



### 1. Broadcast Description

The flame detector reacts only upon the short-wave part of the UV range (UV-C 200 nm to 280 nm, where by the highest sensibility is between 210 +/- 10 nm) of an optical radiation of an open flame.

Thus, an influence general caused by embers and bulbs and at respective sensibility adjustment against solar radiation, special fluorescent lamps and discharge sparks will be avoided.

#### **ATTENTION!**

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

Reflected UV-radiation of high intensity will be sensed from the flame detector and will cause an alarm.

The time of response of the detector is depending of:

- ◆ Intensity and type of the flame
- ◆ Distance between flame and detector
- ◆ Evaluation circuit of the evaluation board

### 2. Function of the Fire Detection

The UV-detection vacuum tube UVN 81-S will be supplied with voltage (approx 600 V DC) from the DC/DC transformer Type ht1 0879.

The emitting UV-radiation of an open flame will be determined from the UV-vacuum tube and transformed into square-wave impulses of max. +15 VDC by the DC/DC-transformer.

### 3. Voltage Monitoring

Generating of the operating voltage for the UV-detection vacuum tube will be continuously monitored and as signal of max. +15 VDC distributed.

### 4. Construction

In order to use the detector for all types of flame detection, the detection and signal electronic has been especially designed. The signal electronic is mounted on a separate evaluation board.

### 5. Functional testing

#### 5.1. Fire Alarm

For the functional test of the UV-detection vacuum tube type UVN 81-S there is installed in the flame detector an external controllable test device which consists of the DC/AC-transformer ht2 0879 and the UV-emitter TE 90-9.

The DC/AC-transformer will be triggered with max. +24 VDC. The voltage (approx. 700 VAC) generated by the transformer ignites the UV-emitter. The UV-radiation generated by the UV-emitter will be led to the UV-vacuum tube and indicated as fire signal. The UV-emitter is inside the housing optically shielded to the UV-detection vacuum tube. The operating voltage of the UV-emitter is approx. 220 VAC.

#### 5.2 Temperature Monitoring

The contact (NC-contact of the temperature switch TSC 188) changes-over when the operating temperature of +118 °C +/- 3 % is exceeded. After this the operating voltage for the DC/AC-transformer ht1 0879 (UV-detector vacuum tube) and the trigger signal of the DC/DC-transformer ht2 0879 (UV-emitter) is switched off, because the operating temperature range of the transformers is only +125 °C. At a temperature of +98°C +/- 3 % changes the contact of the temperature switch and the operating voltages for the transformers are switched on again.