SCHNEIDER
MESSTECHNIK

Flammendetektor
Flame detector

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SPECTREX INC.

HIGH PERFORMANCE
LOW COST
FLAME DETECTION

SharpEye™

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THE NEW 20/20M

"MINI" FLAME DETECTOR SERIES

High Performance, Low Cost Flame Detection

The 20/20M Mini Series Flame Detectors are high performance, unique IR3 and UV/IR flame detectors featuring lower cost, lower power, and more compact structures. The mini detectors are highly resistant to harsh environments, immune to false alarms and are designed for use in OUTDOOR or INDOOR applications. The IR3 model is also available as intrinsically safe (I.S.) approved format.

The detectors' small size, low cost and low power allow easy installation in small or congested areas where Ex hazardous area approvals are not a prime requirement. Both models are packaged in rugged, stainless steel enclosures that are less than 50% of the size of our standard explosion-proof detectors and weigh only 2.5 lbs (1.2 kg).

20/20MI-1
MINI TRIPLE IR (IR3) FLAME DETECTOR

The 20/20MI-1 is an economical and compact Triple IR (IR3) Flame Detector with the highest immunity to false alarms, in a rugged stainless steel housing. It is available in either general-purpose, non-Ex approved or intrinsically safe approved (EExia) format.

20/20MI-3
MINI TRIPLE IR (IR3) FLAME DETECTOR

The 20/20MI-3 is similar to the 20/20MI-1, but has lower sensitivity. It is designed especially for small areas that require fast and reliable detection, with high immunity to false alarms. The 20/20MI-3 is suitable for applications like Turbine Enclosures, Heavy Duty Vehicles and Windmills.

20/20ML
MINI UV/IR FLAME DETECTOR

The low cost, compact, lightweight 20/20ML UV/IR Flame Detector comprises both UV and IR sensors, detecting hydrocarbon-based fuel and gas fires, hydroxyl and hydrogen fires, as well as metal and inorganic fires at distances of up to 50 ft (15m). The UV sensor incorporates a special logic circuit that helps prevent false alarms caused by solar radiation. Simultaneous detection of radiant energy by both the UV and IR sensors triggers an alarm signal.

Main Features

- Immune to False Alarms
- Large Field of View (100° horizontal/vertical)
- Low Power Consumption
- High-Speed Response
- Standard 4-Wire Connection
- 4-20mA Sink or Source (3-4 wires) Configuration
- RS-485 Modbus Compatible
- Automatic and Manual Built-In-Test (BIT)
- User-Programmable Function Configurable via software from a PC or handheld device
- MTBF Minimum 100,000 Hours
- 3 Year Warranty

Main Applications

AIRCRAFT HANGARS

Leaking fuel is the main danger in aircraft hangars, easily causing fires and potentially harming personnel, equipment and facilities. The SharpEye Mini Optical Flame Detectors allow military and commercial requirements for reliable fire protection to be met. Due to the 100° cone of vision, there is wider coverage of the protected area. The area around the walls of the hangar where the detectors are mounted does not require EX proof so the 20/20MI non EX is suitable.

OFF ROAD HEAVY DUTY VEHICLE

Large mining vehicles are vulnerable to catastrophic fires particularly in engine compartments, as have been experienced in recent times. It is vitally important that fire protection capabilities are up to date with the latest technologies. The high-speed short-range version of 20/20MI-3 (up to 10 ft) is ideal to protect the large engine compartment of the vehicles, and is used in coal, metals and minerals mining.

OFFICE AREAS AND ATRIUM AREAS

While an atrium space has many merits, there is a danger that it could become a building's weakness in fire protection, potentially allowing a fire to rapidly spread. The 20/20M Mini's fast detection identifies a fire in its earliest stages, facilitating suppression. Modern hospitals feature large atria and open space areas. Due to the difficulty or impossibility of moving patients in an emergency, hospitals must follow a defend and protect in place policy rather than conventional evacuation. Hospital fire protection and evacuation requirements are therefore highly complex and the SharpEye Mini Optical Flame Detector is responsible for meeting them with its low cost and supreme reliability.

WASTE HANDLING

Recycling reduces the quantities of materials deposited in the world's landfill sites and saves natural resources, but must be coupled with appropriate fire safety measures. Unique risks are posed at recycling and waste handling operations, such as disposal and recycling of combustible materials. The 20/20M Mini Flame Detector is a successful choice to solve these issues, and has the additional benefit of low cost and low energy requirement. Recently, a recycling and waste handling plant in the Netherlands installed 84 SharpEye Optical Flame Detectors model 20/20MI to detect fire in the various deluge zones.

