

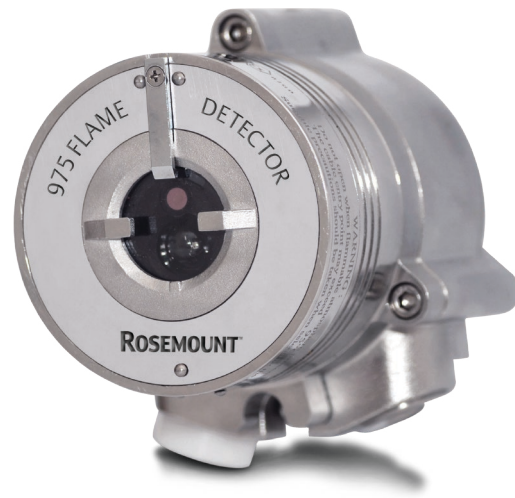
# Rosemount™ 975UR

## Ultraviolet Infrared Flame Detector

**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 & 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)
- 5-year warranty
- User programmable via HART® or RS-485

## Applications

- Oil & gas - offshore & 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						
<b>Spectral response</b>	UV: 0.185–0.260 μm; IR: 4.4–4.6 μm					
<b>Detection range</b> (at highest sensitivity setting for 1 ft <sup>2</sup> (0.1 m <sup>2</sup> ) pan fire)	<b>Fuel</b>	<b>ft / m</b>	<b>Fuel</b>	<b>ft / m</b>	<b>Fuel</b>	<b>ft / m</b>
	n-Heptane	93 / 28	Kerosene	70 / 21	Alcohol 95 %	57 / 17
	Gasoline	93 / 28	Methanol	57 / 17	Polypropylene pellets	60 / 18
	Diesel fuel	70 / 21	IPA (Isopropyl alcohol)	70 / 21	Office paper	33 / 10
	JP5	70 / 21	Methane*	60 / 18	LPG*	60 / 18
	*30 in. (0.75 m) high, 10' in. (0.25 m) width plume fire					
<b>Response time</b>	Typically 5 s.					
<b>Adjustable time delay</b>	Up to 30 s					
<b>Sensitivity ranges</b>	1 ft <sup>2</sup> (0.1 m <sup>2</sup> ) n-heptane pan fire from 92 ft (28 m)					
<b>Field of view</b>	Horizontal 100°, vertical 95°					
<b>Built-in-test (BIT)</b>	Automatic (and manual)					
<b>Temperature range</b>	Operating: -67 °F to +167 °F (-55 °C to +75 °C) Option: -67 °F to +185 °F (-55 °C to +85 °C) Storage: -67 °F to +185 °F (-55 °C to +85 °C)					
<b>Humidity</b>	Up to 95 % non-condensing (withstands up to 100 % relative humidity for short periods)					
<b>Heated optics</b>	To eliminate condensation and icing on the window					
Electrical Specifications						
<b>Operating voltage</b>	24 Vdc nominal (18–32 Vdc)					
<b>Power consumption</b>	Standby: Max. 90 mA (110 mA with heated window) Alarm: Max. 130 mA (160 mA with heated window)					
<b>Cable entries</b>	2 x ¾ in. - 14 NPT conduits or 2 x M25 x 1.5 mm ISO					
<b>Wiring</b>	12–22 AWG (0.3 mm <sup>2</sup> –2.5 mm <sup>2</sup> )					
<b>Electrical input protection</b>	According to MIL-STD-1275B					
<b>Electromagnetic compatibility</b>	EMI/RFI protected to EN 61326-3 and EN 61000-6-3					
<b>Electrical interface</b>	The detector includes twelve (12) terminals with five (5) wiring options (factory set)					
Outputs						
<b>Relays</b>	Alarm, fault, and auxiliary SPST volt-free contacts rated 2 A at 30 Vdc					
<b>0–20 mA (stepped)</b>	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 %					
<b>HART® protocol</b>	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					
<b>RS-485</b>	RS-485 Modbus compatible communication link that can be used in computer controlled installations					
Mechanical Specifications						
<b>Materials</b>	- Stainless steel 316L with electro polish finish Enclosure options - Heavy duty copper free aluminum (less than 1 %), red epoxy enamel finish (not available in FM version)					
<b>Mounting</b>	Stainless steel 316L with electro polish finish					
<b>Dimensions</b>	Detector 4 x 4.6 x 6.18 in. (101.6 x 117 x 157 mm)					
<b>Weight</b>	Detector (stainless steel 316L) 6.1 lb (2.8 kg) Detector (aluminum) 2.8 lb (1.3 kg) Tilt mount 2.2 lb (1.0 kg)					
<b>Environmental standards</b>	Meets MIL-STD-810C for humidity, salt & fog, vibration, mechanical shock, high temp, low temp					
<b>Water and dust</b>	IP66 and IP67 per EN 60529, NEMA 250 6P					

Approvals										
<b>Hazardous area</b>	<table border="0"> <tr> <td><b>ATEX and IECEx</b></td> <td>Ex II 2 GD, Ex d e IIC T5 Gb Ex tb IIIC T96 °C Db (-55 °C ≤ Ta ≤ +75 °C)</td> <td>Ex d e IIC T4 Gb Ex tb IIIC T106 °C Db (-55 °C ≤ Ta ≤ +85 °C)</td> </tr> <tr> <td><b>FM/FMC/CSA</b></td> <td colspan="2">Class I Div. 1, Groups B, C, &amp; D Class II/III Div.1, Groups E, F &amp; G</td> </tr> <tr> <td><b>TR CU (EAC)</b></td> <td>1 Ex d e IIC T5 Gb X Ex tb IIIC T96 °C Db X (-55 °C ≤ Ta ≤ +75 °C)</td> <td>1 Ex d e IIC T4 Gb X Ex tb IIIC T106 °C Db X (-55 °C ≤ Ta ≤ +85 °C)</td> </tr> </table>	<b>ATEX and IECEx</b>	Ex II 2 GD, Ex d e IIC T5 Gb Ex tb IIIC T96 °C Db (-55 °C ≤ Ta ≤ +75 °C)	Ex d e IIC T4 Gb Ex tb IIIC T106 °C Db (-55 °C ≤ Ta ≤ +85 °C)	<b>FM/FMC/CSA</b>	Class I Div. 1, Groups B, C, & D Class II/III Div.1, Groups E, F & G		<b>TR CU (EAC)</b>	1 Ex d e IIC T5 Gb X Ex tb IIIC T96 °C Db X (-55 °C ≤ Ta ≤ +75 °C)	1 Ex d e IIC T4 Gb X Ex tb IIIC T106 °C Db X (-55 °C ≤ Ta ≤ +85 °C)
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<b>Performance</b>	EN 54-10 (VdS) FM 3260									
<b>Reliability</b>	IEC 61508 - SIL2 (TÜV)									

Accessories	
<b>Flame simulator kit</b>	00975-9000-0010
<b>Tilt mount</b>	00975-9000-0001
<b>Duct mount</b>	00975-9000-0002
<b>U-bolt/pole mount</b>	00975-9000-0007 (2 in. pole) 00975-9000-0008 (3 in. pole)
<b>USB RS-485 harness kit</b>	00975-9000-0011
<b>Weather protector</b>	Plastic: 00975-9000-0003 Stainless steel: 00975-9000-0004
<b>Air shield</b>	00975-9000-0005
<b>Cone viewer kit</b>	00975-9000-0006

**[www.Emerson.com/RosemountFlameGasDetection](http://www.Emerson.com/RosemountFlameGasDetection)**



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