

# AUTROFLAME X33AF

## Multispectrum IR Flame Detector Product datasheet

### Features

- Complies with FM 3260
- EN54 certified
- Certified SIL 2 capable
- ATEX Directive compliant
- Certified performance to multiple fuel types and fire sizes
- PowerLoop models available
- Long detection range to carbonaceous fires
- HART models available
- FDT/DTM capable
- Multiple sensitivity levels
- 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
- Integral wiring compartment for ease of installation
- Operates under adverse weather conditions and in dirty environments

### Benefits

- Single detector for multiple hydrocarbon 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 (Ex d) or increased safety installations (Ex d e) in hazardous locations

### Application/Description

The AutoFlame X33AF is a multispectrum infrared (MIR) flame detector. It provides unsurpassed detection of fires from light to heavy hydrocarbon



fuels combined with the highest degree of false alarm rejection. The detector has Division and Zone explosion-proof ratings and is suitable for use in indoor and outdoor applications.

The AutoFlame X33AF contains three IR sensors with their associated signal processing circuitry. The standard output configuration includes fire alarm, fault and auxiliary relays, with an isolated 0 to 20 mA output model with optional HART communication.

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
- Automotive Painting
- LNG/LPG
- Gas Separation Plants
- Warehousing
- Marine

## 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>                | <p>Contacts rated 5 amperes at 30 Vdc.</p> <p>Fire Alarm: — Form C (NO and NC contacts)</p> <p>— normally de-energized</p> <p>— latching/non-latching.</p> <p>Fault: — Form A (NO contacts)</p> <p>— normally energized</p> <p>— latching/non-latching.</p> <p>Auxiliary: — Form C (NO and NC contacts)</p> <p>— normally energized/de-energized</p> <p>— latching/non-latching.</p> |
| <b>Current Output (opt.)</b> | 0–20 mA ( $\pm 0.3$ mA), with a maximum loop resistance of 500 ohms from 18–19.9 Vdc, 600 ohms from 20–30 Vdc                                                                                                                                                                                                                                                                        |
| <b>Temperature Range</b>     | <p>Operating: –40°F to +167°F (–40°C to +75°C).</p> <p>Storage: –67°F to +185°F (–55°C to +85°C).</p> <p>Hazardous location ratings from –55°C to +125°C</p>                                                                                                                                                                                                                         |
| <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.                                                                                                                                                                                                                                                                                                                         |
| <b>Enclosure Material</b>    | Copper-free aluminum (painted) or stainless steel (316/CF8M Cast).                                                                                                                                                                                                                                                                                                                   |

### Response Characteristics

|                       | Fuel        | Size            | Distance Feet (m) | Average Response Time (sec) |
|-----------------------|-------------|-----------------|-------------------|-----------------------------|
| Very High Sensitivity | 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**                         |
| Medium Sensitivity    | JP-8        | 1 x 1 foot      | 150 (45.7)        | 5**                         |
|                       | Class A     | Ø12 in. x 7 in. | 150 (45.7)        | 3**                         |
|                       | 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.

NOTE: Refer to AutroFlame X33AF instruction manual for additional sensitivity levels.

|                                      |                                                                                        |
|--------------------------------------|----------------------------------------------------------------------------------------|
| <b>Conduit Entry Size</b>            | 3/4 inch NPT or 25 mm.                                                                 |
| <b>Warranty</b>                      | 5 years.                                                                               |
| <b>Shipping Weight (Approximate)</b> | Aluminum: 7 lbs. (3.2 kg).<br>Stainless Steel: 13.8 lbs. (6.3 kg)                      |
| <b>Part numbers</b>                  | Please contact the sales department or ref. the product catalogue.                     |
| <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.



### IEC 61508

Certified SIL 2 Capable.  
Certification AUT 1108054 C002  
Applies to specific models –  
Contact the sales department for information.

RUSSIA & KAZAKHSTAN



SERCONS  
TC RU C-NO. F608.B.01508  
1 Ex d e IIC T5-T6 Gb  
1 Ex d IIC T4-T6 Gb

RUSSIA



NORMATEST  
CERTIFICATE OF CONFORMITY TO  
TECHNICAL REGULATIONS,  
GOST R 53325-2012  
C-NO.A603.B.00061



Approvals to EN 54-10. See instruction manual for details.



US Coast Guard  
Coast Guard Approval No. 161.002/57/0.



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  
T6 (Tamb = –50°C to +60°C).  
T5 (Tamb = –50°C to +75°C).  
IP66.  
– or –  
Ex d IIC T6-T4 Gb  
T6 (Tamb = –55°C to +60°C).  
T5 (Tamb = –55°C to +75°C).  
T4 (Tamb = –55°C to +125°C).  
IP66.



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).



DNV  
Type Approval Certificate  
Number A-13995.  
DNV Certificate Number MED-B-9427.