

# AUTOMATIC



Shown with Q9033A Aluminum Mounting Arm

## Multispectrum IR Flame Detector with Pulse Output X3301

### DESCRIPTION

Y E A R  
**5**  
WARRANTY

The X3301 with pulse/relay output is a multispectrum infrared (MIR) flame detector that is designed for use in controller based systems. In addition to use in new systems, it can serve as a direct field replacement for Det-Tronics controller based flame detectors that generate a pulse output (not compatible with R7484 and R7409B/C).

When used as a field replacement, all operating features of the current controller are retained in addition to gaining the advanced features of the X3301 Flame Detector. In typical applications, the four wire X3301 can utilize all existing system wiring.

The detector 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.

### HIGHLIGHTS

#### X3301 TECHNOLOGY FEATURES

- ▲ FM 3260
- ▲ ATEX Directive compliant
- ▲ Certified performance to multiple fuel types
- ▲ Extended detection range
- ▲ New standard set for cone of vision
- ▲ Maximum false alarm rejection
- ▲ Reliable flame detection with modulated IR background
- ▲ Pulse output for compatibility with controller based systems
- ▲ 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 125 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 or increased safety installations (Ex d e) in hazardous locations.
- ▲ Easily retrofitted (R7404, R7494).

# SPECIFICATIONS

<b>Operating Voltage</b>	24 Vdc nominal (18 Vdc minimum, 30 Vdc maximum). Maximum ripple is 2 volts peak-to-peak.
<b>Power Consumption</b>	4 watts minimum (without heater), 17 watts at 30 Vdc with EOL resistor installed and heater on maximum.
<b>Relays</b>	Contacts rated 5 amperes at 30 Vdc. <u>Fire Alarm:</u> — Form C (NO and NC contacts) — normally de-energized — latching/non-latching. <u>Fault:</u> — Form A (NO contacts) — normally energized — latching/non-latching.
<b>Temperature Range</b>	<u>Operating:</u> —40°F to +167°F (–40°C to +75°C). <u>Storage:</u> —67°F to +185°F (–55°C to +85°C).  Hazardous location ratings from –55°C to +125°C.
<b>Humidity Range</b>	0 to 95% relative humidity, can withstand 100% condensing humidity for short periods of time.
<b>Wiring</b>	16 AWG or 2.5 mm <sup>2</sup> shielded cable is recommended.

### Response Characteristics

	Fuel	Size	Distance Ft (m)	Average Response Time (seconds)
<b>Very High Sensitivity</b>	n-Heptane	1 x 1 foot	265 (80.7)*	22
	n-Heptane	1 x 1 foot	250 (76.2)	17
	n-Heptane	1 x 1 foot	100 (30.5)	3
	n-Heptane	6 in. x 6 in.	100 (24.4)	7
	Isopropanol	6 in. x 6 in.	70 (21.3)	6
	Diesel	1 x 1 foot	175 (53.3)	6**
	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)	7
	Methanol	1 x 1 foot	150 (45.7)	5**
	Methane	32 inch plume	125 (38.1)	5
	Propane	32 inch plume	125 (38.1)	5
	Jet A	1 x 1 foot	150 (45.7)	4**
	JP-5	2 x 2 feet	235 (71.6)	3**
	JP-8	1 x 1 foot	150 (45.7)	5**
	Class A	Ø12 in. x 7 in.	150 (45.7)	3**
<b>Medium Sensitivity</b>	n-Heptane	1 x 1 foot	100 (30.5)	7
	n-Heptane	1 x 1 foot	50 (15.24)	<2
	Diesel	1 x 1 foot	70 (21.3)	4**
	Ethanol	1 x 1 foot	85 (25.9)	7
	Methanol	1 x 1 foot	70 (21.3)	6
	Methane	32 inch plume	70 (21.3)	6
	Methane	32 inch plume	55 (16.8)	4
	Propane	32 inch plume	75 (22.8)	<5
	JP-5	2 x 2 feet	150 (45.7)	3**
	Class A	Ø12 in. x 7 in.	50 (15.24)	4**

\* Outdoor test condition.  
\*\* 10 second pre-burn from ignition.  
Ø Diameter

NOTE: Refer to the X3301 instruction manual (95-8736) for additional sensitivity levels.

<b>Enclosure Material</b>	Copper-free aluminum (painted) or stainless steel (316/CF8M Cast).
<b>Conduit Entry Size</b>	3/4 inch NPT or M25.
<b>Warranty</b>	5 years.
<b>Shipping Weight (Approximate)</b>	<u>Aluminum:</u> 7 lbs. (3.2 kg). <u>Stainless Steel:</u> 13.8 lbs. (6.3 kg).
<b>Field of View</b>	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. Group F & G (T3C);  
Class III  
Enclosure NEMA/Type 4X.

For FM and CSA Zone approval information, refer to the X3301 instruction manual (95-8736).



**UL-BR 12.0093X**  
Ex d e IIC T6-T5 Gb IP66/IP67  
Ex tb IIIC T130°C  
T6 (Tamb = –50°C to +60°C)  
T5 (Tamb = –50°C to +75°C).  
– OR –  
Ex d IIC T6-T4 Gb IP66/IP67  
Ex tb IIIC T130°C  
T6 (Tamb = –55°C to +60°C)  
T5 (Tamb = –55°C to +75°C)  
T4 (Tamb = –55°C to +125°C).



**DEMKO 01 ATEX 130204X**  
Increased Safety Model

CE 0539 Ex II 2 G II 2 D

Ex d e IIC T6...T5 Gb  
Ex tb IIIC T130°C  
T6 (Tamb –50°C to +60°C)  
T5 (Tamb –50°C to +75°C)  
IP66/IP67.

Flameproof Model

CE 0539 Ex II 2 G II 2 D

Ex d IIC T6...T4 Gb  
Ex tb IIIC T130°C  
T6 (Tamb –55°C to +60°C)  
T5 (Tamb –55°C to +75°C)  
T4 (Tamb –55°C to +125°C)  
IP66/IP67.



**IECEx Certificate of Conformity**

IECEx ULD 06.0017X  
Ex d e IIC T6...T5 Gb  
Ex tb IIIC T130°C  
T6 (Tamb = –50°C to +60°C)  
T5 (Tamb = –50°C to +75°C)  
IP66/IP67.  
– OR –  
Ex d IIC T6...T4 Gb  
Ex tb IIIC T130°C  
T6 (Tamb = –55°C to +60°C)  
T5 (Tamb = –55°C to +75°C)  
T4 (Tamb = –55°C to +125°C)  
IP66/IP67.

Specifications subject to change without notice.

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