DET-TRONICS

AUTOMATIC oi

# UVIR Flame Detector
# X5200/X5200M/X5200G

HART COMMUNICATION PROTOCOL

FDT Group Member

## DESCRIPTION

YEAR 3 WARRANTY

The X5200 UVIR Flame Detector meets the most stringent requirements worldwide with advanced detection capabilities and immunity to extraneous sources, combined with a superior mechanical design. The mounting arrangement allows the UV and IR sensors to monitor the same hazardous location with a 90 degree cone of vision. When both sensors simultaneously detect the presence of a flame, an alarm signal is generated. 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 tri-color LED on the detector faceplate indicates normal condition and notifies personnel of fire alarm or fault conditions.

The X5200M UV/IR detector utilizes a molybdenum (moly) UV sensing element. Moly-based UV sensors have an increased spectral range of 1850 to 2650 angstroms, which is better suited for detecting substances with unusual chemistry and some black powders.

The X5200 housing is available in aluminum or stainless steel, with NEMA 4X and IP66/IP67 rating.

Typical applications include:
— Munitions
— Petrochemical applications
— Turbines
— Refineries

## HIGHLIGHTS

- Complies with FM 3260
- EN54 certified
- Certified SIL 2 capable
- ATEX Directive compliant
- EQP models available
- A new level of 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
- FDT/DTM capable
- 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 tri-color 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

**Operating Voltage**
24 Vdc. Operating range is 18 to 30 Vdc
Maximum ripple is 2 volts peak-to-peak

**Power Consumption**
2.8 watts @ 24 Vdc nominal
17.5 watts @ 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
— latching/non-latching

**Current Output*** (Optional)
0–20 mA (± 0.3 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 +75°C available on flameproof model

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

**Spectral Sensitivity Range**
All X5200 IR wavelength range 4-5 microns. X5200/X5200G UV wavelength range 185-245 nanometers
X5200M UV wavelength range 185-265 nanometers

**Field of View**
The detector has a 90 degree cone of vision (horizontal) with the highest sensitivity lying along its central axis

**Source Tube**
Contains radioactive isotope Krypton 85 ($Kr^{85}$)
Calculated Activity:14,800 Becquerels (0.4µCi)
**Note: Not applicable to model X5200G**

**Warranty**
3 years

**Enclosure Material**
Copper-free aluminum (painted) or stainless steel (316/CF8M Cast)

**Conduit Entry Size**
3/4 inch NPT or M25.

**Shipping Weight** (Approximate)
Aluminum: 7 lbs. (3.2 kg)
Stainless Steel: 14.6 lbs. (6.7 kg)

**Wiring**
16 AWG or 2.5 $mm^2$ shielded cable is recommended

**Response Characteristics**
Very High Sensitivity UV & IR, Low Arc, TDSA On, Quick Fire On

| Fuel | Size | Distance Feet (m) | Typical Response Time (seconds) |
|---|---|---|---|
| n-Heptane | 1 x 1 foot | 85 (25.9) | 14 |
| Methane | 32 inch plume | 65 (19.8) | 5 |

NOTE: Refer to the X5200 instruction manual 95-8546 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 X5200 instruction manual (95-8546)

**IEC 61508**
Certified SIL 2 Capable
Applies to specific models –
Refer to the SIL 2 Certified
X5200 Safety Manual (95-8672)

**VNIIFTRI**
**Certificate of Conformity to TP TC 012/2011**
**TC RU C-US. BH02.B.00234**
2ExdeIICT6/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)

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

Approvals to EN54-10
See X5200 instruction manual (95-8546) for details

**DEMKO 01 ATEX 132195X**
Increased Safety Model
CE 0539 Ex II 2 G
II 2 D
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 II 2 G
II 2 D
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

**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.



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

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