

# EXHIBIT D

**AUTOMATIC** **oi\*****UV Flame Detector  
X2200****DESCRIPTION**

The evolution continues with the new X2200 UV Flame Detector. The X2200 is the most advanced UV detector meeting standards and approvals worldwide, 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 a variety of applications.

The standard output configuration includes fire, fault and auxiliary relays. An optional 4 to 20 mA output 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 4 to 20 mA output are not available with the pulse model. A tricolor LED on the detector faceplate indicates detector status condition.

The X2200 housing is available in aluminum or stainless steel, with NEMA 4X and IP66 rating.

Typical applications include:

- Hydrogen storage
- Munitions
- Silane storage.

\*oi is Detector Electronics' Trademark for its patented Optical Integrity Systems, U.S. Patent 3,952,196, United Kingdom Patent 1,534,969, Canada Patent 1,059,598.

**FEATURES**

- FM 3260 (2000).
- EM 54-10 Certified (VdS).
- ATEX Directive compliant.
- EQP models available.
- Advanced signal processing.
- Arc — unequaled false alarm rejection.
- Responds to a fire in the presence of modulated blackbody radiation (i.e. heaters, ovens, turbines) without false alarm.
- High speed capability.
- Automatic, manual or magnetic optical integrity (oi) testing — no external test lamp required.
- Easily replaceable oi plate.
- Fire, fault and auxiliary relays standard.
- MODBUS RS-485 communication.
- 4 to 20 mA isolated output (optional).
- Pulse output for compatibility with controller based systems (optional).
- Tricolor LED indicates normal operation, fire and fault conditions.
- Mounting swivel 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

**Operating Voltage** 24 vdc. Operating range is 18 to 30 vdc.

**Power Consumption** 2.5 watts @ 24 vdc nominal.  
7.6 watts @ 30 vdc with EOL resistor installed.

**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  
— latching/non-latching.

**Current Output\*** 4–20 mA, with a maximum loop resistance of 500 ohms from 18–19.9 vdc, 600 ohms from 20–30 vdc. (Optional)

**Temperature Range** Operating: –40°F to +167°F (–40°C to +75°C).  
Storage: –67°F to +185°F (–55°C to +85°C).

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

**Field of View** The X2200 has a 90 degree cone of vision with the highest sensitivity lying along its central axis.

**Warranty** 3 years.

**Enclosure Material** Copper-free aluminum or 316 stainless steel.

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

**Shipping Weight** Aluminum: 6 pounds (2.7 kg).  
Stainless Steel: 10 pounds (4.5 kg). (Approximate)

### Response Characteristics

Very High Sensitivity

Fuel	Size	Distance Feet (M)	Typical Response Time (Sec.)	Mode
n-Heptane	1 x 1 foot	85 (25.9)	3	Low Arc
Methane	32 inch plume	100 (30.5)	2	Low Arc

NOTE: Refer to the X2200 instruction manual (form number 95-8549) for details regarding detector response.

\*Auxiliary relay and 4 to 20 mA output are not available on pulse output model.

### Certification



Class I, Div. 1, Groups B, C & D;  
Class II, Div. 1, Groups E, F, & G;  
Class I, Div. 2, Groups A, B, C & D (T3);  
Class II, Div. 2, Groups F & G (T3);  
Class III.  
NEMA/Type 4X.

### IECEX

Certificate of Conformity  
IECEX ULD 06.0018X  
Ex d IIC T5-T6 or Ex de IIC T5-T6  
T6 (T<sub>amb</sub> = –55°C to +60°C).  
T5 (T<sub>amb</sub> = –55°C to +75°C).

### Increased Safety Model

0539 (Ex) II 2 GD  
EEx de IIC T5–T6 T86°C  
DEMKO 02 ATEX 132195  
T6 (T<sub>amb</sub> = –55°C to +60°C).  
T5 (T<sub>amb</sub> = –55°C to +75°C).  
IP66.

### Flameproof Model

0539 (Ex) II 2 GD  
EEx d IIC T5–T6 T86°C  
DEMKO 02 ATEX 132195  
T6 (T<sub>amb</sub> = –55°C to +60°C).  
T5 (T<sub>amb</sub> = –55°C to +75°C).  
IP66.

### Dimensions

Dimensions shown in inches (centimeters).



### Wiring

14 AWG (2.08 mm<sup>2</sup>) or 16 AWG (1.31 mm<sup>2</sup>) shielded cable is recommended.

9	4-20 mA +	19	4-20 mA –	SPARE	29
8	4-20 mA + REF	18	4-20 mA – REF	SPARE	28
7	COM FIRE	17		COM AUX	27
6	N.O. FIRE	16		N.O. AUX	26
5	N.C. FIRE	15		N.C. AUX	25
4	COM FAULT	14		RS-485 A	24
3	N.O. FAULT	13		RS-485 B	23
2	24 VDC +	12		MAN OI	22
1	24 VDC –	11		24 VDC –	21

Wiring Terminal Identification for Standard X2200



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Specifications subject to change without notice.