

# AUTOMATIC **oi**

## IR Flame Detector X9800



**HART**  
COMMUNICATION PROTOCOL

### DESCRIPTION



The evolution continues with the new X9800 IR Flame Detector. The X9800 meets the most stringent requirements worldwide with advanced detection capabilities and immunity to extraneous sources, combined with a superior mechanical design. The detector is equipped with automatic, manual and magnetic **oi**® test capability. The detector has Division and Zone explosion-proof ratings and is suitable for use in indoor and outdoor applications.

The standard output configuration includes fire, fault and auxiliary relays. An optional 0 to 20 mA output with HART can be provided in addition to the three relays. A model with pulse output is available for easy retrofitting into existing Det-Tronics controller based systems. Auxiliary relay and 0 to 20 mA output are not available with the pulse model. A tricolor LED on the detector faceplate indicates normal condition and notifies personnel of fire alarm or fault conditions.

The X9800 housing is available in aluminum or stainless steel, with NEMA 4X and IP66/IP67 rating.

Typical applications include:

- Dirty environments
- Petrochemical applications
- Automotive applications
- Powder coating applications
- Turbines

### HIGHLIGHTS

- ▲ Complies with FM 3260
- ▲ EN54 certified
- ▲ Certified SIL 2 capable
- ▲ ATEX Directive compliant
- ▲ EQP models available
- ▲ TDSA (Time Domain Signal Analysis) false alarm rejection
- ▲ Responds to a fire in the presence of modulated blackbody radiation (i.e. heaters, ovens, turbines) without false alarm
- ▲ HART models available
- ▲ High speed capability
- ▲ Microprocessor controlled heated optics for increased resistance to moisture and ice
- ▲ Automatic, manual or magnetic **oi**® (optical integrity) testing — no external test lamp required
- ▲ Easily replaceable **oi** plate
- ▲ Fire, fault and auxiliary relays standard
- ▲ MODBUS RS-485 communication
- ▲ 0 to 20 mA isolated output (optional)
- ▲ Pulse output for compatibility with controller based systems (optional)
- ▲ A tricolor LED on the detector faceplate indicates normal condition and notifies personnel of fire alarm or fault conditions
- ▲ Mounting arm allows easy sighting
- ▲ Integral wiring compartment for ease of installation
- ▲ Class A wiring per NFPA-72
- ▲ Meets NFPA-33 response requirement for under 0.5 second (available when model selected)
- ▲ RFI and EMC Directive compliant
- ▲ Built-in data logging/event monitoring

## 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>	2.1 watts @ 24 Vdc nominal 16.5 watts @ 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  <u>Auxiliary*:</u> — Form C (NO and NC contacts) — normally energized — latching/non-latching		
<b>Current Output*</b> (Optional)	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>	<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)		
<b>Humidity Range</b>	0 to 95% relative humidity, can withstand 100% condensing humidity for short periods of time		
<b>Spectral Sensitivity Range</b>	4 - 5 microns		
<b>Field of View</b>	The detector has a 90 degree cone of vision (horizontal) with the highest sensitivity lying along its central axis		
<b>Warranty</b>	3 years		
<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>Shipping Weight</b> (Approximate)	<u>Aluminum:</u> 7 pounds (3.2 kilograms)	<u>Stainless Steel:</u> 14.6 pounds (6.7 kilograms)	

### Response Characteristics

Very High Sensitivity, TDSA On

Fuel	Size	Distance Feet (m)	Typical Response Time (seconds)	Quick Fire
n-Heptane	1 x 1 foot	85 (25.9)	15	Off
Methane	32 inch plume	60 (18.3)	<10	Off
Propane	Torch	2 (0.6)	0.04	On

NOTE: Refer to the X9800 instruction manual 95-8554 for details regarding detector response.

\*Auxiliary relay and 0 to 20 mA output are not available on pulse output model.

### Certification



Class I, Div. 1, Groups B, C & D (T5)  
Class II, Div. 1, Groups E, F & G (T5)  
Class I, Div. 2, Groups A, B, C & D (T3)  
Class II, Div. 2, Groups F & G (T3)  
Class III.  
Enclosure NEMA/Type 4X per NEMA 250  
For FM Zone approval information, refer to the X9800 instruction manual (95-8554)



### IEC 61508

Certified SIL 2 Capable  
Applies to specific models –  
Refer to the SIL 2 Certified  
X9800 Safety Manual (95-8672)



### VNIIFTRI

**Certificate of Conformity to CUTR TP TC 012/2011**  
**TC RU C-US. BH02.B.00234**  
2ExdellCT6/T5 IP66  
T6 (Tamb = –55°C to +60°C)  
T5 (Tamb = –55°C to +75°C)  
– OR –  
1ExdIICT6/T5 IP66  
T6 (Tamb = –55°C to +60°C)  
T5 (Tamb = –55°C to +75°C)



### VNIPO

Certificate of Conformity to technical regulations, GOST R 53325-2012  
C-US.ПБ01.B.02841



Approvals to EN54-10  
See X9800 instruction manual (95-8554) for details



### DEMKO 02 ATEX 132195X Increased Safety Model

CE 0539 Ex db eb IIC T6...T5 Gb  
Ex tb IIIC T85°C Db

T6 (Tamb = –50°C to +60°C)  
T5 (Tamb = –50°C to +75°C)  
IP66/IP67

### Flameproof Model

CE 0539 Ex db eb IIC T6...T5 Gb  
Ex tb IIIC T85°C Db

T6 (Tamb = –55°C to +60°C)  
T5 (Tamb = –55°C to +75°C)  
IP66/IP67



### IECEx Certificate of Conformity

IECEx ULD 06.0018X  
Ex db eb IIC T6...T5 Gb  
Ex tb IIIC T85°C Db  
T6 (Tamb = –50°C to +60°C)  
T5 (Tamb = –50°C to +75°C)  
IP66/IP67  
– OR –  
Ex db IIC T6...T5 Gb  
Ex tb IIIC T85°C Db  
T6 (Tamb = –55°C to +60°C)  
T5 (Tamb = –55°C to +75°C)  
IP66/IP67



### UL-BR 17.0216X

Ex db eb IIC T6...T5 Gb  
Ex tb IIIC T85°C Db  
T6 (Tamb = –50°C to +60°C)  
T5 (Tamb = –50°C to +75°C)  
IP66/IP67  
– OR –  
Ex db IIC T6...T5 Gb  
Ex tb IIIC T85°C Db  
T6 (Tamb = –55°C to +60°C)  
T5 (Tamb = –55°C to +75°C)  
IP66/IP67



Specifications subject to change without notice.

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Det-Tronics manufacturing system is certified to ISO 9001—the world's most recognized quality management standard.

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