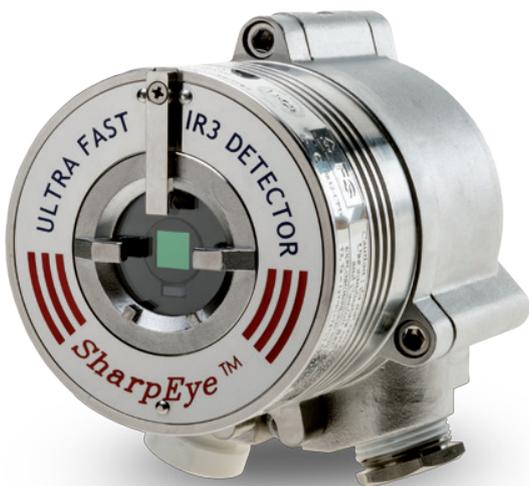# 40/40UFI

Ultra Fast Triple IR (IR3) Flame Detector

Superior performance, reliability and immunity to false alarms

SharpEye™

The new 40/40UFI, an Ultra-Fast multi-spectrum IR3 Flame Detector, detects hydrocarbon fuel and gas fires at long distances, and is especially designed to detect an explosive 1 ft (0.3m) diameter gas cloud explosion in max. 50 msecs for 1ft diameter sphere methane-air mixture explosion at 66 ft (20m) with the highest immunity to false alarms. The 40/40UFI IR3 can also detect a 1 ft² (0.1m²) gasoline/n-Heptane pan fire at up to 300 ft (90m).

The 40/40UFI is part of the 40/40 Series, the most durable and weather resistant range of flame detectors currently on the market. Features include a heated window, to eliminate condensation and icing; HART capability 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 per IEC 61508.

- Multi Spectrum Design - for long distance detection and high false alarm immunity
- High Speed Response - 50 msec
- Sensitivity Selection - to ensure no zone crossover detection
- 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
- Safety Integrity Level 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
- 3rd party Performance
  - EN54-10 (VdS)
  - FM3260 (FM)

Offshore Oil & Gas installations
Onshore Oil & Gas installations and pipelines
Chemical plants
Petrochemicals plants
Storage Tank farms
Aircraft hangars

Power Generation facilities
Pharmaceutical Industry
Printing Industry
Warehouses
Automotive Industry
Explosives & Munitions
Waste Disposal facilities

SPECTREX INC.

GENERAL SPECIFICATIONS

Spectral Response	Three IR Bands

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	300 / 90	Kerosene	205 / 62	Methane*	205 / 62
Gasoline	300 / 90	Ethanol 95%	185 / 55	LPG*	205 / 62
Diesel Fuel	205 / 62	Methanol	160 / 48	Polypropylene Pellets	160 / 48
JP5	205 / 62	IPA (Isopropyl Alcohol)	185 / 55	Office Paper	115 / 34

* 30" (0.75m) high, 10" (0.25m) width plume fire

High Speed Response	50 msec for 1ft diameter sphere methane-air mixture explosion at 66ft (20m)
Response Time	Typically 1 sec at 215ft (65m) Typically 10 sec at 300ft (90m)
Adjustable Time Delay	Up to 30 seconds
Sensitivity Ranges	4 Sensitive ranges for 1 ft^2 (0.1m^2) n-heptane pan fire from 66 ft (20m) to 300 ft (90m)
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 1.5 mm 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 30 VDC
Analogue Output	4-4.7 V at detection
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	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 Enclosure options	- Stainless Steel 316L with electro polish finish - Heavy duty copper free aluminum (less than 1%), red epoxy enamel finish
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	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 d e IIC T5 Gb Ex d e IIC T4 Gb
		Ex tb IIIC T96°C Db or Ex tb IIIC T106°C Db
		(-55°C ≤ Ta ≤ +75°C) (-55°C ≤ Ta ≤ +85°C)
	FM/FMC/CSA	Class I Div. 1, Groups B, C & D
		Class II/III Div. 1, Groups E, F & G
Performance	EN54-10 (VdS) FM3260	
Reliability	IEC61508 - SIL2 (TUV)	

ACCESSORIES

Flame Simulator FS-1100	**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** 794079-5		**Cone Viewer** 777166	
	E.O.L Encapsulated Resistor 777915-X			

*Supplied free of charge with the detector