

AUTOMATIC**Protect•IR®****Multispectrum IR Flame Detector****X3301**Shown with Q9033A
Aluminum Swivel Mount**DESCRIPTION**

The Protect•IR® Multispectrum IR Flame Detector is the future generation detector for performance and technology. The detector utilizes multi-patented* signal processing algorithms supported by an embedded 32-bit microprocessor to provide continuous protection in the presence of false alarm sources and environments with infrared radiation present. It is suitable for indoor

and outdoor applications that require the highest level of false alarm rejection and fire detection performance. The detector is available in aluminum or 316 stainless steel for installation in the harshest environments. The Protect•IR has a detection range to n-Heptane of 210 feet, and a solid cone of vision for methane. The detector features standard fire alarm, fault and auxiliary relays, with an isolated 0 to 20 mA output model with optional HART communication.

The X3301 provides superior performance in applications that are at the extremes, and where background infrared radiation is a normal condition:

- Hangars
- Offshore production platforms
- Offshore production ships
- Refineries
- Production facilities
- Loading racks
- Compressor stations
- Turbine enclosures
- Airport water curtains.

*X3301 technology advancements are covered under the following U.S. Patents: 5,995,008, 5,804,825 and 5,850,182.

**FEATURES AND BENEFITS****Protect•IR TECHNOLOGY FEATURES**

- FM 3260 (2000).
- EN 54-10 Certified (VdS).
- ATEX Directive compliant.
- Certified performance to multiple fuel types.
- EQP models available.
- Extended detection range.
- New standard set for cone of vision.
- HART models available.
- Maximum false alarm rejection.
- Reliable flame detection with modulated IR background.
- Microprocessor controlled heated optics.
- Calibrated automatic optical check for each sensor eliminates need for testing with external test lamp.
- RFI and EMC Directive compliant.
- Event logging with time and date stamp.
- International certifications.
- Integral wiring compartment for ease of installation.
- Solar resistance.

BENEFITS

- Single detector for multiple fuels.
- Low cost of coverage.
- Ability to detect smaller fires earlier.
- Solid cone of vision to 100 feet for methane.
- Better detection zoning capability.
- Best combination of flame detection and false alarm rejection.
- Low maintenance costs.
- Reliable fault diagnostics.
- Suitable for heavy industrial applications.
- Explosion/flame proof (Ex d) or increased safety installations (Ex d e) in hazardous locations.
- Easily retrofitted.

SPECIFICATIONS

Operating Voltage 24 Vdc. Operating range is 18 to 30 Vdc.

Power Consumption 4 watts minimum (without heater), 17 watts at 30 Vdc with EOL resistor installed and heater on maximum.

Relays Contacts rated 5 amperes at 30 Vdc.
Fire Alarm: — Form C (NO and NC contacts)
 — normally de-energized
 — latching/non-latching.
Fault: — Form A (NO contacts)
 — normally energized
 — latching/non-latching.
Auxiliary: — Form C (NO and NC contacts)
 — normally energized/de-energized
 — latching/non-latching.

Current Output (Optional) 0–20 mA, with a maximum loop resistance of 500 ohms from 18–19.9 Vdc, 600 ohms from 20–30 Vdc.

Temperature Range Operating: –40°F to +167°F (–40°C to +75°C).
Storage: –67°F to +185°F (–55°C to +85°C).
 Hazardous location ratings from –55°C to +125°C available on flameproof model.

Humidity Range 0 to 95% relative humidity, can withstand 100% condensing humidity for short periods of time.

Wiring 14 AWG (2.08 mm²) or 16 AWG (1.31 mm²) shielded cable is recommended.

Enclosure Material Copper-free aluminum or 316 stainless steel.