Main Applications

UNMANNED GAS STATIONS

Modern automobile fueling areas are designed with high-speed self-service pumps, enabling customers to fuel their vehicles fast, but more susceptible to fire. Risks can include customers forgetting to return the nozzle, burning cigarettes, running engines, sparks and other heat sources, whereby flammable liquids can be easily ignited. The 20/20ML was designed to prevent any such hazards from spreading, combining UV and IR sensors to detect hydrocarbon-based fuel and gas fires, hydroxyl and hydrogen fires, as well as metal and inorganic fires.

MARINE VESSELS ENGINE ROOMS

The engine room on a marine vessel is where the machinery of a ship is located. Fuel or oil spills from the machinery are a fire risk factor, alongside petrochemicals used for the cleaning and servicing of the machinery. The fuel, oil and petrochemicals are flammable and can easily ignite. Therefore, Spectrex Optical Flame Detectors are required to identify a fire and subsequently activate the installed fire suppression system. Spectrex 20/20M Mini Optical Flame Detectors are suitable for both commercial and military vessels.

Alongside the above-mentioned applications, the 20/20M Mini Series is specifically suited to the following applications:

- Automotive parts manufacturing
- Burners, boilers, and heaters
- Car parking towers and garages
- Chemical industry
- Nuclear power plants
- Power generation – pumps, generators and unmanned stations
- Recreational and sports arenas (facilities)
- Storage areas

General Specifications

		20/20MI-1	20/20MI-3	20/20ML
Spectral Response		Triple Spectrum Design		UV/IR Dual Sensor
		ft (m)	ft (m)	ft (m)
Detection Range (Highest Sensitivity Setting for 1 ft² (0.1m²) pan fire.	Gasoline	133 (40)	33 (10)	50 (15)
	n-Heptane	133 (40)	33 (10)	50 (15)
	Diesel Fuel	90 (27)	23.1 (7)	37 (11)
	JP5	100 (30)	23.1 (7)	37 (11)
	Kerosene	100 (30)	23.1 (7)	37 (11)
	Alcohol (Ethanol)	100 (30)	24.8 (7.5)	25 (7.5)
	IPA (Isopropyl Alcohol)	100 (30)	24.8 (7.5)	25 (7.5)
	Methanol	100 (30)	24.8 (7.5)	25 (7.5)
	Methane*	40 (12)	10 (3)	15 (5)
	LPG (Propane)*	40 (12)	10 (3)	15 (5)
	Hydrogen*	---		15 (5)
	Silane*	---		15 (5)
	Polypropylene Pellets	16 (5)	6 (2)	15 (5)
	Office Paper	50 (15)	13 (4)	12 (4)
	**20" (0.5m) long 8" (0.2m) width plume fire*			
Response Time		Typical 5 sec.		
Adjustable Time Delay		Up to 30 sec.		
Sensitivity Range		4 Sensitivity Ranges for 1 ft² (0.1m²) gasoline pan fire: 33 ft (10m)–133 ft (40m)	4 Sensitivity Ranges for 1 ft² (0.1m²) gasoline pan fire: 7.5 ft (2.5m)–33 ft (10m)	1 Sensitivity Range for 1 ft² (0.1m²) gasoline pan fire: 50 ft (15m)
Field of View		100° horizontal, 100° vertical		
Built-in-Test		Manual and Automatic BIT		
Temperature Range		Operating: -40°F (-40°C) to 160°F (70°C) Storage: -65°F (-55°C) to 185°F (85°C)		
Humidity		Up to 95%		

Electrical Specifications

	20/20MI-1	20/20MI-3	20/20ML
Power Supply	Operating Voltage: 18-32 VDC		
Power Consumption	Max. 25 mA in stand-by Max. 50 mA in alarm		Max. 40 mA in stand-by Max. 70 mA in alarm
Electrical Connection	12 wires 6 ft (2m) cable (for junction box connection) Optional: 12- wires electrical connector (the suitable connector will be supplied)		
Electrical Input Protection	According to MIL-STD-1275B		
Electromagnetic Compatibility	EMI/RFI protected CE Marked		

