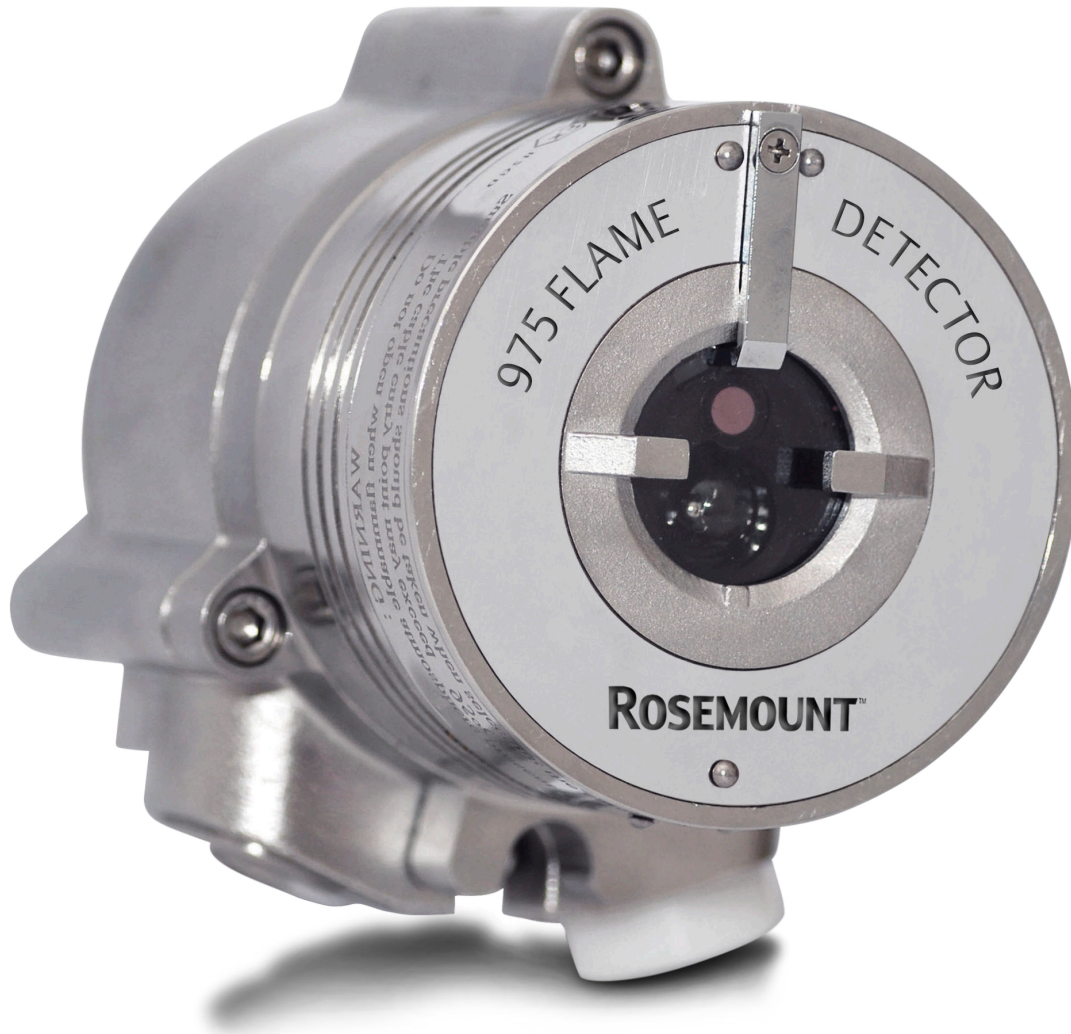


Rosemount™ 975UR

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 detector analyzes the signals from both detectors for frequency, intensity, and duration. Simultaneous detection of radiant energy in both the UV and IR sensors triggers an alarm signal.

