1. General Operating Principles

The flame detector reacts only to the short-wave light in the ultraviolet radiation emitted by a naked flame (i.e. it reacts to wavelengths in the range from UV-C 200 nm to 280 nm, with maximum spectral sensitivity being achieved at 210 nm +/-10 nm). This means that the detector will never be influenced by incandescence or filament lamps, and, further, that its sensitivity can be set so that it will not respond to sunlight, special-purpose fluorescent lamps, or sparks caused by electrical discharges.

WARNING! Light sources which emit considerable amounts of UV radiation (e.g. welding flames, special-purpose lamps, arc lamps) and ionizing radiation (radioactivity and X-radiation) can set off false alarms. Reflected UV radiation of sufficient intensity will also be picked up by the flame detector and trigger the release of an alarm.

The response time of the detector depends on:

a) the size and type of the flame
b) the distance of the flame from the detector
c) the evaluation circuit in the detector.

2. Principle of the fire detection

UV detector tube is supplied with its operating voltage (approx. 580 V DC) by the DC/DC converter in the detector. The UV radiation emitted by naked flame is detected by the UV detector tube and converted into rectangular pulses in the DC/DC converter. These pulses are then electronically evaluated.

3. Voltage Monitoring

The generation of the operating voltage for the UV detector tube is continuously monitored.

4. Internal Layout

The evaluation and signaling electronics have been designed so that the device can be used for all possible types of flame-detection task. The electronics are contained on 2 PCBs.

4.1 Signaling of Alarms

a.) Continuous Alarm

The alarm relay is attracted; the alarm report remains activated until the voltage supply to the detector (+24 V DC) is briefly switched off.

b.) Alarm for a limited period

The alarm relay is attracted; the alarm report is automatically reset after a preset period (max. duration 95 seconds) has elapsed.

Alarm settings a) and b) can only be programmed by the manufacturer.

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