

In combination with Evaluation Board awe-u 77b-2

➤ Rules for mounting, starting, testing and maintenance

1. Mounting

When mounting the flame detector the optical location angle of the unit has to be taken into consideration. The angle is:

- ◆ vertical approx. 90° - 100°
- ◆ horizontal approx. 90° - 100°

The sensitivity will decrease to the sides.

Therefore adjust the flame detector directly to the project to be monitored. The flame identification is depending from the intensity of the flame and from the distance between the flame and the flame detector. Due to this fact the flame detector has to be mounted as close as possible to the project. For monitoring of a room the optical location angle of the detector has to be taken into consideration.

If the unit will be mounted in the open air or in covered halls (petrol depot monitoring, gas stations etc.) it has to be considered that the flame of the flare of excess gas also if the flame is far away from the detector, gas and welding flames and the electric arcs of the electric welder and of electric trains can effect a release of the detector. In these cases the sensitivity adjustment has to be done prior to mounting the unit.

In room with contaminated air (dusty or greasy air) the detector has to be mounted so that it is ventilated with fresh air to avoid depositing of dust or oil on the inspection glass.

Mounting dimensions: see D.-No: 4.0288.

2. Starting

Basic: Wiring Diagram No 3.0092.12-1 and Description of the evaluation board awe-u 77b-2 and the Connection Diagram No 4.0288.1 of the detector.

Connect the flame detector with the evaluation board according to the terminal Numbers. Prior to switching on the unit check the +24 VDC power supply, the connections to the detector and the connections of the signal outputs on the evaluation board.

3. Functional Testing

3.1 Voltage and Temperature Monitoring

During the failure-free operation the relays K2 and K3 for the temperature and voltage monitoring gets energized, according to the closed-circuit principle.

3.2 Fire Alarm

The test can be carried out by an open flame (match, lighter etc.). The flame shall be directed to the detector to be tested. Thereby the time until the alarm message depends from:

- a) the contamination of the optic of the detector (if necessary clean before testing, refer to maintenance and test instructions),
- b) proper function of the detector and evaluation board.

In case of fire alarm the relay K1 will be actuated and the red LED "Alarm" lights up.

3.2.1 Continuous Alarm

A continuous alarm signal can be reset by shortly disconnection of the +24 VDC supply or by actuating of the key-switch in the "Reset" position or by short connection of pin 10c of the evaluation board to +24 VDC power supply.

3.2.2 Test by use the Test Device installed in the Flame Detector

By actuating of the push button ("Test") on the "Fire Alarm Control Panel" the test device in the Flame Detector will be triggered.

If the detector does not release "Fire Alarm" within 10 to 15 seconds, is this a sign that a failure is present.

3.3 Temperature Monitoring

The temperature switch TSC 188 can be checked by heating or by disconnection of the cables on the evaluation board (relay K2 drops out).

4. Important Notes

Pay attention during testing on the open and connected detector, because on the connections of the UV-tube and UV-emitter there is a voltage of 600 VDC.

5. Maintenance and Test Procedures

a) In dusty atmosphere

The quartz glass head should be clean, so that at optical check the UV-vacuum tube is visible. Otherwise clean the quartz glass head by means of a soft grease-free cloth, even the glass of the UV-emitter.

b) In greasy atmosphere

No oil may be deposit on the inspection glass, because a thin oil film can influence the sensitivity of the detector. Therefore clean the glass more often by means of a soft and grease-free cloth, respect clean the glass by means of a grease solvent even the glass of the UV-emitter.

Condensed water on the glass causes only a little influence to the sensitivity of the detector.

- c) The UV-detector vacuum tube UVN 81-S should be tested at least every 2 years and it is recommended to replace the tube every 4 years.

d) Electronics

The evaluation electronic is generally maintenance-free. The DC/DC-converter ht1 0879 generates the power for the UV-vacuum tube of 600 V DC +/- 5 % which can be checked by means of an oscilloscope (input resistance 20 MOhm) at pin 8.

The DC/AC-converter ht2 0879 generates the power supply for the UV-emitter which can be checked by means of an oscilloscope (input resistance 20 MOhm) at pin 4.

The operating voltage for the UV-emitter is 250 V AC (ignition voltage 700 V AC).

The time of life of the UV-emitter TE90-9 is depending of the test time and test sequence and is at 1 test per hour (6 sec.) approx. 3 years. A reduction of the UV-radiation capacity or a defect at the DC/DC-converter ht1 0879 or DC/AC-converter ht2 0879 will be indicated by a longer time between test release and alarm signal even if the optic has been cleaned. The DC/DC- and DC/AC-converters are generally maintenance-free.

6. Repairs etc.

A defective flame detector should be generally, but during the guarantee of course, sent to the manufacturer.

Be careful at tests on the opened and connected detector, because the terminals for the UV-vacuum tube and the DC/DC-converter ht1 0879 and DC/AC-converter ht2 0879 have a voltage of approx. 600 VDC!

Repairs can be carried out by the customer and should be limited to the replacement of the following components:

- ◆ UV-detection vacuum tube UVN 81-S
When replace the tube take care that the red point of the tube corresponds with the red point of the socket.
- ◆ UV-Emitter TE90-9
- ◆ DC/DC-converter ht1 0879
When replace take care that the cables are connected correctly especially the cables for the UV-detection vacuum tube (red point on the circuit board).
- ◆ DC/AC-converter ht2 0879
When replace take care that the cables are connected correctly.
- ◆ Quartz glass head HQK 28
- ◆ Electronic board ht4 0790

Prior to repair the unit must be switched off. The screws of the cover must be loosened and removed.

After carrying out the repairs make a functional check.

Clean inspection glass from oil and dust and check detector with UV-emitter or a flame for proper function.