

IR3 CO2L Flame Detector

The IR3 CO2L flame detector provides ultra-fast, high-performance, reliable detection of all types of hydrocarbon fires (visible and non-visible). The detector addresses slow-growing fires as well as fast eruptions of fire using triple-IR (IR3) technology.

It is optimized to provide fast, robust detection of a wide range of heavy hydrocarbon fires where combustion exhaust gases may be present and standard IR3 detectors might false alarms. Typical applications include aircraft hangars, helipads, and areas with high vehicle activity, such as tanker loading racks.

The IR3 CO2L operates in all weather and light conditions with the highest immunity to false alarms.

KEY BENEFITS

- High immunity to false alarm
- Extreme sensitivity – up to 260 ft. (80m) for a 1 ft² (0.1m²) n-heptane pan fire
- Ultra-fast detection mode – detection within 40 milliseconds for fireballs or explosions
- Data/Event logger – alarms, faults, and other relevant events are logged to non-volatile memory
- Detection within 40 milliseconds of fireballs or explosions
- Time Delay: 0-30 seconds (adjustable)
- Integral event recording
- Built-in-Test (BIT) – Automatic and manual self-test of window cleanliness and detector operation
- Window heater to avoid condensation and icing
- Stainless steel tilt mount with horizontal and vertical adjustment. Optional mounting adaptors available for retrofit applications
- Meets NFPA 33 response requirement for flame detection within 0.5 second
- Designed for use in all weather and light conditions
- Standard fire in 1.1 seconds from 100 ft. (30m) and 4.6 seconds from 262 ft. (80m)



ORDERING

FIK-IR3-AS13	IR3 Flame Detector, SS316, 2 x M25 entries, CO2L (SIL 2-HART®) ¹
FIK-IR3-AS23	IR3 Flame Detector, SS316, 2 x ¾" NPT entries, CO2L (SIL 2-HART®) ¹
ACCESSORIES	
FIK-TMO-S01	Tilt Mount, SS316, Standard Detector (shown above)
FIK-WCO-S01	Weather Cover, SS316, Standard Detector
FIK-PMA-S23	Pole Mount Adapter, 2 and 3 inch
FIK-PMA-S06	Pole Mount Adapter, 6 inch
FIK-ASD-S01	AIRSHIELD, Standard Detector ²
FIK-DMX-S01	Duct Mount Assembly without Window, Standard Detector ³
FIK-DMW-S01	Duct Mount Assembly with Sapphire Window, Standard Detector ⁴
FIK-FSIM-IR3-H2-KIT	Flame Simulator Kit, IR3-H2 Detector
FIK-USB/RS485	USB/RS485 Converter Kit ⁵

^[1] Hangers, helidecks, and petroleum loading racks.

^[2] Provides protection against dust, snow and other interferences.

^[3] Use with FIK-ASD-S01 (sold separately), tilt mount NOT needed.

^[4] Tilt mount NOT needed.

^[5] For PC/Laptop USB port. Includes FLS Flame Detector Communicator software.

SPECIFICATIONS

FIRE DETECTION	Detection time and distance (Extreme Sensitivity)	40ms for fast burst or explosion 1.1s for 1 ft ² (0.1m ²) N-heptane pan fire at 0-100 ft. (0-30m) 4.6s for 1 ft ² (0.1m ²) N-heptane pan fire at 100-262 ft. (30-80m)
	Sensitivity Range	5 sensitivity ranges: Extreme, High, Medium, Low, Very Low
	Field of view (IR detection)	90° Horizontal, 75° Vertical
	Time Delay	Configurable 0-30 seconds
	Built in Test	Automatic and Manual
ELECTRICAL SPECIFICATIONS	Operating Voltage	24 VDC nominal (18-32 VDC)
	Current Consumption	Standby: 120mA 180mA all systems in operation (including window heater)
	Electrical Entries	2X cable and conduit entries 3/4" NPT or M25x1.5
	Wiring	12-20AWG (4.0-0.50mm ²)
OUTPUTS	Relays	SPST volt-free contacts rated 2A at 30 VDC Alarm – normally open Aux – normally open Fault –normally closed
	0-20mA (stepped) current output	3 wire and 4 wire (isolated) configurations (sink and source)
	Indication	Tri-color LED (Green, Yellow, Red)
	Modbus	RTU compatible on RS-485
	HART-7 (rev 7.0)	Option available
MECHANICAL SPECIFICATIONS	Size	5.51 x 3.54 x 3.54" (140 x 90 x 90 mm)
	Weight	Detector (stainless steel 316): 6.6 lbs. (3.0 kg) Tilt mount (stainless steel 316): 3.3 lbs. (1.5 kg)
ENVIRONMENTAL SPECIFICATIONS	Temperature Range	Operating: -67°F to +185°F (-55°C to +85°C) Storage: -67°F to +185°F (-55°C to +85°C)
	Humidity	Up to 99% (RH), non-condensing
	Ingress Protection	IP66 & IP68 (2m, 24hr); NEMA 4X & 6P
APPROVALS	ATEX	II 2 G D Ex db IIC T5 Gb or Ex db eb IIC T5 Gb and Ex tb IIIC T95°C Db - 55°C<Ta<75°C Ex db IIC T4 Gb or Ex db eb IIC T4 Gb and Ex tb IIIC T105°C Db - 55°C<Ta<85°C
	IECEX, INMETRO	Ex db IIC T5 Gb -50°C≤Ta≤75°C Ex db IIC T4 Gb -50°C≤Ta≤85°C
	FMus & FMc	Class I, Div. 1, Groups B, C & D; T4 Class I, Zone 1, AEx db IIC T4 Gb T4 -50°C ≤ Ta ≤ 85°C T5 -50°C ≤ Ta ≤ 75°C
	Performance	ANSI FM 3260 EN 54-10
	Functional Safety	Complies with SIL2, per IEC 61508
	WARRANTY	5 years