Response Characteristics

	Fuel	Size	Distance Ft (m)	Average Response Time (seconds)***
Very High Sensitivity	n-Heptane	1 x 1 foot	210 (64)*	11
	n-Heptane**	1 x 1 foot	210 (64)*	6
	n-Heptane	1 x 1 foot	100 (30.5)	3
	n-Heptane	6 in. x 6 in.	80 (24.4)	3
	Isopropanol	6 in. x 6 in.	70 (21.3)	4
	Diesel**	1 x 1 foot	150 (45.7)*	14
	Ethanol	1 x 1 foot	210 (64)	11
	Methanol	6 in. x 6 in.	40 (12.2)	3
	Methanol	1 x 1 foot	150 (45.7)*	18
	Methanol**	1 x 1 foot	150 (45.7)*	7
	Methane	30 inch plume	100 (30.5)	3
	JP-5**	1 x 1 foot	150 (45.7)*	2
	JP-5**	2 x 2 feet	210 (64)*	4
Medium Sensitivity	JP-5**	2 x 2 feet	100 (30.5)	2
	Office Paper 0.5 lb.	19" x 19" x 8"	100 (30.5)	4
	Corrugated Panel	18" x 36"	100 (30.5)	8
	n-Heptane	1 x 1 foot	100 (30.5)	12
	n-Heptane	1 x 1 foot	50 (15.2)	2
	Diesel**	1 x 1 foot	70 (21.3)	4
	Ethanol	1 x 1 foot	85 (25.9)	13
	Methanol	1 x 1 foot	70 (21.3)	10
	Methane	30 inch plume	65 (19.8)	3
	Methane	30 inch plume	55 (16.8)	2
JP-5**	2 x 2 feet	100 (30.5)	3	
Office Paper 0.5 lb.	19" x 19" x 8"	50 (15.2)	6	
Corrugated Panel	18" x 36"	50 (15.2)	2	

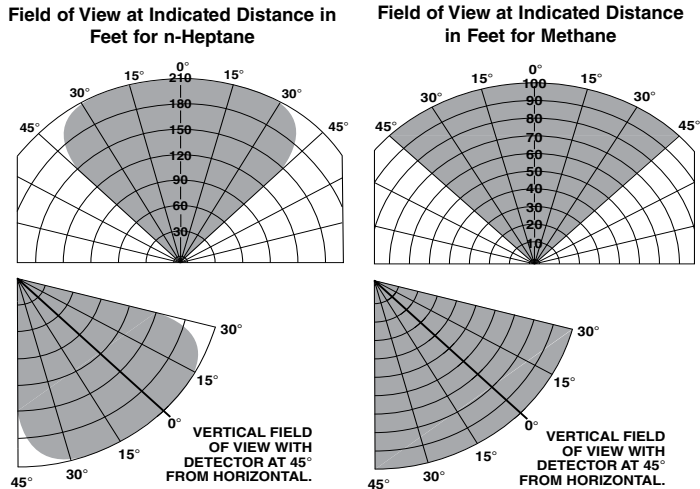
* Outdoor test condition.
 ** 10 second pre-burn from ignition.
 *** Add 2 seconds for EQP Model.

Conduit Entry Size 3/4 inch NPT or 25 mm.

Warranty 5 years.

Shipping Weight (Approximate) Aluminum: 6 pounds (2.75 kg).
Stainless Steel: 10 pounds (4.5 kg).

Field of View 90° horizontal by 75° vertical, at a minimum of 70% of the on-axis detection distance.



Certification



Class I, Div. 1, Groups B, C & D (T4A);
 Class II, Div. 1, Groups E, F & G (T4A);
 Class I, Div. 2, Groups A, B, C & D (T3C);
 Class II, Div. 2, Groups F & G (T3C);
 Class III.
 Enclosure NEMA/Type 4X.

DNV

Type Approval Certificate Number A-11022.

Lloyd's Register

Type Approval Certificate Number 09/00027.



IECEx Certificate of Conformity

IECEx ULD 06.0017X
 Ex d e IIC T5-T6 Gb
 T6 (T_{amb} = –50°C to +60°C).
 T5 (T_{amb} = –50°C to +75°C).
 IP66.

– or –

Ex d IIC T4-T6 Gb
 T6 (T_{amb} = –55°C to +60°C).
 T5 (T_{amb} = –55°C to +75°C).
 T4 (T_{amb} = –55°C to +125°C).
 IP66.

Increased Safety Model

CE 0539 Ex II 2 G
 II 2 D
 Ex d e IIC T5–T6 Gb
 Ex tb IIIC T130°C
 T6 (T_{amb} –50°C to +60°C)
 T5 (T_{amb} –50°C to +75°C)
 IP66/IP67.

Flameproof Model

CE 0539 Ex II 2 G
 II 2 D
 Ex d e IIC T4–T6 Gb
 Ex tb IIIC T130°C
 T6 (T_{amb} –55°C to +60°C)
 T5 (T_{amb} –55°C to +75°C)
 T4 (T_{amb} –55°C to +125°C)
 IP66/IP67.



IEC 61508

Certified SIL 2 Capable.
 Certification DET 070417 C001
 Applies to specific models –
 Refer to the SIL 2 Certified
 X3301 Safety manual (95-8582).

Specifications subject to change without notice.

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