Outputs

	20/20MI-1	20/20MI-3	20/20ML
Relays*	Alarm and Fault SPST volt-free contact rates 2A at 30 VDC or 0.5A at 250 VAC Fault relay normally closed, Alarm Relay normally open **The Relays do not apply to 20/20MI EX approved version*		
4-20mA	Sink (source option) configuration		Source configuration
	Fault:	0 + 0.5mA	0 + 0.5mA
	BIT Fault:	2mA + 10%	2mA + 10%
	Normal:	5mA + 10%	4mA +5%
	IR Detection:	---	8mA +5%
	UV Detection:	---	12mA +5%
	Warning:	10mA + 5%	16mA + 5%
	Alarm:	15mA + 5%	20mA + 5%
	Resistance Loop:	100-600 Ω	100-600 Ω
RS-485	The detector is equipped with an RS-485 communication link that can be used in installation with computerized controllers. The RS-485 is Modbus compatible.		

Mechanical Specifications

Dimensions	4" x 4" x 2.5" (100 x 100 x 62 mm)
Weight	St.St 316L 2.5lb (1.2 kg) Tilt Mount 0.8lb (0.37 kg)
Enclosure	Stainless Steel 316L with electro polish finish
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

	20/20MI-1	20/20MI-3	20/20ML
Hazardous Area Ex Approvals			
ATEX**	04ATEX2010 EX II 1 GD, EExia IIC T5 (60°C), T4 (85°C) Zener barriers (not included) are required to achieve the stated approval *** The Relays do not apply to 20/20MI EX approved version*		---
Functional Approvals			
FM	Project ID 3020071	Project ID 3013906	Project ID 3020071
VdS (EN54-10)	G207073	---	---
CPD Certificate of Conformity	0786-CPD-20916	---	---
GOST R	POCC US.HO06.B00103		
Other Approvals			
DNV	A-12318		---
ABS	Project No. 1627964		---
GOST K	KZ.7500507.01.01.00029		

Accessories

LONG-RANGE FIRE SIMULATORS

The Spectrex Long-Range Flame Simulator allows testing of optical flame detectors in areas where real fires cannot be ignited. Testing is also mandatory in some industries to proof-test flame detector operation and to satisfy statutory requirements.

PN 20/20-310 for 20/20MI; PN 20/20-311 for 20/20ML

For more information, see datasheet of the Long Range Fire Simulators.

TILT MOUNT

The Tilt Mounting Brackets allow accurate directional setting of the detector for optimum area coverage. These brackets' movement ensure maximum effectiveness and accurate location of the detector's coverage area.

PN 20/20-005

RAIN COVER

The Rain Cover is designed to protect the detector from rain and snow.

PN 787980

AIR SHIELD

The special Air Shield, developed for SharpEye optical flame detectors, allows installation of optical flame detectors under tough environmental conditions where they may be exposed to oil vapors, sand, dust and other particulate matter.

PN 20/20-787

LASER AIMER

The Laser Detection Area Coverage Pointer designates the optical flame detector's area of coverage (cone of vision) on-site at the specific installation. This add-on accessory enables the designer and installer to optimize the detector's location and the actual detection area coverage of each installed detector.

PN 787969

*For more information view manual or website **www.spectrex.net***
For all technical assistance or support, contact a Spectrex office or your local distributor listed online.
Specifications subject to change

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2020mini, July 2013

SPECTREX INC.

SharpEye™

FLAME DETECTOR "MINI" SERIES

Model 20/20MPI

Finally...

...a Low Cost,
High Performance,
High Reliability,
Long Distance...

NEW IR3 Flame Detector for INDOOR applications!!!

The 20/20MPI is a low cost, high performance, compact Triple IR (IR3) Flame Detector in a lightweight polycarbonate housing. It retains all the benefits of IR3 technology - long distance detection (up to 140ft / 43m) along with the highest immunity to false alarms.

The IR3 detector, with its lightweight housing and low power consumption, is especially suited to indoor applications, such as airport terminals, train stations, storage areas, public buildings and many more.

