

keep a **SharpEye™** on your safety



# 40/40U-UB

## UV Flame Detector

*A low cost solution in a durable, high spec package*



**SharpEye™**

*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.*

*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
- 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)
- 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 (LPCB)
  - FM3260 (FM)

### 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

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## GENERAL SPECIFICATIONS

<b>Spectral Response</b>	UV 0.185-0.260 $\mu\text{m}$					
<b>Detection Range</b> (at highest Sensitivity Setting for 1ft <sup>2</sup> (0.1m <sup>2</sup> ) pan fire)	<b>Fuel</b>	<b>ft / m</b>	<b>Fuel</b>	<b>ft / m</b>	<b>Fuel</b>	<b>ft / m</b>
	n-Heptane	50 / 15	Ethanol 95%	37 / 11	LPG *	40 / 12
	Gasoline	50 / 15	Methanol	37 / 11	Polypropylene Pellets**	18 / 5
	Diesel Fuel	37 / 11	IPA (Isopropyl Alcohol)	37 / 11	Office Paper	20 / 6
	JP5	37 / 11	Hydrogen	33 / 10	* 20" (0.5m) high, 8" (0.2m) width	
	Kerosene	37 / 11	Methane*	40 / 12	plume fire	
<b>Response Time</b>	Typically 3 seconds					
<b>Adjustable Time Delay</b>	Up to 30 seconds					
<b>Sensitivity Ranges</b>	1 ft <sup>2</sup> (0.1m <sup>2</sup> ) n-heptane pan fire from 50 ft (15m)					
<b>Field of View</b>	Horizontal 100°; Vertical 95°					
<b>Built-in-Test (BIT)</b>	Automatic (and Manual)					
<b>Temperature Range</b>	Operating:	-67°F to +167°F				(-55°C to +75°C)
	Option:	-67°F to +185°F				(-55°C to +85°C)
	Storage:	-67°F to +185°F				(-55°C to +85°C)
<b>Humidity</b>	Up to 95% non-condensing (withstands up to 100% RH for short periods)					
<b>Heated Optics</b>	To eliminate condensation and icing on the window					

## ELECTRICAL SPECIFICATIONS

<b>Operating Voltage</b>	24 VDC nominal (18-32 VDC)					
<b>Power Consumption</b>	Standby:	Max. 90mA	(110mA with heated window)			
	Alarm:	Max. 130mA	(160mA with heated window)			
<b>Cable Entries</b>	2 x 3/4" - 14NPT conduits or 2 x M25 x 1.5 mm ISO					
<b>Wiring</b>	12 - 22AWG (2.5mm <sup>2</sup> - 0.3mm <sup>2</sup> )					
<b>Electrical Input Protection</b>	According to MIL-STD-1275B					
<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)					

## OUTPUTS

<b>Relays</b>	Alarm, Fault and Auxiliary SPST volt-free contacts rated 5A at 30 VDC or 250 VAC.					
<b>0-20mA (stepped)</b>	Sink (source option) configuration					
	Fault:	0 +1mA	Warning:	16mA $\pm$ 5%		
	BIT Fault:	2mA $\pm$ 10%	Alarm:	20mA $\pm$ 5%		
	Normal:	4mA $\pm$ 10%	Resistance Loop:	100-600 $\Omega$		
<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>RS-485</b>	RS-485 Modbus compatible communication link that can be used in computer controlled installations					

## MECHANICAL SPECIFICATIONS

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

## APPROVALS

<b>Hazardous Area</b>	ATEX and IECEx	Ex II 2 GD, Ex de IIB+H2 T5 (-55°C to + 75°C) Ex tD A21 IP66/X7 T 95°C	Ex de IIB+H2 T4 (-55°C to + 85°C) Ex tD A21 IP66/X7 T 105°C
	FM/FMC/CSA	Class I Div. 1, Groups B, C & D Class II/III Div. 1, Groups E, F & G	
<b>Performance</b>	EN54-10 (LPCB) FM-3260 (FM)		
<b>Reliability</b>	IEC61508 - SIL2 (TUV)		

## ACCESSORIES

<b>Fire Simulator</b>	20/20-311	<b>Weather Protector</b>	777163	<b>Mini Laptop Kit</b>	777820	<b>Laser Pointer</b>	777166
<b>Tilt Mount</b>	40/40-001	<b>Air Shield</b>	777161	<b>USB RS485 Harness Kit</b>	794079-5	(Detector area coverage)	