The Protect•IR® Multispectrum IR Flame Detector is the future generation detector for performance and technology. The detector utilizes multi-patented* signal processing algorithms supported by an embedded 32-bit microprocessor to provide continuous protection in the presence of false alarm sources and environments with infrared radiation present. It is suitable for indoor and outdoor applications that require the highest level of false alarm rejection and fire detection performance. The detector is available in aluminum or 316 stainless steel for installation in the harshest environments. The Protect•IR has a detection range to n-Heptane of 210 feet, and a solid cone of vision for methane. The detector provides a pulse output for easy retrofit into existing Det-Tronics controller based systems, as well as fire alarm and fault relays.

The X3301 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.

* X3301 technology advancements are covered under the following U.S. Patents: 5,995,008, 5,804,825 and 5,850,182.
### Specifications

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

**Power Consumption**
4 watts minimum (without heater), 17 watts at 32 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.

**Wiring**
14 AWG (2.08 mm\(^2\)) or 16 AWG (1.31 mm\(^2\)) shielded cable recommended.

**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.

**Response Characteristics**

<table>
<thead>
<tr>
<th>Fuel</th>
<th>Size</th>
<th>Distance Ft (m)</th>
<th>Average Response Time (seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Heptane</td>
<td>1 x 1 foot</td>
<td>210 (64)*</td>
<td>11</td>
</tr>
<tr>
<td>n-Heptane**</td>
<td>1 x 1 foot</td>
<td>210 (64)*</td>
<td>6</td>
</tr>
<tr>
<td>n-Heptane</td>
<td>1 x 1 foot</td>
<td>100 (30.5)</td>
<td>3</td>
</tr>
<tr>
<td>n-Heptane</td>
<td>6 in. x 6 in.</td>
<td>80 (24.4)</td>
<td>3</td>
</tr>
<tr>
<td>Isopropanol</td>
<td>6 in. x 6 in.</td>
<td>70 (21.3)</td>
<td>4</td>
</tr>
<tr>
<td>Diesel**</td>
<td>1 x 1 foot</td>
<td>150 (45.7)*</td>
<td>14</td>
</tr>
<tr>
<td>Ethanol</td>
<td>1 x 1 foot</td>
<td>210 (64)</td>
<td>11</td>
</tr>
<tr>
<td>Methanol</td>
<td>6 in. x 6 in.</td>
<td>40 (12.2)</td>
<td>3</td>
</tr>
<tr>
<td>Methanol**</td>
<td>1 x 1 foot</td>
<td>150 (45.7)*</td>
<td>18</td>
</tr>
<tr>
<td>Methanol</td>
<td>1 x 1 foot</td>
<td>150 (45.7)*</td>
<td>18</td>
</tr>
<tr>
<td>Methane</td>
<td>30 inch plume</td>
<td>100 (30.5)</td>
<td>3</td>
</tr>
<tr>
<td>JP-5**</td>
<td>1 x 1 foot</td>
<td>150 (45.7)*</td>
<td>2</td>
</tr>
<tr>
<td>JP-5**</td>
<td>2 x 2 feet</td>
<td>210 (64)*</td>
<td>4</td>
</tr>
<tr>
<td>JP-5**</td>
<td>2 x 2 feet</td>
<td>100 (30.5)</td>
<td>2</td>
</tr>
<tr>
<td>Office Paper 0.5 lb.</td>
<td>19” x 19” x 8”</td>
<td>100 (30.5)</td>
<td>4</td>
</tr>
<tr>
<td>Corrugated Panel</td>
<td>18” x 36”</td>
<td>100 (30.5)</td>
<td>8</td>
</tr>
<tr>
<td>n-Heptane</td>
<td>1 x 1 foot</td>
<td>100 (30.5)</td>
<td>12</td>
</tr>
<tr>
<td>n-Heptane</td>
<td>1 x 1 foot</td>
<td>50 (15.2)</td>
<td>2</td>
</tr>
<tr>
<td>Diesel**</td>
<td>1 x 1 foot</td>
<td>70 (21.3)</td>
<td>4</td>
</tr>
<tr>
<td>Ethanol</td>
<td>1 x 1 foot</td>
<td>85 (25.9)</td>
<td>13</td>
</tr>
<tr>
<td>Methanol</td>
<td>1 x 1 foot</td>
<td>70 (21.3)</td>
<td>10</td>
</tr>
<tr>
<td>Methane</td>
<td>30 inch plume</td>
<td>65 (19.8)</td>
<td>3</td>
</tr>
<tr>
<td>Methane</td>
<td>30 inch plume</td>
<td>55 (16.8)</td>
<td>2</td>
</tr>
<tr>
<td>JP-5**</td>
<td>2 x 2 feet</td>
<td>100 (30.5)</td>
<td>3</td>
</tr>
<tr>
<td>Office Paper 0.5 lb.</td>
<td>19” x 19” x 8”</td>
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<td>2</td>
</tr>
</tbody>
</table>

* Outdoor test condition.
** 10 second pre-burn from ignition.

### 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 (T3C);
- Class II, Div. 2, Groups F & G (T3C);
- Class III.

**Increased Safety Model**
0539 (x) II 2 GD
EEEx de IIC T5–T6,
DEMKO 01 ATEX 130204
T6 (Tamb = -55°C to +60°C).
T5 (Tamb = -55°C to +75°C).
IP66.

**Flameproof Model**
0539 (x) II 2 GD
EEEx d IIC T4–T6,
DEMKO 01 ATEX 130204
T6 (Tamb = -55°C to +60°C).
T5 (Tamb = -55°C to +75°C).
T4 (Tamb = -55°C to +125°C).
IP66.

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

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

**Warranty**
5 years.

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

**Field of View**
- 90° horizontal by 75° vertical, at a minimum of 70% of the on-axis detection distance.

**Dimensions**

- **Vertical Field of View**
- **Horizontal Field of View**

**Dimensions**

- **Vertical Field of View**
- **Horizontal Field of View**

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