MAIN FEATURES

- Long distance Flame Detection (up to 140ft / 43m)
- Large Field of View (100° horizontal / 90° vertical)
- Highest immunity to false alarms
- Output options (two models):
  - Alarm and Fault relay outputs (4 wire)
    or
  - Stepped mA output (3 wire source)
- RS-485 Modbus Compatible
- Automatic and Manual Built-In-Test (BIT)
- 3 Year Warranty

APPLICATIONS

Airport terminals • Train stations and terminals • Storage areas • Archives • Malls • Hospitals • Car parking towers and garages • Public buildings • Banks • Historical Sites • Offices

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GENERAL SPECIFICATIONS

Spectral Response	Three IR Bands				
Detection Range *Highest sensitivity setting for 1 ft² (0.1m²) pan fire	n-Heptane Gasoline Diesel Fuel JP5 Kerosene Alcohol (Ethanol)	140 ft (43m) 140 ft (43m) 100 ft (30m) 100 ft (30m) 100 ft (30m) 100 ft (30m)		Methanol IPA (Isopropyl Alcohol) Methane* LPG (Propane)* Polypropylene Pellets Office Paper	100 ft (30m) 115 ft (35m) 40 ft (12m) 40 ft (12m) 50 ft (15m) 50 ft (15m)
				*20" (0.5m) long 8" (0.2m) width plume fire	
Response Time	Typically 5 sec.				
Adjustable Time Delay	Up to 30 seconds				
Sensitivity Range	4 sensitivity ranges for 1 ft² (0.1m²) gasoline pan fire: 35 ft (11m) up to 140 ft (43m)				
Field of View	100° horizontal, 90° vertical				
Built-in-Test	Manual and Automatic BIT				
Temperature Range	Operating: -40°F (-40°C) to +160°F (+70°C)			Storage: -40°F (-40°C) to +160°F (+70°C)	
Humidity	Up to 95%				

ELECTRICAL SPECIFICATIONS

Power Supply	Operating Voltage: 18-32 VDC			
Power Consumption	20/20MPI-R at 24V DC:	Max. 15mA at Normal Max. 25mA at Alarm	20/20MPI-M at 24V DC:	Max. 16mA at Normal Max. 36mA at Alarm
Electrical Connection	M20 Gland Connection			
Electrical Input Protection	Per EN54-10			
Electromagnetic Compatibility	EMI/RFI protected CE Marked per EN50130-4			

OUTPUTS

20/20MPI-R	Relays	Alarm and Fault SPST volt-free contacts rated 2A at 30 VDC or 0.5A at 250 VAC Fault relay normally closed, Alarm Relay normally open			
20/20MPI-M	0-20mA	Source configuration Fault: BIT Fault: Normal:	 0 +0.5mA 2mA ±10% 4mA ±10%	 Warning: Alarm: Resistance Loop:	 16mA ±5% 20mA ±5% 100-600 Ω

MECHANICAL SPECIFICATIONS

Dimensions	4.7" dia x 2.9" (119mm x 74mm)
Weight	10.6 oz (300g)
Tilt Mount Weight	2.5 oz (70g)
Enclosure and Tilt Mount	Polycarbonate
Water and Dust	IP55

PERFORMANCE APPROVALS

FM3260	Approved
EN54-10 (CPD)	Pending

ACCESSORIES

Tilt Mount	768004 (included with each new detector)
Protective Cover	768005 (included with each new detector)
Fire Simulator	20/20-310

Specifications subject to change
For more information view manual or website **www.spectrex.net**

40/40I

Triple IR (IR3) Flame Detector

Superior performance, reliability and immunity to false alarms

The new 40/40I Triple IR (IR3) Flame Detector detects fuel and gas fires at long distances with the highest immunity to false alarms. The 40/40I IR3 can detect a 1ft² (0.1m²) gasoline pan fire at 215 ft (65m) in less than 5 seconds.

The 40/40I is the most durable and weather resistant 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.

FEATURES & BENEFITS

- Triple Spectrum Design - for long distance detection and high false alarm immunity
- Sensitivity Selection - to ensure no zone crossover detection
- 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)
  - DNV Marine Approval

APPLICATIONS

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

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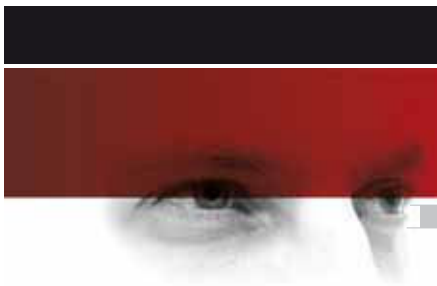

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GENERAL SPECIFICATIONS

Spectral Response	Three IR Bands

Detection Range (at highest Sensitivity Setting for 1ft² (0.1m²) pan fire)

