**GAS**TRON

# Single IR Flame Detector

## 40/40R

**SharpEye**

The new 40/40R Single IR Flame Detector detects hydrocarbon-based fuel and gas fires using advanced flame analysis tools. The detector provides early warning of flaming fires working and immunity to false alarms from IR sources such as sunlight and IR projectors.

The 40/40R is the most durable and weather resistant single IR flame detector currently on the market.
Its new features include a heated window, to eliminate condesation and icing ; HART capabilities, for digital communications; lower power requirements;
and a compact, lighter design.

Due to increased reliability, the 40/40 Series warranty period has been extended to 5 years and is SIL2 (TUV) approved to IEC 61508.

## FEATURES & BENEFITS

- Sensitivity selection
- Automatic and Manual Built-In-Test (BIT)-to assure continued reliable operation
- Heated window-for operation in harsh weather conditions (snow, ice, condesation)
- Multiple output options for maximum flexibility and compatibility
  - Relays (3) for Alarm, Fault and Auxiliary
  - 0-20mA (stepped)
  - HART Protocol for maintenance and asset management
  - RS-485, Modbus Compatible
- High Reliability-MTBF-minimum 150,000 hours
- Approved to Safety Integrity Level 2 (SIL2-TUV )
- User Programmable via HART or RS-485

## Accessories

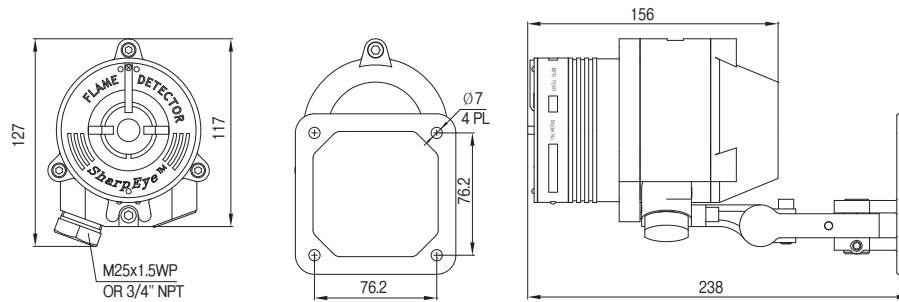| | | |
|---|---|---|
| Simulators<br>Up to 9m | Tilt Mount<br>Wall Mount bracket | Duct Mount<br>In high temperatures |
| U-Bolt/Pole Mount<br>2" ~ 3" Pipe mounting | Laser Pointer<br>Optimizing<br>detector location | Air shield<br>Using under tough<br>environmental conditions |
| Weather Protector<br>Protecting the detector<br>from rain and snow | Mini Laptop Kit<br>Re-configure settings<br>or perform diagnostics | USB RS485 Harness<br>Re-configure settings<br>or perform diagnostics |

## Dimension (Unit:mm)

### GENERAL SPECIFICATIONS

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|---|---|
| Spectral Response | Single band IR 4.4~4.6 $\mu$m |
| Detection Range (at highest Sensitivity Setting for 1ft$^2$ (0.1m$^2$) pan fire) | Fuel  ft / m  Fuel  ft / m  Fuel  ft / m<br>n-Heptane  50 / 15  Kerosene  37 / 11  Methane*  16 / 5<br>Gasoline  50 / 15  Ethanol 95%  25 / 7.5  LPG *  16 / 5<br>Diesel Fuel  37 / 11  Methanol  25 / 7.5  Polypropylene Pellets  10 / 3<br>JP5  37 / 11  IPA (Isopropyl Alcohol)  25 / 7.5  Office Paper<br>* 20" (0.5m) high, 8" (0.2m) width plume fire |
| Response Time | Typically 5 seconds |
| Adjustable Time Delay | Up to 30 seconds |
| Sensitivity Ranges | 2 ranges; 1 ft$^2$ (0.1m$^2$) n-heptane pan fire from 15 ft (5m) or 50 ft (15m) |
| Field of View | Horizontal 90° ; Vertical 90° |
| Built-in-Test (BIT) | Automatic (and Manual) |
| Temperature Range | Operating:  −67°F to +167°F  (−55℃ to +75℃)<br>Option:  −67°F to +185°F  (−55℃ to +85℃)<br>Storage:  −67°F to +185°F  (−55℃ to +85℃) |
| Humidity | Up to 95% non-condensing (withstands up to 100% RH for short periods) |
| Heated Optics | To eliminate condensation and icing on the window |

