

# UV-Flame Detector

Type: FL/SS 7510/35 MIL

The flame detector responds only to the short-wave part of the UV range (UV-C 200 nm to 280 nm, whereby the maximum of the spectral sensitivity is at 210 nm  $\pm$  10 nm) of the optical radiation emitted by an open flame.

Hereby an interference by glow or bulbs is generally impossible. After respective sensitivity adjustment also an interference by solar radiation, special fluorescent lamps as well as discharge sparks can be avoided.

## **ATTENTION!**

Strong UV-radiating sources as e.g. welding flames, special type lamps, arc lamps and ionising radiation (radio-activity), X-rays) can cause a faulty alarm.

Also reflected UV-radiation of high intensity will be sensed by the flame detector and will cause an alarm.

The time of response of the detector is depending on :

- Intensity and type of the flame
- Distance between flame and detector
- Evaluation circuit of the detection print

## **Function and Fire Detection**

The UV-detector tube 58uvt03 will be supplied with approx. 600 VDC from the DC/DC transformer in the detector.

The emitting UV-radiation of an open flame will be detected by UV-detector tube and transformed into rectangular wave pulses of max. 15 VDC in the DC/DC transformer.

## **Voltage Monitoring**

Generation of the voltage for the UV detector tube will be continuously monitored and as output signal of max. 15 VDC continuously transmitted.

## **Monitoring of Contamination**

The monitoring device for contamination consists of:

- 1 bulb (installed in the detector)
- 1 optical lens (installed in the detector)
- 1 phototransistor (installed in the detector)
- 1 electronic threshold switch (steplessly adjustable) on the detection print.

The bulb emits a light beam slanting through the lens and glass of the flame detector. This light beam is detected by the phototransistor. In case of contamination of the glass or lens the intensity of the beam decreases.

This will be detected by the threshold switch and indicated as "FAILURE".

This monitoring device operated on the closed-circuit principle, i.e. a defective bulb, phototransistor or wire break of the signal line will also be detected by the detection print and will be signalled as failure.

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Version

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## Check of the Flame Detector

The flame detector can be checked by

1. the special UV-tester type UVG 93 or
2. an open flame (match, lighter etc.)

The time of response until the alarm is on depends on:

- a) Intensity and type of the flame
- b) Distance between flame and detector
- c) The evaluation circuit of the detection print
- d) When using the UV-tester UVG 93 refer to its operating instructions

## Maintenance

1. In dusty atmosphere

The inspection glass should be clean so that at a visual check the mirror and UV-detector tube are clearly visible.

Otherwise clean inspection glass and lens by use of a soft, grease-free cloth.

The same procedure must be followed when the detection print signals "contamination".

2. In greasy atmosphere

No oil shall deposit on the glass, because already thin oil films considerably influence the sensitivity of the detector.

Therefore clean more often the glass by means of a soft and grease-free cloth resp. with a grease solvent. The same procedure must be followed if the detection print signals "contamination".

Condensed water on the glass has only little influence on the sensitivity of the flame detector.

← The DC/DC Transformer is generally maintenance-free.

The UV-Detector Tube Type 58uvt03 should be checked every 2 years and it is recommended to replace it every 4 years.

## Repairs

As a general principle defective flame detectors should be sent to the manufactures' works during the guarantee period.

In case of a defective bulb or phototransistor the repair must be carried out of the manufacturer. The same applies to the DC/DC transformer and the UV-detector tube.

## **ATTENTION!**

Be careful when working on the opened and live detector, because the terminals of the UV tube and the terminal 8 of the DC/DC transformer have a voltage of 600 VDC  $\pm$  5 %.

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