Fuel	ft / m	Fuel	ft / m	Fuel	ft / m
n-Heptane	215 / 65	Kerosene	150 / 45	Methane*	100 / 30
Gasoline	215 / 65	Ethanol 95%	135 / 40	LPG *	100 / 30
Diesel Fuel	150 / 45	Methanol	115 / 35	Polypropylene Pellets	16 / 5
JP5	150 / 45	IPA (Isopropyl Alcohol)	135 / 40	Office Paper	33 / 10

* 20" (0.5m) high, 8" (0.2m) width plume fire

Response Time	Typically 5 seconds
Adjustable Time Delay	Up to 30 seconds
Sensitivity Ranges	4 Sensitive ranges for 1 ft² (0.1m²) n-heptane pan fire from 50 ft (15m) to 215 ft (65m)
Field of View	Horizontal 100°; Vertical 95°
Built-in-Test (BIT)	Automatic (and Manual)

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 (2.5mm² - 0.3mm²)
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 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	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 GD, Ex de IIC T5 (-55°C to +75°C) Ex tD A21 IP66/X7 T 95°C	Ex de IIC 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	

Performance	EN54-10 (LPCB) FM-3260 (FM) DNV Marine Approval
Reliability	IEC61508 - SIL2 (TUV)

ACCESSORIES

Fire Simulator	20/20-310	**U-Bolt/Pole Mount**	789260-2 (2" pole)	**Mini Laptop Kit**	777820	**Laser Pointer**	777166
Tilt Mount	40/40-001		789260-1 (3" pole)	**Weather Protector**	777163	(Detector area coverage)	
Duct Mount	777670	**USB RS485 Harness Kit**	794079-5	**Air Shield**	777161		

Specifications subject to changes

For more information view manual or website www.spectrex-inc.com

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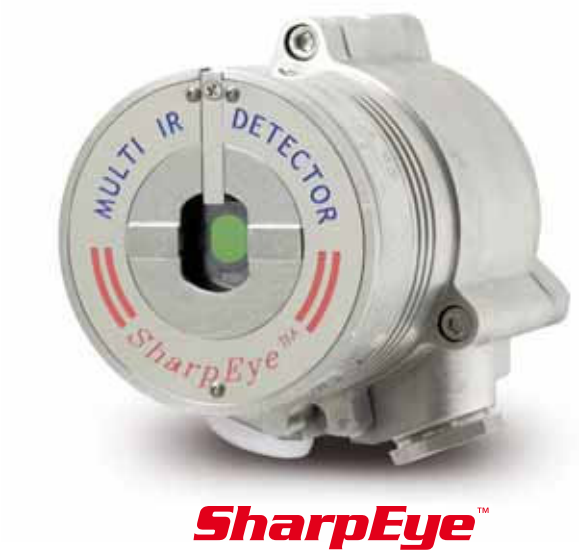
40/40M 40/40I 40/40L-LB 40/40L4-L4B 40/40U-UB 40/40R

40/40M

Multi IR Flame Detector

Superior performance, reliability and immunity to false alarms



The new 40/40M Multi IR Flame Detector is specifically designed for detection of hydrocarbon and hydrogen flames. It detects hydrocarbon-based fuel and gas fires at long distances with the highest immunity to false alarms. The 40/40M can detect a gasoline pan fire at 215 ft (65m) or a hydrogen flame at 100 ft (30m) in less than 5 seconds.

The 40/40M is the most durable and weather resistant 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.

FEATURES & BENEFITS

- Multi Spectrum Design - for long distance detection of hydrocarbons and hydrogen flames
- High false alarm immunity
- Sensitivity Selection - to ensure no zone crossover detection
- 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

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
Hydrogen Fuel Cell Industry
Hydrogen Vehicle Parking & Refueling
Battery Charging areas
Refinery Hydrogenation
Space Industry hydroxyl propellant
Static Fuel Cell systems