### ELECTRICAL SPECIFICATIONS

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|---|---|
| Operating Voltage | 24 VDC nominal (18-32 VDC) |
| Power Consumption | Standby: Max.  90mA (110mA with heated window)<br>Alarm:  Max. 130mA (160mA with heated window) |
| Cable Entries | 2 x 3/4"- 14NPT conduits or 2 x M25 x 1.5 mm ISO |
| Wiring | 12 – 22AWG (2.5mm$^2$ – 0.3mm$^2$) |
| Electrical Input Protection | According to MIL-STD-1275B |
| Electromagnetic Compatibility | EMI/RFI protected to EN61326-3 and EN61000-6-3 |
| Electrical Interface | The detector includes twelve (12) terminals with five (5) wiring options (factory set) |

### OUTPUTS

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|---|---|
| Relays | Alarm, Fault and Auxiliary<br>SPST volt-free contacts rated 5A at 30 VDC or 250 VAC. |
| 0-20mA (stepped) | Sink (source option) configuration<br>Fault:  0 +1mA  Warning:  16mA ±5%<br>BIT Fault: 2mA ±10%  Alarm:  20mA ±5%<br>Normal:  4mA ±10%  Resistance Loop: 100-600Ω |
| HART Protocol | Optional HART communications on the 0-20mA analog current (FSK) – used for maintenance, configuration changes and asset management, available in mA source output wiring options |
| RS-485 | RS-485 Modbus compatible communication link that can be used in computer controlled installations |

### MECHANICAL SPECIFICATIONS

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|---|---|
| Materials<br>Enclosure options | − Stainless Steel 316L with electro polish finish<br>− Heavy duty copper free aluminum (less than 1%), red epoxy enamel finish |
| Mounting | Stainless Steel 316L with electro polish finish |
| Dimensions | Detector  4" x 4.6" x 6.18"  (101.6 x 117 x 157 mm) |
| Weight | Detector (St.St.)  6.1 lb  (2.8 kg)  Tilt mount 2.2 lb  (1.0 kg)<br>Detector, aluminum  2.8 lb  (1.3 kg) |
| Environmental Standards | Meets MIL-STD-810C for Humidity, Salt & Fog, Vibration, Mechanical Shock, High Temp, Low Temp |
| Water and Dust | IP66 and IP67 per EN60529, NEMA 250 6P |

### APPROVALS

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|---|---|
| Hazardous Area | ATEX and IECEx  Ex II 2 GD,<br>Ex de IIC T5 (−55℃ to +75℃)  Ex de IIC T4 (−55℃ to +85℃)<br>Ex tD A21 IP66/X7 T 95℃  Ex tD A21 IP66/X7 T 105℃<br>FM/FMC/CSA  Class I Div. 1, Groups B, C & D<br>Class II/III Div. 1, Groups E, F & G |
| Performance | EN54-10 (LPCB)<br>FM-3260 (FM) |
| Reliability | IEC61508 – SIL2 (TUV) |

### ACCESSORIES

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Fire Simulator | 20/20-312 | U-Bolt/Pole Mount | 789260-2 (2" pole) | Mini Laptop Kit | 777820 | Laser Pointer | 777166 |
| Tilt Mount | 40/40-001 | | 789260-1 (3" pole) | Weather Protector | 777163 | (Detector area coverage) | |
| Duct Mount | 777670 | USB RS485 Harness Kit | 794079-5 | Air Shield | 777161 | | |