40/40U-UB
UV Flame Detector

A low cost solution in a durable, high spec package

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.

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

Note: This type of detector should not be exposed to UV radiation sources such as welding, sparks, and electric arcs as it will cause false alarms.

FEATURES & BENEFITS

• UV spectrum design
• Automatic and Manual Built-In-Test (BIT) - to assure continued reliable operation (in 40/40UB only)
• 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
• Hazardous area zones:
  - Zones 1 & 2 with IIC gas group vapors present
  - Zones 21 & 22 with IIIC dust type present
• Ex approved to:
  - ATEX & IECEx
  - FM/FMC/CSA
• 3rd party Performance Tested
  - EN54-10 (VdS)
  - FM3260

APPLICATIONS

Chemical plants
Petroleum plants
Power Generation facilities
Pharmaceutical Industry
Printing Industry
Warehouses

Automotive Industry
Aerospace
Explosives & Munitions
Waste Disposal facilities
Paint and solvent processes
GENERAL SPECIFICATIONS

Spectral Response
- UV 0.185-0.260 µm

Detection Range
- (at highest Sensitivity Setting for 1ft² (0.1m²) pan fire)
  - n-Heptane: 50 / 15 ft / m
  - Ethanol: 37 / 11 ft / m
  - LPG: 43 / 13 ft / m
  - Methanol: 25 / 7.5 ft / m
  - Polypropylene Pellets: 33 / 10 ft / m
  - JP5: 37 / 11 ft / m
  - Hydrogen: 39 / 12 ft / m
  - Methane: 43 / 13 ft / m
  - Office Paper: 20 / 6 ft / m

Response Time
- Typically 3 seconds

Adjustable Time Delay
- Up to 30 seconds

Sensitivity Ranges
- 1 ft² (0.1m²) n-heptane pan fire from 50 ft (15m)

Field of View
- Horizontal 100º; Vertical 95º

Built-in-Test (BIT)
- Automatic (and Manual)

Temperature Range
- Operating: -67ºF to +167ºF (-55ºC to +75ºC)
- Option: -67ºF to +185ºF (-55ºC to +85ºC)
- Storage: -67ºF to +185ºF (-55ºC to +85ºC)

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

Operating Voltage
- 24 VDC nominal (18-32 VDC)

Power Consumption
- Standby: Max. 90mA (110mA with heated window)
- 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 (0.3mm² - 2.5mm²)

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

Relays
- Alarm, Fault and Auxiliary
- SPST volt-free contacts rated 2A at 30V DC

0-20mA (stepped)
- Sink (source option) configuration
  - Fault: 0 ±1mA
  - Warning: 2mA ± 10%
  - Alarm: 20mA ± 5%
  - Normal: 4mA ± 10%
- Resistance Loop: 100-600 Ω

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

Materials
- Stainless Steel 316L with electro polish finish

Enclosure options
- Heavy duty copper free aluminum (less than 1%), red epoxy enamel finish (not available in FM version)

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)
  - Detector, aluminum: 2.8 lb (1.3 kg)

Environmental Standards
- Water and Dust
  - IP66 and IP67 per EN60529, NEMA 250 6P

APPROVALS

Hazardous Area
- ATEX and IECEx
- FM/FMC/CSA
- CSA FM3260
- Hazardous Area: Ex IIC T4 Gb
- Performance: EN54-10 (VdS)
- Reliability: IEC61508 - SIL2 (TUV) - model 40/40UB only

ACCESSORIES

Flame Simulator
- 20/20-311
- U-Bolt/Aluminum Pole
- Tilt Mount
- Duct Mount
- USB SRT485 Harness Kit
- E.O.L. Encapsulated Resistor

*Supplied free of charge with the detector

Specifications subject to change

For more information view manual or website www.spectrex.net