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GENERAL SPECIFICATIONS

Spectral Response	Multi IR Bands						
Detection Range (at highest Sensitivity Setting for 1ft² (0.1m²) pan fire)	**Fuel**	**ft / m**	**Fuel**	**ft / m**	**Fuel**	**ft / m**	
	n-Heptane	215 / 65	Ethanol 95%	135 / 40	LPG *	100 / 30	
	Gasoline	215 / 65	Methanol	115 / 35	Polypropylene Pellets	16 / 5	
	Diesel Fuel	150 / 45	IPA (Isopropyl Alcohol)	135 / 40	Office Paper	33 / 10	
	JP5	150 / 45	Hydrogen*	100 / 30	* 20" (0.5m) high, 8" (0.2m) width plume fire		
	Kerosene	150 / 45	Methane*	100 / 30			
Response Time	Typically 5 seconds						
Adjustable Time Delay	Up to 30 seconds						
Sensitivity Ranges	4 Sensitive ranges for 1 ft² (0.1m²) n-heptane pan fire from 50 ft (15m) to 215 ft (65m)						
Field of View	Horizontal 67°, Vertical 70° for Gasoline Horizontal 80°, Vertical 80° for Hydrogen						
Built-in-Test (BIT)	Automatic (and Manual)						
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 (2.5mm² - 0.3mm²)
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 5A at 30 VDC or 250 VAC.					
0-20mA (stepped)	Sink (source option) configuration					
	Fault:	0 +1mA	Normal:	4mA ± 10%	Alarm:	20mA ± 5%
	BIT Fault:	2mA ± 10%	Warning:	16mA ± 5%	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 GD, Ex de IIC T5 (-55°C to +75°C) Ex tD A21 IP66/X7 T 95°C	Ex de IIC 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	
Performance	EN54-10 (LPCB) FM-3260 (FM)		
Reliability	IEC61508 - SIL2 (TUV)		

ACCESSORIES

Fire Simulator	20/20-313	**U-Bolt/Pole Mount**	789260-2 (2" pole)	**Mini Laptop Kit**	777820	**Laser Pointer**	777166
Tilt Mount	40/40-001		789260-1 (3" pole)	**Weather Protector**	777163	(Detector area coverage)	
Duct Mount	777670	**USB RS485 Harness Kit**	794079-5	**Air Shield**	777161		

Specifications subject to changes

For more information view manual or website www.spectrex-inc.com

SPECTREX INC.

40/40R

Single IR Flame Detectors

A low cost solution in a durable, high spec package

The new 40/40R Single IR Flame Detector detects hydrocarbon-based fuel and gas fires using advanced flame analysis tools. The detector provides early warning of flaming fires working at 4.5 μm for maximum sensitivity, and immunity to false alarms from IR sources such as sunlight and IR projectors.

The 40/40R is the most durable and weather resistant single IR 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.

FEATURES & BENEFITS

- Sensitivity selection
- 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

Offshore Oil & Gas installations
Onshore Oil & Gas installations and pipelines
Chemical plants
Petrochemicals plants
Storage Tank farms
Power Generation facilities
Pharmaceutical Industry
Printing Industry
Warehouses
Automotive Industry
Waste Disposal facilities

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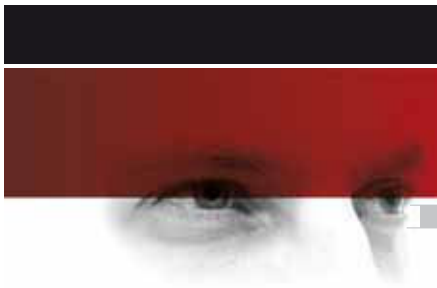
SPECTREX INC.



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GENERAL SPECIFICATIONS

Spectral Response	Single band IR 4.4-4.6 µm

Detection Range (at highest Sensitivity Setting for 1ft² (0.1m²) pan fire)

Fuel	ft / m	Fuel	ft / m	Fuel	ft / m
n-Heptane	50 / 15	Kerosene	37 / 11	Methane*	16 / 5
Gasoline	50 / 15	Ethanol 95%	25 / 7.5	LPG *	16 / 5
Diesel Fuel	37 / 11	Methanol	25 / 7.5	Polypropylene Pellets	10 / 3
JP5	37 / 11	IPA (Isopropyl Alcohol)	25 / 7.5	Office Paper	20 / 6

* 20" (0.5m) high, 8" (0.2m) width plume fire

Response Time	Typically 5 seconds
Adjustable Time Delay	Up to 30 seconds
Sensitivity Ranges	2 ranges; 1 ft² (0.1m²) n-heptane pan fire from 15 ft (5m) or 50 ft (15m)
Field of View	Horizontal 90°; Vertical 90°
Built-in-Test (BIT)	Automatic (and Manual)
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 (2.5mm² - 0.3mm²)
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 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	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 GD, Ex de IIC T5 (-55°C to +75°C) Ex tD A21 IP66/X7 T 95°C	Ex de IIC 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	
Performance	EN54-10 (LPCB) FM-3260 (FM)		
Reliability	IEC61508 - SIL2 (TUV)		

