

# 40/40U-UB

## UV Flame Detectors



The new 40/40 UV Flame Detector detects hydrocarbon-based fuel and gas fires, invisible hydrogen flames, and fires from hydrides, ammonia, silane and other organics. The 40/40U-UB is the most durable and weather resistant UV flame detector currently on the market. Its new features include a heated window, to eliminate condensation 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.

The model 40/40UB includes a Built-in-Test (BIT) feature, whereas the 40/40U model does not

### APPLICATIONS

- Chemical plants
- Petrochemicals plants
- Power Generation facilities
- Pharmaceutical Industry
- Printing Industry
- Warehouses
- Automotive Industry
- Aerospace
- Explosives & Munitions
- Waste Disposal facilities
- Paint and solvent processes

### KEY FEATURES

- UV spectrum design
- 3 seconds response
- Automatic and Manual Built-In-Test (BIT) - to assure continued reliable operation
- Heated window - for operation in harsh weather conditions (snow, ice, condensation)
- 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) Model 40/40UB only)
- 5-Year Warranty
- User Programmable via HART or RS-485
- Ex approved for Zone 1 hazardous area location
  - ATEX
  - IECEx
  - FM/FMC
  - CSA
- 3rd party performance tested
  - EN54-10 (VdS)
  - FM3260

## 40/40U-UB

**SPECIFICATIONS** Specifications subject to change without notice

| Detection Range   | Fuel        | ft/m    | Fuel  | ft/m    | Fuel                  | ft/m    |
|---|-------------|---------|---|---------|-----------------------|---------|
| (Highest Sensitivity Setting for 1 ft <sup>2</sup> (0.1m <sup>2</sup> ) pan fire. | n-Heptane   | 50 / 15 | Kerosene                                      | 37 / 11 | Methane*              | 40 / 12 |
|   | Gasoline    | 50 / 15 | Ethanol 95%                                   | 37 / 11 | LPG *                 | 40 / 12 |
|   | Diesel Fuel | 37 / 11 | Methanol                                      | 37 / 11 | Polypropylene Pellets | 18 / 5  |
|   | JP5         | 37 / 11 | IPA (Isopropyl Alcohol)                       | 7 / 11  | Office Paper          | 20 / 6  |
|   | Hydrogen    | 33 / 10 | * 20" (0.5m) high, 8" (0.2m) width plume fire |         |                       |         |

  

|                                      |  |                                  |  |
|--------------------------------------|--|----------------------------------|--|
| <b>Response Time</b>                 | Typically 5 seconds  | <b>0-20mA (stepped)</b>          | 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: 100-600 Ω  |
| <b>Adjustable Time Delay</b>         | Up to 30 seconds   | <b>HART Protocol</b>             | 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   |
| <b>Sensitivity Ranges</b>            | 1 ft2 (0.1m2) n-heptane pan fire from 50 ft (15m)  | <b>RS-485</b>                    | RS-485 Modbus compatible communication link that can be used in computer controlled installations  |
| <b>Field of View</b>                 | Horizontal 100°; Vertical 95°  | <b>MECHANICAL SPECIFICATIONS</b> |  |
| <b>Built-In-Test (BIT)</b>           | Automatic (and Manual)   | <b>Materials</b>                 | <ul style="list-style-type: none"> <li>Stainless Steel 316L with electro polish finish</li> <li>Heavy duty copper free aluminum (less than 1%), red epoxy enamel finish</li> </ul>   |
| <b>Temperature Range</b>             | Operating: -67°F to +167°F (-55°C to +75°C)<br>Option: -67°F to +185°F (-55°C to +85°C)<br>Storage: -67°F to +185°F (-55°C to +85°C) | <b>Mounting</b>                  | Stainless Steel 316L with electro polish finish  |
| <b>Humidity</b>                      | Up to 95% non-condensing (withstands up to 100% RH for short periods)  | <b>Dimensions</b>                | Detector 4" x 4.6" x 6.18" (101.6 x 117 x 157 mm)  |
| <b>Heated Optics</b>                 | To eliminate condensation and icing on the window  | <b>Weight</b>                    | Detector (St.St.) 6.1 lb (2.8 kg)<br>Tilt mount 2.2 lb (1.0 kg)<br>Detector, aluminum 2.8 lb (1.3 kg)  |
| <b>ELECTRICAL SPECIFICATIONS</b>     |  | <b>Environmental Standards</b>   | Meets MIL-STD-810C for Humidity, Salt & Fog, Vibration, Mechanical Shock, High Temp, Low Temp  |
| <b>Operating Voltage</b>             | 24 VDC nominal (18-32 VDC)   | <b>Water and Dust</b>            | IP66 and IP67 per EN60529, NEMA 250 6P   |
| <b>Power Consumption</b>             | Standby: Max. 90mA (110mA with heated window)<br>Alarm: Max. 130mA (160mA with heated window)  | <b>APPROVALS</b>                 |  |
| <b>Cable Entries</b>                 | 2 x 3/4" - 14NPT conduits or 2 x M25 x 1.5 mm ISO  | <b>Hazardous Area</b>            | ATEX and IECEx Ex II 2 GD,<br>Ex de IIC T5 (-55°C to +75°C) Ex de IIC T4 (-55°C to +85°C) Ex tD A21 IP66/X7 T 95°C Ex tD A21 IP66/X7 T 105°C<br>FM/FMC/CSA Class I Div. 1, Groups B, C & D<br>Class II/III Div. 1, Groups E, F & G |
| <b>Wiring</b>                        | 12 - 22AWG (2.5mm <sup>2</sup> - 0.3mm <sup>2</sup> )  | <b>Performance</b>               | EN54-10 (LPCB) FM-3260 (FM)  |
| <b>Electrical Input Protection</b>   | According to MIL-STD-1275B   | <b>Reliability</b>               | IEC61508 - SIL2 (TUV) - model 40/40UB only   |
| <b>Electromagnetic Compatibility</b> | EMI/RFI protected to EN61326-3 and EN61000-6-3   |                                  |  |
| <b>Electrical Interface</b>          | The detector includes twelve (12) terminals with five (5) wiring options (factory set)   |                                  |  |
| <b>OUTPUTS</b>                       |  |                                  |  |
| <b>Relays</b>                        | Alarm, Fault and Auxiliary<br>SPST volt-free contacts rated 2A at 30 VDC or 250 VAC  |                                  |  |



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