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, or condensation).
- Multiple output options for maximum flexibility and compatibility.
 - Three relays 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.
- Petrochemical plants.
- Storage tank farms.
- Aircraft hangars.
- Power generation facilities.
- Pharmaceutical industry.
- Printing industry.
- Warehouses.
- Waste disposal facilities.
- Aerospace industry.
- Paint, polymer, and glue processes.

Contents

Features and benefits.....	2
Applications.....	2
Specifications.....	3

Specifications

Table 1: General Specifications

Spectral response	UV: 0.185–0.260 μm ; IR: 4.4–4.6 μm
Detection ranges (at highest sensitivity setting for 1 ft. ² [0.1 m ²] pan fire)	See Table 2 .
Response time	Typically 5 seconds
Adjustable time delay	Up to 30 seconds
Sensitivity ranges	1 ft. ² (0.1 m ²) n-heptane pan fire from 92 ft. (28 m)
Field of view	Horizontal: 100°, vertical: 95°
Built-in-test (BIT)	Automatic and manual
Temperature range	Operating -67 to +167 °F (-55 to +75 °C) Option: -67 to +185 °F (-55 to +85 °C) Storage: -67 to +185 °F (-55 to +85 °C)
Humidity	Up to 95% non-condensing (withstands up to 100% relative humidity for short periods)
Heated optics	To eliminate condensation and icing on window

Table 2: Detection Ranges

Fuel	ft./m
n-Heptane	93/28
Gasoline	93/28
Diesel fuel	70/21
JP5	70/21
Kerosene	70/21
Methanol	57/17
IPA (isopropyl alcohol)	70/21
Methane ⁽¹⁾	60/18
Alcohol 95%	57/17
LPG ⁽²⁾	60/18
Polypropylene pellets	60/18
Office paper	33/10

(1) 30 in. (0.75 m) high, 9.8 in. (0.25 m) wide plume fire

(2) 30 in. (0.75 m) high, 9.8 in. (0.25 m) wide plume fire

Table 3: Electrical Specifications

Operating voltage	24 Vdc nominal (18 - 32 Vdc)
Power consumption	Standby: Maximum 90 mA (110 mA with heated window) Alarm: Maximum 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

Table 3: Electrical Specifications (continued)

Wiring	12-22 AWG: 0.3 mm ² to 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 12 terminals with 5 wiring options (factory set).

Table 4: 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 BIT fault: 2 mA ±10% Normal: 4 mA ±10% IR: 8 mA ± 5 % UV: 12 mA ± 5 % Warning: 16 mA ±5% Alarm: 20 mA ±5% Resistance loop: 100 to 600 Ω
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

Table 5: Mechanical Specifications

Materials	Stainless steel 316L with electro polish finish
Mounting	Stainless steel 316L with electro polish finish
Dimensions	Detector: 4 x 4.6 x 6.18 in. (101.5 x 117 x 157 mm)
Weight	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)
Environmental standards	Meets MIL-STD-810C for humidity, salt and fog, vibration, mechanical shock, high temperature, and low temperature.
Water and dust	IP66 and IP67 per EN 60529, NEMA 250 6P

Table 6: Approvals

Hazardous area: 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) or Ex 2 G D Ex db eb op is IIC T4 Gb Ex tb op is IIIC T96 °C Db (Ta -55 °C to +75 °C)
Hazardous area: FM/FMC/CSA	Class I Div. 1, Groups B, C, & D Class II/III Div.1, Groups E, F, & G
Performance	EN 54-10 (VdS) FM 3260
Reliability	IEC 61508 - SIL 2 (TÜV)
Marine	MED "wheelmark" approval (DNV) "Type" approval (DNV)

Table 7: Accessories

Flame simulator kit	FS-UVIR-975
Tilt mount	00975-9000-0001
Duct mount	00975-9000-0002
U-bolt/pole mount	00975-9000-0007 (2 in. [50.8 mm] pole) 00975-9000-0008 (3 in. [76.2 mm] 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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