

Rosemount™ 965 Flame Detector



The Rosemount 965 Flame Detector detects hydrocarbon fires at up to 150 ft. (45 m) with unparalleled reliability. The 965 is based on QuadSense™ triple infrared (IR3) technology, ensuring high sensitivity and proven immunity to false alarm sources.

Features and benefits

- Fast and reliable flame detection up to 150 ft. (45 m)
- Proven false alarm immunity
- Factory calibrated for life use
- Unparalleled reliability with a lifespan of 150,000 hours
- Covered by a two-year warranty
- An internal log event recorder
- HART® communication
- Five selectable sensitivity levels adapting to a variety of applications
- Infrared built-in test (BIT) for continuous integrity verification of optics and electronics
- Multiple output options for maximum compatibility with standard infrastructures
- Universal wiring option for a streamlined ordering process

Applications

- Airport terminals
- Train stations and terminals
- Storage areas
- Archives
- Malls
- Hospitals
- Car parking towers and garages
- Public buildings
- Banks and offices
- Historical and cultural sites
- Aircraft hangars
- Cable tunnels
- Automotive parts manufacturing

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Ordering information

Model

Code	Description
965	Rosemount 965 Flame Detector

Measurement type

Code	Description
MR	Multi-spectrum infrared

Output configuration

Code	Description
1R	Analog/HART®/RS-485/relays

Housing style/conduit

Code	Description
7A	Aluminum + M20
8A	Aluminum + connector and backshell + wall mount
9A	Aluminum + connector and backshell

Temperature rating

Code	Description
6	-40 °F (-40 °C) to +158 °F (+70 °C)

Product certifications

Code	Description
NA	No hazardous area approvals

Tilt mount

Code	Description
Y	Including tilt mount
N	Without tilt mount

Accessories

Code	Description
FS-975-IR	Flame simulator (explosion-proof)
965190	Tilt mount (stainless steel)
789260-2	Flame detector pole mount assembly, 2 in. (51 mm)
789260-1	Flame detector pole mount assembly, 3 in. (76 mm)
794079	USB RS-485 harness kit
965650	Air shield
965605	Cable
877060	Cone viewer
965563	Cone of view limiter

Specifications

Table 1: Detection Ranges

At the highest sensitivity setting for 1 ft.²/0.1 m² pan fire

Fuel	Range (ft./m)
Gasoline	150/45
N-heptane	150/45
JP5	107/32
Kerosene	107/32
Diesel fuel	107/32
Ethanol 95%	100/30
Isopropyl alcohol (IPA)	100/30
Methanol	100/30
Methane ⁽¹⁾	107/32
Liquefied petroleum gas (LPG) ⁽¹⁾	107/32
Paper	57/17
Polypropylene	83/25
Gun powder ⁽²⁾	100/30
Fireworks (10 pieces per test)	17/5
Cooking oil	107/32
Mineral oil (20W50)	107/32
Wood	57/17
Ethylene glycol	83/25
Butyl acrylate	123/37
Vinyl acetate	123/37
Flammable adhesive (flash point <+140 °F [+60 °C])	107/32
Solvents	123/37
Oil paint	107/32
Jet A1	107/32
Oil (10W40)	107/32

(1) 30-inch (0.75 m) high, 10-inch (0.25 m) wide plume fire

(2) 1.5 x 1.5-inch (3.8 x 3.8 cm) wide, 4-inch (10 cm) tall

Table 2: General Specifications

Spectral response	4 infrared (IR) bands between 4 µm and 5 µm
Detection response time	Typically < 5 seconds

Table 2: General Specifications (continued)

Sensitivity ranges	■ 9.8 ft. (3 m) ■ 32.8 ft. (10 m) ■ 65.6 ft. (20 m) ■ 98.4 ft. (30 m) ■ 147.6 ft. (45 m)
Field of view	Horizontal: 100° (at 50% of maximum distance) Vertical: 95° (at 50% of maximum distance)
Temperature range	Operating: -40 to +158 °F (-40 to +70 °C) Storage: -40 to +158 °F (-40 to +70 °C)
Humidity	Non-condensing relative humidity up to 100%

Table 3: Electrical Specifications

Operating voltage	24 Vdc nominal (12-32 Vdc)
Cable entries	1 x M20
Electrical input protection	According to EN 50130
Electromagnetic compatibility	Electromagnetic interference (EMI)/radio frequency interference (RFI) protected to EN61000-6-3, EN61000-6-4, EN61000-6-6, and EN 50130
Electrical interface	9 terminals and a single cable conduit

Table 4: Typical Power Consumption (24 Vdc)

Power consumption	mA	Watts
Normal	25	0.6

Table 5: Outputs

Relays	Fault: Normally closed (NC) Alarm: Normally open (NO) SPST volt-free contacts rated 2 A at 30 Vdc
0-20 mA (stepped) default ⁽¹⁾	Fault: < 1.1 mA Built-in test (BIT) fault: 2 mA ± 0.3 mA Normal: 4 mA ± 0.3 mA Warning: 16 mA ± 0.3 mA Alarm: 20 mA ± 0.3 mA
HART® protocol	HART communication 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

(1) This output is configurable.

Table 6: Mechanical Specifications

Enclosure options	Low-copper aluminum polyurethane painted
Mounting	Stainless steel 316
Dimensions	Detector: 4.25 x 3.15 x 4.64 in. (108 x 80 x 118 mm)

Table 6: Mechanical Specifications *(continued)*

Weight	Detector (aluminum): 1.65 lb. (0.75 kg) Tilt mount (stainless steel): 1.54 lb. (0.7 kg)
Enclosure ratings	IP66 and IP68 UL50E Type 4X EN60529 NEMA® 250 6P

Performance

EN54-10

Class 2 sensitivity	10 m
Class 1 sensitivities	20, 30, and 45 m
Certificate number	2809-CPR-F0086-01

ULC386

FM3260

Reliability approvals

Safety Integrity Level (SIL) - TBD

For more information: [Emerson.com/global](https://emerson.com/global)

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