



HIGH ACCURACY

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PRODUCT DATASHEET

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Rosemount™ 975UR

Ultraviolet Infrared Flame Detector

The Rosemount™ 975UR provides a combination of UV and IR sensors, where the IR sensor operates at a wavelength of 4.5 μm , and can detect hydrocarbon-based fuel and gas fires.

The UV sensor incorporates a special logic circuit that helps prevent false alarms caused by solar radiation.

The UV/IR flame detector senses radiant energy in the short wave section of both the ultraviolet and infrared portions of the electromagnetic spectrum. The signals from both sensors are analyzed for frequency, intensity and duration. Simultaneous detection of radiant energy in both the UV and IR sensors triggers an alarm signal.



Rosemount 975UR Ultraviolet Infrared Flame Detector.

Features and benefits

- UV/IR dual-sensor
- Automatic and manual built-in-test (BIT) - to assure continued reliable operation
- Heated window - for operation in harsh weather conditions (snow, ice, condensation)
- Multiple output options for maximum flexibility and compatibility
 - Relays (3) for alarm, fault, and auxiliary
 - 0–20 mA (stepped)
 - HART® protocol for maintenance and asset management
 - RS-485, Modbus® compatible
- High reliability - MTBF - minimum 150,000 hours
- Approved to Safety Integrity Level 2 (SIL2 – TÜV)
- Five year warranty
- User programmable via HART or RS-485

Applications

- Oil and gas - offshore and onshore process facilities
- Chemical plants
- Petrochemicals plants
- Storage tank farms
- Aircraft hangars
- Power generation facilities
- Pharmaceutical industry
- Printing industry
- Warehouses
- Waste disposal facilities
- Aerospace industry
- Paint, polymer, and glue processes

Specifications

Table 1 - Rosemount 975UR Ultraviolet Infrared Flame Detector

| General specifications | | | | | | |
|---|--|---------------|-------------------------|---------------|-----------------------|---------------|
| Spectral response | UV: 0.185–0.260 μm; IR: 4.4–4.6 μm | | | | | |
| Detection range (at highest sensitivity setting for 0.1 m ² (1 ft ²) pan fire) | Fuel | m / ft | Fuel | m / ft | Fuel | m / ft |
| | n-Heptane | 28 / 93 | Kerosene | 21 / 70 | Alcohol 95 % | 17 / 57 |
| | Gasoline | 28 / 93 | Methanol | 17 / 57 | Polypropylene pellets | 18 / 60 |
| | Diesel fuel | 21 / 70 | IPA (Isopropyl alcohol) | 21 / 70 | Office paper | 10 / 33 |
| | JP5 | 21 / 70 | Methane* | 18 / 60 | LPG* | 18 / 60 |
| | *0.75 m (30 in.) high, 0.25 m (10 in.) width plume fire | | | | | |
| Response time | Typically 5 s. | | | | | |
| Adjustable time delay | Up to 30 s | | | | | |
| Sensitivity ranges | 0.1 m ² (1 ft ²) n-heptane pan fire from 28 m (92 ft) | | | | | |
| Field of view | Horizontal 100°, vertical 95° | | | | | |
| Built-in-test (BIT) | Automatic (and manual) | | | | | |
| Temperature range | Operating: -55 °C to +75 °C (-67 °F to +167 °F) Option: -55 °C to +85 °C (-67 °F to +185 °F) Storage: -55 °C to +85 °C (-67 °F to +185 °F) | | | | | |
| Humidity | Up to 95 % non-condensing (withstands up to 100 % relative humidity for short periods) | | | | | |
| Heated optics | To eliminate condensation and icing on the window | | | | | |
| Electrical specifications | | | | | | |
| Operating voltage | 24 Vdc nominal (18–32 Vdc) | | | | | |
| Power consumption | Standby: Max. 90 mA (110 mA with heated window) Alarm: Max. 130 mA (160 mA with heated window) | | | | | |
| Cable entries | 2 x ¾ in. - 14 NPT conduits or 2 x M25 x 1.5 mm ISO | | | | | |
| Wiring | 12–22 AWG (0.3 mm ² –2.5 mm ²) | | | | | |
| Electrical input protection | According to MIL-STD-1275B | | | | | |
| Electromagnetic compatibility | EMI/RFI protected to EN 61326-3 and EN 61000-6-3 | | | | | |
| Electrical interface | The detector includes twelve (12) terminals with five (5) wiring options (factory set) | | | | | |
| Outputs | | | | | | |
| Relays | Alarm, fault, and auxiliary SPST volt-free contacts rated 2 A at 30 Vdc | | | | | |
| 0–20 mA (stepped) | Sink (source option) configuration Fault: 0 +1 mA IR: 8 mA ±5 % Alarm: 20 mA ±5 % BIT fault: 2 mA ±10 % UV: 12 mA ±5 % Resistance loop: 100–600 Ω Normal: 4 mA ±10 % Warning: 16 mA ±5 % | | | | | |
| HART protocol | Optional HART communications on the 0–20 mA analog current (FSK) - used for maintenance, configuration changes, and asset management, available in mA source output wiring options | | | | | |
| RS-485 | RS-485 Modbus compatible communication link that can be used in computer controlled installations | | | | | |
| Mechanical specifications | | | | | | |
| Materials Enclosure options | - Stainless steel 316L with electro polish finish - Heavy duty copper free aluminum (less than 1 %), red epoxy enamel finish (not available in FM version) | | | | | |
| Mounting | Stainless steel 316L with electro polish finish | | | | | |
| Dimensions | Detector 101.6 x 117 x 157 mm (4 x 4.6 x 6.18 in.) | | | | | |
| Weight | Detector (stainless steel 316L) 2.8 kg (6.1 lb) Detector (aluminum) 1.3 kg (2.8 lb) Tilt mount 2.0 kg (2.2 lb) | | | | | |
| Environmental standards | Meets MIL-STD-810C for humidity, salt and fog, vibration, mechanical shock, high temp, low temp | | | | | |
| Water and dust | IP66 and IP67 per EN 60529, NEMA 250 6P | | | | | |













