

**AUTOMATIC**  
**oi****Unitized Ultraviolet Flame  
Detector/Controller  
U7602E****DESCRIPTION**

The U7602E Ultraviolet (UV) Flame Detector combines the time proven Det-Tronics solar blind UV sensor with advanced signal processing technology to provide the highest level of versatility and reliability in fire detection.

The microprocessor based detector has fire and fault relays as standard outputs, with a 4 to 20 ma output available as an option. This enables it to operate as a stand alone device, or it can interface with a variety of fire panels, controllers, PLCs, etc.

To ensure maximum reliability, the U7602E is equipped with both automatic and manual versions of Det-Tronics' patented optical integrity (**oi**) test feature. The automatic **oi** test is performed once every minute to check the condition of the detector's optics. The manual **oi** test is used in addition to automatic **oi** to verify correct operation of relays, LEDs and field wiring.

The U7602E is furnished with two selectable signal processing techniques — arc rejection or standard. The U7602E's arc rejection logic is unique and provides a new level of false alarm immunity in applications affected by UV from short-duration electrical arcs or electrostatic discharge. Unlike the signal processing technique used by ordinary detectors, the U7602E's arc rejection does not rely on long time delays, making it suitable for use in applications that require fast response.

**Field Selectable Options**

- Latching/non-latching relays
- Sensitivity
- Time delay
- Arc rejection or standard signal processing.

**FEATURES AND BENEFITS**

- Programmable arc rejection signal processing ensures reliable protection with minimal chance for false alarms.
- High-speed capability.
- Automatic **oi** test continuously verifies the integrity of detector optics.
- Manual **oi** provides a calibrated test of optics, electronics and output devices.
- LEDs provide visual status indication.
- No calibration required.
- All UV detection and fire signal processing circuitry is contained in a single explosion-proof enclosure — no controller needed.
- Units available with isolated/non-isolated 4 to 20 ma output with a dedicated 2 ma optical fault.
- Optional patented Internal Reflection **oi** provides improved reliability with less maintenance and downtime in oily environments or where wet, corrosive contaminants are present.
- Optional Data Logger records up to 510 detector status events for later downloading to a PC.
- CENELEC Approved for installed addressable modules.

**Typical Applications**

- Silane storage areas
- Petrochemical plants
- Turbine enclosures
- Electrostatic coating processes.

## SPECIFICATIONS

**Operating Voltage** 24 vdc nominal. Operating range is 18 to 32 vdc.

**Power Consumption** 2.0 watts nominal, 4.0 watts maximum during **oi** test, 7.0 watts maximum when end-of-line components are installed.

**Power-up Delay** 0.5 seconds.

**Relays** Contacts rated 5 amperes at 30 vdc.

**Fire Alarm:** — Form C (N.O. and N.C.)  
— normally de-energized  
— latching/non-latching.

**Fault:** — normally energized (contacts closed)  
— latching/non-latching.

**4 to 20 ma Output (Optional)**

Status	Output Level (ma)
General Fault	0
Power Supply Fault	1
<b>oi</b> Fault	2
Normal	4
UV Pre-Alarm	16
Fire	20

**Cone of Vision** 90 degrees, with highest sensitivity along the central axis (gasoline, methane).

**Response Distance (Maximum Sensitivity)**

Material	Distance	
	Feet	Meters
Gasoline	90	27
Methane	80	24
Diesel	65	20
Methanol	65	20
Acetone	60	18
Toluene	50	15
Wood Shavings (excelsior)	50	15

**Operational Temperature Range**

Standard Model: -40°F to +167°F  
(-40°C to +75°C).  
High Temperature Model: -40°F to +257°F  
(intermittent to 3 hours) (-40°C to +125°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.

**Ingress Protection**

IP66  
NEMA/Type 4X.

**Vibration**

Meets MIL SPEC 810C, method 514.2, curve AW.

**Certifications**

**FMR & CSA** Standard Model  
Class I, Div. 1, Groups B, C and D.  
Class I, Div. 2, Groups A, B, C & D (T3C).  
Class II/III, Div. 1, Groups E, F and G.  
Class II/III, Div. 2, Groups F and G (T3C).  
Enclosure Type 4X.



High Temperature Model  
Class I, Div. 1, Groups B, C and D.  
Class I, Div. 2, Groups A, B, C & D (T3).  
Class II/III, Div. 1, Groups E, F and G.  
Class II/III, Div. 2, Groups F and G (T3).  
Enclosure Type 4X.

**CENELEC:** Standard Model  
EEx d IIB +H<sub>2</sub> T6  
(T<sub>amb</sub> = -40°C to +75°C) IP66.



High Temperature Model  
EEx d IIB +H<sub>2</sub> T6  
(T<sub>amb</sub> = -55°C to +75°C)  
EEx d IIB +H<sub>2</sub> T4  
(T<sub>amb</sub> = -55°C to +125°C) IP66.

**Gosstandart (Russia):** Standard Model  
1ExdIIBT6/H<sub>2</sub>  
(T<sub>amb</sub> = -40°C to +75°C).

High Temperature Model  
1ExdIIBT4/H<sub>2</sub>  
(T<sub>amb</sub> = -55°C to +125°C).  
Performance Verified.  
IP66.



**CE:** Conforms to all relevant European norms.

**Enclosure Material**

Copper-free aluminum or 316 stainless steel.

**Dimensions**

Length: 9 inches (228 mm).  
Diameter: 5 inches (127 mm).

**Conduit Entry Size**

3/4 inch NPT or 25 mm.

**Shipping Weight (Approximate)**

Aluminum: 4.7 pounds (2.1 kg).  
Stainless Steel: 10 pounds (4.5 kg).



### Detector Electronics Corporation

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Specifications subject to change without notice.