ACCESSORIES

Fire Simulator	20/20-312	**U-Bolt/Pole Mount**	789260-2 (2" pole)	**Mini Laptop Kit**	777820	**Laser Pointer**	777166
Tilt Mount	40/40-001		789260-1 (3" pole)	**Weather Protector**	777163	(Detector area coverage)	
Duct Mount	777670	**USB RS485 Harness Kit**	794079-5	**Air Shield**	777161		

Specifications subject to changes

For more information view manual or website www.spectrex-inc.com

SPECTREX INC.

40/40 UV/IR

Flame Detector Series

Maximum choice of features in a high performance package

SharpEye™

Spectrex offers two versions of the new 40/40 Series UV/IR Flame Detectors:

Model 40/40L (& LB) *provides a combination of UV and IR sensors, where the IR sensor operates at a wavelength of 2.5-3.0 µm, and can detect hydrocarbon-based fuel and gas fires, hydroxyl and hydrogen fires, as well as metal and inorganic fires.*

Model 40/40L4 (& L4B) *is identical to the 40/40L except that the IR sensor works at a wavelength of 4.5 µm and is only suitable for hydrocarbon-based 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.

Due to increased reliability, the 40/40 Series warranty period has been extended to 5 years and is SIL2 (TUV) approved to IEC 61508.

FEATURES & BENEFITS

- UV/IR Dual-Sensor
- High-Speed Response - 150 msec Response to Saturated Signal
- Solar blind
- Automatic Built-In-Test (BIT)* and Manual - 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) Models 40/40LB and 40/40L4B only
- 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)

*option

APPLICATIONS (model dependent)

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
Aerospace Industry
Paint, Polymer and Glue processes

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E-mail: spectrex@spectrex.net | Website: www.spectrex-inc.com

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GENERAL SPECIFICATIONS

Spectral Response	40/40L–LB: UV: 0.185 - 0.260 µm; IR: 2.5-3.0 µm 40/40L4–L4B: UV: 0.185 - 0.260 µm; IR: 4.4-4.6 µm

Detection Range (at highest Sensitivity Setting for 1ft² (0.1m²) pan fire)

Fuel	ft / m	Fuel	ft / m	Fuel	ft / m
n-Heptane	50 / 15	Ethanol 95%	25 / 7.5	LPG *	16 / 5
Gasoline	50 / 15	Methanol	25 / 7.5	Polypropylene Pellets	13 / 4
Diesel Fuel	37 / 11	IPA (Isopropyl Alcohol)	25 / 7.5	Office Paper	16 / 5
JP5	37 / 11	Hydrogen**	16 / 5		
Kerosene	37 / 11	Methane*	16 / 5		

* 20" (0.5m) high, 8" (0.2m) width plume fire ** 40/40L/LB only

Response Time	Typically 5 seconds. High speed 150 msec response to saturated signal
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 100°; Vertical 95°
Built-in-Test (BIT)	Automatic (and Manual)
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 (2.5mm² - 0.3mm²)
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 5A at 30 VDC or 250 VAC.

0-20mA (stepped) Sink (source option) configuration

Fault:	0 +1mA	IR:	8mA ± 5%	Alarm:	20mA ± 5%
BIT Fault:	2mA ± 10%	UV:	12mA ± 5%	Resistance Loop:	100-600 Ω
Normal:	4mA ± 10%	Warning:	16mA ± 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 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 GD, Ex de IIC T5 (-55°C to +75°C) Ex de IIC T4 (-55°C to +85°C) Ex tD A21 IP66/X7 T 95°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
Performance	EN54-10 (LPCB) FM-3260 (FM)	
Reliability	IEC61508 - SIL2 (TUV) - models 40/40LB and 40/40L4B only	

ACCESSORIES

Fire Simulator	20/20-311	**U-Bolt/Pole Mount**	789260-2 (2" pole)	**Mini Laptop Kit**	777820	**Laser Pointer**	777166
Tilt Mount	40/40-001		789260-1 (3" pole)	**Weather Protector**	777163	(Detector area coverage)	
Duct Mount	777670	**USB RS485 Harness Kit**	794079-5	**Air Shield**	777161		

Specifications subject to changes

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