

IR3 Flame Detector

The IR3 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 eruption of fire using triple-IR (IR3) technology. It operates in all weather and light conditions with the highest immunity to false alarms.

KEY BENEFITS

- Highest level of false-alarm immunity
- Detects up to 262 ft. (80m) for a 1ft² (0.1m²) n-heptane pan fire
- Optimized option for aircraft hangars, helipads & truck loading racks available. See FIK-IR3-CO2L data sheet.
- Ultra-fast detection mode – detection within 40 milliseconds for fireballs or explosions
- Fast flame detection: <1.5s for standard fire up to 98 ft. (30m). Option for <0.5s in compliance with NFPA 33 available
- Event logger – alarms, faults and other relevant events are logged to non-volatile memory
- Built-in-Test (BIT) – Automatic and manual self-test of window cleanliness and overall detector operation
- HART[®] 7 option available for configuration & maintenance
- Stainless steel tilt mount provides horizontal and vertical adjustment.
- SIL-2-capable option available



ORDERING

FIK-IR3-AS11	IR3 Flame Detector, SS316, 2 x M25 entries, standard configuration
FIK-IR3-AS21	IR3 Flame Detector, SS316, 2 x ¾" NPT entries, standard configuration
FIK-IR3-AS11-H	IR3 Flame Detector, SS316, 2 x M25 entries, process industry (SIL 2-HART®)
FIK-IR3-AS21-H	IR3 Flame Detector, SS316, 2 x ¾" NPT entries, process industry (SIL 2-HART®)
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
FIK-IR3-AS15	IR3 Flame Detector, SS316, 2 x M25 entries, NFPA 33 (SIL 2-HART®) ²
FIK-IR3-AS25	IR3 Flame Detector, SS316, 2 x ¾" NPT entries, NFPA 33 (SIL 2-HART®) ²
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 ³
FIK-DMX-S01	Duct Mount Assembly without Window, Standard Detector ⁴
FIK-DMW-S01	Duct Mount Assembly with Sapphire Window, Standard Detector ⁵
FIK-FSIM-IR3-KIT	Flame Simulator Kit, IR3 Detector
FIK-USB/RS485	USB/RS485 Converter Kit ⁶

¹ Optimized option for hangars, helidecks, and petroleum loading racks. See FIK-IR3-CO2L data sheet.

² Automotive / Spray Booth

³ Provides protection against dust, snow and other interferences.

⁴ Use with FIK-ASD-S01 (sold separately), tilt mount NOT needed.

⁵ Tilt mount NOT needed.

⁶ For PC/Laptop USB port. Includes FLS Flame Detector Communicator software.

SPECIFICATIONS

FIRE DETECTION	Detection time and distance	40ms for fast burst or explosion
	(Medium Sensitivity)	2.6s for 1 ft ² (0.1m ²) N-heptane pan fire at 0-98 ft. (0-30m)
	(Extreme Sensitivity)	7.1s for 1 ft ² (0.1m ²) N-heptane pan fire at 100-262 ft. (30-80m)
	Sensitivity Range	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 (energized)
	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 IICT5 Gb -50°C≤Ta≤75°C Ex db IICT4 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 (option available)
	CSFM	Listed: 7210-2010:0524
WARRANTY	5 years	

IMMUNITY TO FALSE ALARMS AT EXTREME SENSITIVITY (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 RESPONSE CHARACTERISTICS

Fuel	Size	Sensitivity	Distance ft. (m)	Average Response Time (s)
N-Heptane	1 x 1 ft.	Extreme	262 (80)	7.1
N-Heptane	1 x 1 ft.	Extreme	230 (70)	3.7
N-Heptane	1 x 1 ft.	High	197 (60)	2.7
N-Heptane	1 x 1 ft.	Medium	98 (30)	2.6
N-Heptane	1 x 1 ft.	Low	49 (15)	1.3
N-Heptane	1 x 1 ft.	Very Low	25 (7.5)	1.0
Gasoline	2 x 2 ft.	Extreme	328 (100)	5.3
Gasoline	1 x 1 ft.	Extreme	230 (70)	2.8
Gasoline	1 x 1 ft.	Medium	98 (30)	1.5
Methane	32-in Plume	Extreme	148 (45)	2.6
Methane	32-in Plume	Medium	82 (25)	0.6
LPG	32-in Plume	Extreme	180 (55)	3.7
LPG	32-in Plume	High	148 (45)	2.6
LPG	32-in Plume	Medium	98 (30)	1.4
LPG	32-in Plume	Low	49 (15)	1.5
LPG	32-in Plume	Very Low	25 (7.5)	1.5
Diesel	1 x 1 ft.	Extreme	164 (50)	2.6
Diesel	1 x 1 ft.	Medium	79 (24)	3.2
JP5	2 x 2 ft.	Extreme	295 (90)	9.4
JP5	1 x 1 ft.	Extreme	164 (50)	4.5
JP5	1 x 1 ft.	High	148 (45)	4.4
JP5	1 x 1 ft.	Medium	79 (24)	1.8
JP5	1 x 1 ft.	Low	39 (12)	10.1
JP5	1 x 1 ft.	Very Low	20 (6)	1.8
Kerosene	1 x 1 ft.	Extreme	164 (50)	3.6
Kerosene	1 x 1 ft.	Medium	79 (24)	2.7
Methanol	1 x 1 ft.	Extreme	131 (40)	4.6
Methanol	1 x 1 ft.	High	125 (38)	4.2
Methanol	1 x 1 ft.	Medium	75 (23)	1.5
Methanol	1 x 1 ft.	Low	39 (12)	1.3
Methanol	1 x 1 ft.	Very Low	18 (5.5)	1.1
Ethanol	1 x 1 ft.	Extreme	125 (38)	4.7
Isopropanol	1 x 1 ft.	Extreme	180 (55)	3.6
Isopropanol	1 x 1 ft.	Medium	75 (23)	1.8
Polypropylene	1 x 1 ft.	Extreme	115 (35)	7.8
Polypropylene	1 x 1 ft.	Medium	66 (20)	2.1
Paper	1 x 1 ft.	Extreme	79 (24)	1.1
Paper	1 x 1 ft.	Medium	39 (12)	1.1
Syngas (30%CH ₄ :70%H ₂)	32-in Plume	Extreme	98 (30)	3.3
Syngas (30%CH ₄ :70%H ₂)	32-in Plume	Medium	49 (15)	1.3
Wood	1 x 1 ft.	Extreme	148 (45)	4.2
Wood	1 x 1 ft.	Medium	74 (22.5)	2.1

For performance details of models 3 and 5, the following documents are available, on request:

- Model 3 - hangar / helideck; F101V0023.6
- Model 5 - fast response / automotive / spray paint booth applications; F101V0024.06