IMMUNITY TO FALSE ALARMS (modulated/unmodulated)

False Alarm Source	Maximum Distance in ft. (m)
Sunlight, Direct, Reflected	No response at any distance
Sunlight, Direct, Reflected, with water drops on sensors	No response at any distance
Incandescent frosted glass light, 300W	2.0 (0.5)
Fluorescent, 70W (3x23.3W)	2.0 (0.5)
Electric arc	2.0 (0.5)
Arc welding	12.0 (3.5)
Radiation heater, 1850W	2.0 (0.5)
Radiation Heater, 1850W with water droplets on sensors	2.0 (0.5)
Quartz lamp (1000W) shielded	2.0 (0.5)
Quartz lamp (500W) non-shielded	2.0 (0.5)
Mercury vapor lamp 160Wx3	2.0 (0.5)
Car Exhausts	2.0 (0.5)
Projector LED	2.0 (0.5)
Solenoid bell	2.0 (0.5)
Soldering iron	2.0 (0.5)
Electric Drill	2.0 (0.5)

FIK-IR3-CO2L RESPONSE CHARACTERISTICS

Fuel	Size	Sensitivity	Distance ft. (m)	Average Response Time (s)
N-Heptane	1 x 1 ft.	Extreme	262 (80)	4.6
N-Heptane	1 x 1 ft.	High	197 (60)	3.7
N-Heptane	1 x 1 ft.	Medium	98 (30)	1.1
N-Heptane	1 x 1 ft.	Low	49 (15)	1.4
N-Heptane	1 x 1 ft.	Very Low	24.5 (7.5)	1.1
Gasoline	1 x 1 ft.	Extreme	230 (70)	3.6
Gasoline	1 x 1 ft.	Medium	98 (30)	1.5
Diesel	1 x 1 ft.	Extreme	164 (50)	3.6
Diesel	1 x 1 ft.	Medium	79 (24)	3.2
JP5	2 x 2 ft.	Extreme	292 (80)	11.0
JP5	1 x 1 ft.	Extreme	164 (50)	3.6
JP5	1 x 1 ft.	High	148 (45)	3.5
JP5	2 x 2 ft.	Medium	148 (45)	3.5
JP5	1 x 1 ft.	Medium	82 (25)	1.5
JP5	1 x 1 ft.	Low	39 (12)	1.5
JP5	1 x 1 ft.	Very Low	20 (6)	1.3
Kerosene	1 x 1 ft.	Extreme	164 (50)	3.8
Kerosene	1 x 1 ft.	Medium	82 (25)	1.6
Isopropanol	1 x 1 ft.	Extreme	180 (55)	2.8
Isopropanol	1 x 1 ft.	Medium	75 (23)	1.2
Polypropylene	1 x 1 ft.	Extreme	115 (35)	3.3
Polypropylene	1 x 1 ft.	Medium	66 (20)	2.1
Wood	1 x 1 ft.	Extreme	131 (40)	5.0
Wood	1 x 1 ft.	Medium	66 (20)	1.2

PRODUCTS:

Gaseous Suppression



Inert Gas (IG-01, IG-55, IG-100, IG-541)
Novec 1230™ Fluid (FK-5-1-12)
FM-200® (HFC-227ea.)
Carbon Dioxide (CO₂)
Hybrid Systems (N₂ / Water)
Pressure Relief Vents
Enclosure Integrity Testing Equipment
Pipe & Fittings

Water Suppression



Water Mist - High Pressure
Water Mist - Intermediate Pressure
Water Mist - Low Pressure
Hybrid Systems (Water / N₂)
Monitors & Delivery Systems
High Speed Deluge

Foam Suppression



Foam Concentrates
Foam Proportioning
Foam Delivery Systems
Compressed Air Foam
Foam Concentrate Testing

Explosion Protection



Explosion Suppression
Explosion Isolation
Explosion Vents & Pressure Relief
Spark Suppression
Explosibility Testing

Fire Detection



Linear Heat Detection - Digital
Linear Heat Detection - Fibre Optic
Linear Heat Detection - Micro Chip
Flame Detection
Video Imaging Detection
Spark Detection
Control & Indicating Equipment
Thermal Imaging Detection
Aspirating Smoke Detection

Military & Defence



Military Vehicles
Naval Vessels

Special Applications



Micro Environment
Oxygen Reduction
Kitchen Protection Systems
Dry Chemical
Vehicle Systems
Marine & Offshore
Vapour Mitigation
Li-Ion Fire Systems

Support Services



Design / Engineering
Technical Support
Services & Testing

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