

keep a **SharpEye™** on your safety



40/40UFL

ULTRA FAST UV-IR

Combined Explosion and High Sensitivity Flame Detector



SharpEye™

The new SharpEye UV-IR High-Speed Optical Flame detector 40/40UFL is designed to meet two major requirements:

- High-Speed Response (20 msec)
- High Reliability (immunity to false alarm)

This detector is based on our well known military detector used in Armored Vehicle Explosion Suppression System combined with the industrial UV-IR detector 40/40LB.

The 40/40UFL can detect hydrocarbon-based fuel and gas fires, hydroxyl and hydrogen fires, as well as metal and inorganic fires.

The UV/IR flame detector senses radiant energy in the short wave section of both the ultraviolet and infrared portions of the electromagnetic spectrum. The signals from both sensors are analyzed for frequency, intensity and duration. Simultaneous detection of radiant energy in both the UV and IR sensors triggers an alarm signal.

The UV sensor incorporates a special logic circuit that helps prevent false alarms caused by solar radiation.

FEATURES & BENEFITS

- UV/IR Dual-Sensor
- High-Speed Response - 20 msec to flash fire
- Solar blind
- Automatic 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
 - Analogue output for fast detection
 - 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
- 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
 - TR CU (EAC)
- 3rd party performance
 - EN54-10 (VdS)
 - FM3260

APPLICATIONS (model dependent)

Explosives & munitions	Warehouses
Offshore Oil & Gas	Automotive industry
Onshore Oil & Gas	Waste disposal facilities
Petrochemical plants	Aerospace industry
Storage tank farms	Hydrogen Fuel Cell Industry
Aircraft hangars	Hydrogen Vehicle Parking & Refueling
Chemical plants	Battery Charging Areas
Power generation facilities	Refinery Hydrogenation
Pharmaceutical industry	Space Industry Hydroxyl Propellant
Printing industry	Static Fuel Cell Systems

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GENERAL SPECIFICATIONS

Spectral Response	UV: 0.185 - 0.260 μm ; IR: 2.5-3.0 μm					
Detection Range (at highest Sensitivity Setting for 1ft ² (0.1m ²) pan fire)	Fuel	ft / m	Fuel	ft / m	Fuel	ft / m
	n-Heptane	66 / 20	Ethanol 95%	25 / 7.5	LPG*	43 / 13
	Gasoline	66 / 20	Methanol	26 / 8	Polypropylene Pellets	43 / 13
	Diesel Fuel	49 / 15	IPA (Isopropyl Alcohol)	43 / 13	Ammonia**	20 / 6
	JP5	50 / 15	Hydrogen*	37 / 11	Silane**	6 / 1.8
	Kerosene	50 / 15	Methane*	26 / 8	Office Paper	16 / 5
	* 30" (0.75m) high, 10" (0.25m) width plume fire					
	**20" (0.5m) high, 8" (0.2m) width plume fire					
Response Time	Typically 3 seconds. High speed 20 msec to flash fire					
Adjustable Time Delay	Up to 30 seconds					
Field of View	Horizontal 100°; Vertical 95°					
Built-in-Test (BIT)	Automatic					
Temperature Range	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)					
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 1.5mm ISO					
Wiring	12 - 22AWG (0.3mm ² - 2.5mm 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

Relays	Alarm, Fault and Auxiliary SPST volt-free contacts rated 2A at 30V DC					
Analogue Output 0-20mA (stepped)	4-4.7V at detection Sink (source option) configuration					
	Fault: 0 +1mA	IR: 8mA \pm 5%	Alarm: 20mA \pm 5%			
	BIT Fault: 2mA \pm 10%	UV: 12mA \pm 5%	Resistance Loop: 100-600 Ω			
	Normal: 4mA \pm 10%	Warning: 16mA \pm 5%				
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)					
	Detector, aluminum 2.8 lb (1.3 kg)					
	Tilt mount 2.2 lb (1.0 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

Hazardous Area	ATEX and IECEX	Ex II 2 G D Ex db eb op is IIC T4 Gb Ex tb op is IIIC T96°C Db (-55°C \leq Ta \leq +75°C)	Ex db eb op is IIC T4 Gb Ex tb op is IIIC T106°C Db (-55°C \leq Ta \leq +85°C)
	FM/FMC/CSA	Class I Div. 1, Groups B, C & D Class II/III Div. 1, Groups E, F & G	
	TR CU (EAC)	1Ex d e IIC T5 Gb X Ex tb IIIC T96°C Db X (-55°C \leq Ta \leq +75°C)	1Ex d e IIC T4 Gb X Ex tb IIIC T106°C Db X (-55°C \leq Ta \leq +85°C)
Performance	EN54-10 (VdS) FM3260		
Reliability	IEC61508 - SIL2 (TUV)		

ACCESSORIES

Flame Simulator FS-1200	U-Bolt/Pole Mount	789260-2 (2" pole)	Mini Laptop Kit	777820	Weather Cover	777163 (St.St)
Tilt Mount	40/40-001	789260-1 (3" pole)	Air Shield	777650	*777263 (Plastic)	
Duct Mount	777670	USB RS485 Harness Kit	794079	Cone Viewer	777166	
		E.O.L Encapsulated Resistor	777915-X			

*Supplied free of charge with the detector