

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 new design 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 approved to IEC 61508 Safety Integrity requirements of SIL2.*

*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
  - 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 μm					
<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

Operating Voltage	24 VDC nominal (18-32 VDC)		
Power Consumption	Standby:	Max. 100mA (150mA with heated window)	
	Alarm:	Max. 150mA (200mA 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 <sup>2</sup> - 0.3mm <sup>2</sup> )		
Electrical Input Protection	According to MIL-STD-1275B		
Electromagnetic Compatibility	EMI/RFI protected to EN50130-4		
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 5A at 30 VDC or 250 VAC.			
0-20mA (stepped)	Sink (source option) configuration			
	Fault:	0 +1mA	Warning:	16mA ± 5%
	BIT Fault:	2mA ± 10%	Alarm:	20mA ± 5%
	Normal:	4mA ± 10%	Resistance Loop:	100-600 Ω
HART Protocol	HART communication on the 0-20mA analog current (FSK) - used for maintenance, configuration changes and asset management			
RS-485	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			
Enclosure options	- Heavy duty copper free aluminum (less than 1%), red epoxy enamel finish			
<b>Mounting</b>	Stainless Steel 316L with electro polish finish			
<b>Dimensions</b>	Detector	3.5" x 4.5" x 6.1" (90 x 114 x 156 mm)		
<b>Weight</b>	Detector (St.St.)	5.5 lb	(2.5 kg)	
	Detector, aluminum	2.5 lb	(1.2 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 Class I Div. 1, Groups B, C & D Class II/III Div. 1, Groups E, F & G	Ex de IIB+H2 T4 (-55°C to + 85°C) Ex tD A21 IP66/X7 T 105°C
<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>Laser Pointer</b>	777166
<b>Tilt Mount</b>	40/40-003	<b>Air Shield</b>	777161	(Detector area coverage)	