UV-Flame Detector

Type: FL 80/1A MIL

EGON HARIG flamtron®
Electronic systems Fire alarm systems

The flame detector reacts only upon the short-wave part of the UV range (UV-C 200 nm to 280 nm, whereby the highest sensibility is between 210 + 10 nm) of an optical radiation of an open flame.
Thus, an influence generally caused by embers an bulbs an at respective sensibility adjustment against solar rediation, special flourescent lamps and discharge sparks will be avoided.

ATTENTION !
UV-radianting sourcres such as welding flames, special type lamps, arc lamps and ionizing rediation (radio-activity, x-rays) can cause a faulty alarm. Also reflected UV-radiation of high intensity will be sended from the flame detector and will cause an alarm.

The time of reponse of an detector is depending of:

a) intensity and type of the flame
b) distance between flame and detector
c) evaluation circuit of the detector

1. Function and Fire Detection
The UV-detector tube UVN81-S 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 the UV-vacuum tube and transformed into rectangular wave pulses and from the signal unit like grounded base circuit interpreted.

2. Voltage Monitoring
Generating of the voltage for the detector tube will be continuously monitored. In order to use the detector for all types of flame detection, the evaluation and detection electronic has been especially designed. The detection electronic is mounted on 2 circuit boards.

3. The Structure
Thus, the detector can be used in all possible cases of the flame detection, the evaluation e and reporting electronics were designed accordingly.
The electronics are housed on 2 electronic boards.

3.1 Relay board
On this board there are mounted the fuse, the detection relay resp. transistors for alarm and voltage monitoring and failure.
The relay board, resp. the function of the relays can be checked in the build-in position as follows: Connection of socket L1 with
L3 = the alarm relay get energized; connection of socket L1 with
L4 = voltage monitoring relay/failure signal relay gets energized.

3.2 Evaluation board (signal unit)
On this unit there are mounted the UV-vacuum tube, the power supply (DC transformer), the detection modul with the belonging to electronic. The unit will be connected to the four sockets of the relay board. Therefore, in case of a failure neither the detectorhousing nor the cables must be dismounted, but only the signal unit must be removed and replaced.

On the evaluation board (signal unit) there is mounted one 16-pole IC socket (BU1) and one 14-pole IC socket (BU2).

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3.2.1 Function of the 16-pole BU1 with belonging to coder unit
In the coder unit belonging to the BU1 there are installed bridges and resistors which can influence as required the following functions of the detector: Response sensibility of an open flame wil be adjusted as required.

3.2.2 Function of the 14-pole BU2 with belonging to coder unit
In the coder unit belonging to the BU2 there are installed bridges and resistors which can influence as required the following functions of the detector:

3.2.2.1 Alarm signal

a) Closed Circuit Operation
The relay is normally energized, but drops out in case of alarm.

b) Open Circuit Operation
The relay is normally de-energized, but get energized in case of an alarm.

c) Continious Alarm
The relay gets energized, the alarm is on until the power supply of the detector is shortly disconnected (+24 VDC).

d) Time-Limited Alarm
The relay gets energized, the alarm will be reset automatically, (according to the adjustment up to 95 sec.).

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