary in this regard. If the factory setting has been changed, through the sub menu sensor uv / input uv the input diode must be selected. After the monitored lamp reaches its operating temperature the menu item cal value can be calibrated to 100%. If the desired value is not achieved, the sensitivity has to be increased via the jumper and/or the sensor must be placed closer to the lamp. The sensor should be aligned with the center directly on the lamp. A distance of 2-5 cm has proved successful in practice. The setting of the sensor sensitivity is possible by the jumpers in 3 steps (gain x1/10/100). If the selected sensitivity is too high, while performing the calibration process, in the display **Idiode > Imax** is displayed. In this case the jumper must be plugged to a lower amplification or the distance of the sensor to the lamp needs to be increased. Is the sensitivity set too low, during the calibration process, the display **Idiode** < Imin is displayed. In this case the jumper must be plugged to a higher amplification or the distance of the sensor to the lamp must be reduced. If the 100% setting is not possible even in the highest sensitivity (x100), the distance of the sensor to the lamp must be reduced mandatory. Alternatively, sensors with a higher output signal (e.g. SWV13) may be used. Sometimes dirt (on lamp, submersible tube, sensor) and a bad transmission of the medium located between the lamp and sensor prevent a sufficiently high signal from the sensor.



The factory-set values according to customer or as specified by the lamp manufacturer can then be changed through the menu items **uv alarm** and **lifetime alarm**. The alarm threshold (sw-p = switching point) can range from 0 (disabled) to 90% in 5% steps. The lamp life can be in the range 0 (disabled) to 30,000 hours respectively. In the menu item **lout adjust** the 4-20 mA – output can be calibrated. The entered value corresponds to 20 mA. Usually, the value of 100% = 20 mA should not be changed. If needed this value can be changed to any value in the range of 10-500%. Via the menu item **lifetime** the operating hours counter, after cleaning and installing a new UV lamp, should be reset. The internal operating hours counter counts only full hours. Short-term power-on are ignored. If required a password to protect settings can be programmed.

Use with absolute measuring sensors (option Y1 output voltage / current output Y2):

As first step on the menu **sensor uv / input uv** the desired input must be set. Via **cal value** as next step the calibration of the sensor must be entered. This value is usually lasered on the sensor or to be find written on the separate sheet for the sensor. For sensors with current output the calibration value corresponds to the end value of the sensor at 20 mA. For sensors with voltage output after the calibration value in W/m² the corresponding voltage value in V must be entered. Example: 20 mA = 100 W / m² or 1..5 V = 50 W / m²

The rest of the setting is analogue to programming in relative measuring sensors (diode).

Display-indication during operation

Measured values due to choice of diode input (relative measurement):



Measured values due to choice of current/voltage input (absolute measurement):

normal operation





maximum of operating hours reached It-alarm and W/m² flashes



Upon reaching one of the two alarm thresholds, the relay switches. At the same time the % or W/m^2 starts flashing on the display and instead of the threshold display flashes **uv-alarm** or **It-alarm**. If both alarm limits are exceeded, the **uv-alarm** as the alarm with the highest priority is flashing. If the UV-alarm is deactivated by entering a threshold value of 0, in the display **sw-p off** flashes to indicate that the lamp is running without supervision.

Indication of operational hours:

| lt: | 2300 h | elapsed o |
|-----------|--------|------------|
| lt-alarm: | 8000 h | alarm valı |

elapsed operating time of the lamps alarm value for changing bulbs (lamp life)

Pressing the \blacktriangle button while indication of measured value in the display the elapsed operating time (lt), and the original lamp life (lt-alarm) is shown for 5 seconds.

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Menüstruktur

| measured value | level 1 password request | level 2 main menu | level 3 submenu | level 4 submenu | level 5 submenu | description of the menu item |
|-------------------|-----------------------------|-----------------------------|---|--|-------------------------------------|--|
| Enter long | | | | | | power down of the monitor |
| arrow up | | | | | | shows elapsed lifetime of the lamps and the alarm value for lifetime for 5 seconds (see display indication) |
| Enter short | | | | | | call the menu |
| | password | | | | | enter password (if present) |
| | | sensor uv | input uv | diode < | | choose the diode input for UV-measurement |
| | | | | Uin < | | choose the voltage input for UV-measurement |
| | | | | lin < | | choose the current input for UV-measurement |
| | | | | return to sensor uv | | return without change back to previous submenu |
| | | | cal value | cal diode 100% ok / return | | apply the currently measured diode current as 100% value (input diode) |
| | | | | cal value U _{in} xxxx W/m ² | cal value U _{in} 1-5V | setting of the calibration value for the voltage input |
| | | | | cal value I _{in} xxxx W/m² | | setting of the calibration value for the current input |
| | | | return to sensor uv | | | back to main menu |
| | | lifetime | lifetime reset / return | lifetime ok / return < | | reset operation hours meter to 0 |
| | | uv alarm | uv alarm 5-90% / 0=off | | | setting of the UV-alarm threshold (relative to 100% and maximum value of current / voltage) |
| | | ▼▲ lifetime alarm ► | lifetime alarm 1-30000h / 0=off ◀ | | | setting of the alarm value for operating hours (lamp lifetime) |
| | | ▼▲ lout adjust | lout adjust 10500% | | | setting of the output signal the 4-20 mA output |
| | | change password | change password 1-30000 /0=off ► | repeat password 1-30000 /0=off | password changed/wrong return | changing the password for menu access |
| | | factory menu | | | | factory settings (not access for clients) |
| | • | return to measured value | | | | back to indication of measured value |

Moving in the menu:

Inter button short for enter the menu or branch in the displayed menu item (the direction of the arrow shows the direction to jump to Enter)

▼ ▲ navigation in the menu on the chosen level

▲► enter button long to confirm settings / values (the direction of the arrow shows the direction to jump to Enter)

Number input:

▼ ▲ setting values at the cursor position

Short press the Enter key moves the cursor one position to the left (rotating)

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Please also note the other products from the DUV11 device family. For example, PCB assemblies without housing for installation in control boxes and devices for connecting digital sensors.

We also offer devices with higher functionality as well as matching sensors and accessories. Our sales staff will gladly advise you to find the right device for your application.