Spectrex™ 20/20Q Flame Detector



The SharpEye™ 20/20Q QuadSense Flame Detector is part of the leading, next-generation SharpEye 20/20 series.

The flame detector uses proven triple infrared (IR3) technology and showcases a fast and reliable hydrocarbon fires detection range spanning up to 150 ft. (45 m), paired with unmatched reliability and immunity to false alarms.

Whilst every effort has been made to ensure the accuracy of this specification, we cannot accept responsibility for damage, injury, loss or expense from errors or omissions. In the interest of technical improvement, this specification may be altered without notice.

For pricing or any further information, please contact Omni Instruments Ltd.

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Features and benefits

QuadSense Flame Detector - integrating four infrared (IR) sensors to further improve differentiation of flame sources from non-flame background radiation.

- 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
- Temperature range: –40 to +158 °F (–40 to +70 °C)
- An internal log event recorder
- 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
- Performance, reliability, and hazardous area approvals

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

Ordering information

Model

Code	Description
I	QuadSense triple infrared (IR3)

Enclosure

Code	Description
A	Aluminum + M20
K	Aluminum + connector backshell
P	Engineered polymer + M20

Output configuration

Code	Description
R	Analog (4–20 mA)/RS-485/Relays

Operating temperature range

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

Hazardous approval

Code	Description
0	Non-hazardous areas approval

Performance approvals

Code	Description
T	FM3260 + EN54-10 + ULC386
S[(1)]	FM3260 + EN54-10 + ULC386 + DNV

(1) This option is supplied with a stainless steel tilt mount.

Tilt mount

Code	Description
Y	Including stainless steel tilt mount
N	Without tilt mount
P	Including engineered polymer tilt mount

Accessories

Code	Description
FS-1100	Flame simulator (explosion-proof)
965190	Tilt mount (stainless steel)
965290	Tilt mount (engineered polymer)
789260-3	Flame detector pole mount assembly, 4 in. (101 mm)
789260-2	Flame detector pole mount assembly, 2 in. (51 mm)
789260-1	Flame detector pole mount assembly, 3 in. (76 mm)
965603	Bracket
794079	USB RS-485 harness kit
965650	Air shield
965605	Cable
877060	Cone viewer
965563	Cone of view limiter

Specifications

At the highest sensitivity setting for 1 $ft.^2$/0.1 m^2 pan fire.

Table 1: Detection ranges

Fuel	Range
Gasoline	150 ft. (45 m)
N-heptane	150 ft. (45 m)
JP5	107 ft. (32 m)
Kerosene	107 ft. (32 m)
Diesel fuel	107 ft. (32 m)
Ethanol 95 %	100 ft. (30 m)
Isopropyl alcohol (IPA)	100 ft. (30 m)
Methanol	100 ft. (30 m)
Methane(1)	107 ft. (32 m)
Liquefied petroleum gas (LPG)(1)	107 ft. (32 m)
Paper	57 ft. (17 m)
Polypropylene	83 ft. (25 m)
Gun powder(2)	100 ft. (30 m)
Fireworks (10 pieces per test)	17 ft. (5 m)
Cooking oil	107 ft. (32 m)
Mineral oil (20W-50)	107 ft. (32 m)
Wood	57 ft. (17 m)
Ethylene glycol	83 ft. (25 m)
Butyl acrylate	123 ft. (37 m)
Vinyl acetate	123 ft. (37 m)

Fuel	Range
Flammable adhesive (flash point < 140 °F [60 °C])	107 ft. (32 m)
Solvents	123 ft. (37 m)
Oil paint	107 ft. (32 m)
Jet A1	107 ft. (32 m)
Oil (10W-40)	107 ft. (32 m)

(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 s
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 to 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, andEN 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

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Table 5: Outputs

Relays	**Fault** Normally closed (NC) **Alarm** Normally open (NO) Single pole, single throw (SPST) volt-free contacts rated 2 A at 30 Vdc **Note** If **Fault** relay wiring option is NO, the relay contact is closed in **Normal** status (energized) and open in **Fault** status (de-energized).
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
RS-485	RS-485Modbus®-compatible communication link that can be used in computer-controlled installations

(1) This output is configurable.

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Table 6: Mechanical specifications

Enclosure options	Low-copper aluminum polyurethane painted Engineered polymer
Tilt mount	Stainless steel 316 Engineered polymer
Dimensions	Detector: 4.25 x 3.15 x 4.64 in. (108 x 80 x 118 mm)
Weight	Detector: 1.65 lb. (0.75 kg) Detector (engineered polymer): 0.62 lb. (0.28 kg) Tilt mount: 1.54 lb. (0.7 kg) Tilt mount (engineered polymer): 0.26 lb. (0.12 kg)
Enclosure ratings	IP66 and IP68 UL50E Type 4X EN60529 NEMA® 250 6P

Approvals

Performance

EN54-10

Class 2 sensitivity	10 m
Class 1 sensitivities	20, 30, and 45 m
Certificate number	2809-CPR-E0040

ULC/ORD-C386-15

FM3260

Reliability approvals

Safety Integrity Level (SIL) - pending

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