| Approvals | | | | |
|---|--|---|----|--|
| Hazardous area | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> ATEX and IECEx II 2 G D Ex db eb op is IIC T4 Gb Ex tb op is IIIC T96 °C Db (Ta -55 °C to +85 °C) FM/FMC/CSA Class I Div. 1, Groups B, C, & D Class II/III Div.1, Groups E, F, & G </td> <td style="width: 10%; text-align: center; vertical-align: middle;">or</td> <td style="width: 40%; vertical-align: top;"> Ex db eb op is IIC T4 Gb Ex tb op is IIIC T106 °C Db (Ta -55 °C to +75 °C) </td> </tr> </table> | ATEX and IECEx II 2 G D Ex db eb op is IIC T4 Gb Ex tb op is IIIC T96 °C Db (Ta -55 °C to +85 °C) FM/FMC/CSA Class I Div. 1, Groups B, C, & D Class II/III Div.1, Groups E, F, & G | or | Ex db eb op is IIC T4 Gb Ex tb op is IIIC T106 °C Db (Ta -55 °C to +75 °C) |
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| Performance | EN 54-10 (VdS) FM 3260 | | | |
| Reliability | IEC 61508 - SIL2 (TÜV) | | | |
| Marine | MED "Wheelmark" approval (DNV) "Type" approval (DNV) | | | |
| Accessories | | | | |
| Flame simulator kit | 00975-9000-0010 | | | |
| Tilt mount | 00975-9000-0001 | | | |
| Duct mount | 00975-9000-0002 | | | |
| U-bolt/pole mount | 00975-9000-0007 (2 in. pole) 00975-9000-0008 (3 in. pole) | | | |
| USB RS-485 harness kit | 00975-9000-0011 | | | |
| Weather protector | Plastic: 00975-9000-0003 Stainless steel: 00975-9000-0004 | | | |
| Air shield | 00975-9000-0005 | | | |
| Cone viewer kit | 00975-9000-0006 | | | |



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|  | <p>Liquid Analysis</p> |  | <p>Flame and Gas Detection</p> |
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