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PRODUCT DATASHEET

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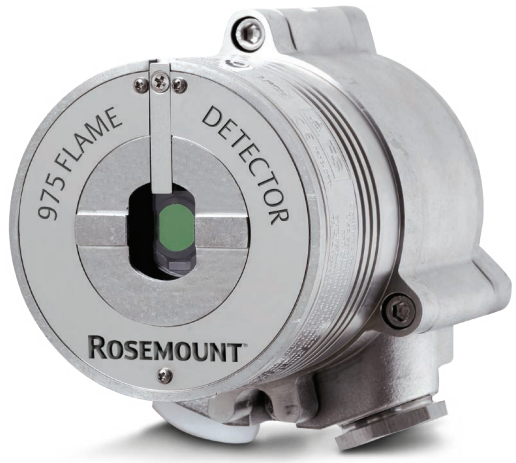
Rosemount™ 975HR

Multi-spectrum Infrared Hydrogen Flame Detector

The Rosemount™ 975HR Multi-spectrum Infrared Hydrogen Flame Detector is specifically designed for detection of hydrocarbon and hydrogen flames. It detects hydrocarbon-based fuel and gas fires at long distances with the highest immunity to false alarms. The Rosemount 975HR can detect a gasoline pan fire at 65 m (215 ft) or a hydrogen flame at 38 m (125 ft) in less than five seconds.

The Rosemount 975HR is the most durable and weather resistant flame detector on the market. Its features include a heated window to eliminate condensation and icing, HART®, lower power requirements and a compact lighter design.



Rosemount 975HR Multi-spectrum Infrared Hydrogen Flame Detector

Features & Benefits

- Multi spectrum design - for long distance detection of hydrocarbons and hydrogen flames
- High false alarm immunity
- Sensitivity selection - to ensure no zone crossover detection
- 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 and gas - offshore and onsure process facilities
- Chemical plants
- Petrochemicals plants
- Storage tank farms
- Aircraft hangars
- Power generation facilities
- Pharmaceutical industry
- Automotive
- Explosives and ammunition
- Waste disposal facilities
- Hydrogen fuel cell industry

Specifications

Table 1 - Rosemount 975HR Multi-spectrum Infrared Hydrogen Flame Detector

General specifications	
Spectral response	Multi IR bands
Detection range (at highest sensitivity setting for 0.1 m^2 (1 ft^2) pan fire)	**Fuel** / **m / ft**: n-Heptane 65 / 215; Gasoline 65 / 215; Diesel fuel 45 / 150; JP5 45 / 150; Kerosene 45 / 150; Ethanol 40 / 135; Methanol 35 / 115; IPA (isopropyl alcohol) 40 / 135; Hydrogen* 38 / 125; Methane* 45 / 150; LPG* 45 / 150; Polypropylene pellets 35 / 115; Ammonia** 18 / 60; Silane** 7 / 2; Office Paper 25 / 82 **0.75 m (30 in.) high, 0.25 m (30 in.) width plume fire* ***0.5 m (25 in.) high, 0.2 m (8 in.) width plume fire*
Response time	Typically 5 s
Adjustable time delay	Up to 30 s
Sensitivity ranges	4 sensitive ranges for 0.1 m^2 (1 ft^2) n-heptane pan fire from 15 m (50 ft) to 65 m (215 ft)
Field of view	Horizontal 67°, vertical 70° for gasoline Horizontal 80°, vertical 80° for hydrogen
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; Normal: 4 mA ±10 %; Alarm: 20 mA ±5 % BIT fault: 2 mA ±10 %; Warning: 16 mA ±5 %; Resistance loop: 100–600 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
Mechanical Specifications	
Materials	Stainless steel 316L with electro polish finish
Mounting	Stainless steel 316L with electro polish finish
Dimensions	Detector 101.5 x 117 x 157 mm (4 x 4.6 x 6.18 in.)
Weight	Detector (stainless steel 316L) 2.8 kg (6.1 lb) Tilt mount 1.0 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	**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
	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)		

Accessories	
Flame simulator kit	00975-9000-0013
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 RS485 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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