

## IR3-HD Triple IR Flame Detector

The IR3-HD flame detector provides exceptional detection performance for all types of hydrocarbon fires (visible and non-visible). The detector responds to slow-growing fires as well as fast fire eruptions using improved triple IR (IR3) technology operating in all weather and light conditions with the highest immunity to false alarms.

The detector also provides a high-definition (HD) color video output of the monitored area with clear imaging of fire events and personnel at distances up to 100 ft. (30m), allowing responders to know the exact situation before entering the hazardous area. Video and data of events are stored and saved quickly to non-volatile memory for post-incident investigation. The recordings start one minute before detection and continue for up to four minutes.

### KEY BENEFITS

- Highest Immunity to False Alarm
- Hydrocarbon flame detection: 3 wavelengths, infrared spectral range (4.0 to 5.0 $\mu$ m), with clear separation
- Detects 262 ft. (80 m) for a 1 ft<sup>2</sup> (0.1 m<sup>2</sup>) n-heptane fire
- Ultra-fast detection mode – detection within 40 milliseconds for fireballs or explosions
- Fast flame detection: <1.5s for standard fire up to 30m. Option for <0.5s in compliance with NFPA 33
- HD or composite video output with automatic HD video recording of alarms, faults & videos to non-volatile memory
- Built-in-Test (BIT) – Automatic and manual self-test of window cleanliness and overall detector operation
- Window heater to avoid condensation/icing.
- Stainless steel tilt mount with horizontal and vertical adjustment
- Optimized option for aircraft hangers, helipads & truck loading racks available. See FIK-IR3-HD-CO2L data sheet
- Universal outputs, 3 and 4 wire, 4-20 mA sink/source, Fire, Auxiliary, and Fault Relays. RS485 port using Modbus RTU



## ORDERING

<b>FIK-IR3-HD-AS11</b>	IR3 Flame Detector, SS316, 2 x M25 entries, Color VID, standard configuration
<b>FIK-IR3-HD-AS11-H</b>	IR3 Flame Detector, SS316, 2 x M25 entries, Color VID, process industry (SIL 2-HART®)
<b>FIK-IR3-HD-AS21</b>	IR3 Flame Detector, SS316, 2 x ¾" NPT entries, Color VID, standard configuration
<b>FIK-IR3-HD-AS12</b>	IR3 Flame Detector, SS316, 2 x M25 entries, Near IR VID (SIL 2-HART®)
<b>FIK-IR3-HD-AS12-H</b>	IR3 Flame Detector, SS316, 2 x M25 entries, Near IR VID, process industry (SIL 2-HART®)
<b>FIK-IR3-HD-AS22</b>	IR3 Flame Detector, SS316, 2 x ¾" NPT entries, Near IR VID (SIL 2-HART®)
<b>FIK-IR3-HD-AS13</b>	IR3 Flame Detector, SS316, 2 x M25 entries, Color VID, CO2L (SIL 2-HART®) <sup>1</sup>
<b>FIK-IR3-HD-AS23</b>	IR3 Flame Detector, SS316, 2 x ¾" NPT entries, Color VID, CO2L (SIL 2-HART®) <sup>1</sup>
<b>FIK-IR3-HD-AS14</b>	IR3 Flame Detector, SS316, 2 x M25 entries, Near IR VID, CO2L (SIL 2-HART®) <sup>1</sup>
<b>FIK-IR3-HD-AS24</b>	IR3 Flame Detector, SS316, 2 x ¾" NPT entries, Near IR VID, CO2L (SIL 2-HART®) <sup>1</sup>
<b>FIK-IR3-HD-AS15</b>	IR3 Flame Detector, SS316, 2 x M25 entries, Near IR VID, NFPA 33 (SIL 2-HART®) <sup>2</sup>
<b>FIK-IR3-HD-AS25</b>	IR3 Flame Detector, SS316, 2 x ¾" NPT entries, Near IR VID, NFPA 33 (SIL 2-HART®) <sup>2</sup>
<b>ACCESSORIES</b>	
<b>FIK-TMO-S02</b>	Tilt Mount, SS316, HD Detector (shown above)
<b>FIK-WCO-S02</b>	Weather Cover, SS316, hd Detector
<b>FIK-PMA-S23</b>	Pole Mount Adapter, 2 and 3 inch
<b>FIK-PMA-S06</b>	Pole Mount Adapter, 6 inch
<b>FIK-ASD-S02</b>	AIRSHIELD, HD Detector <sup>3</sup>
<b>FIK-FSIM-IR3-KIT</b>	Flame Simulator Kit, IR3 Detector
<b>FIK-USB/RS485</b>	USB/RS485 Converter Kit <sup>4</sup>

<sup>[1]</sup> Optimized option for hangers, helidecks, and petroleum loading racks. See FIK-IR3-HD-CO2L data sheet.

<sup>[2]</sup> Automotive / Spray booth

<sup>[3]</sup> Provides protection against dust, snow and other interferences.

<sup>[4]</sup> For PC/Laptop USB port. Includes FLS Flame Detector Communicator software.

## SPECIFICATIONS

<b>FIRE DETECTION</b>	<b>Detection time and distance</b>	40ms for fast fire burst or explosion 1.5s for 1 ft <sup>2</sup> (0.1m <sup>2</sup> ) n-heptane pan fire at 100 ft. (30m) 4.0s for 1 ft <sup>2</sup> (0.1m <sup>2</sup> ) n-heptane pan fire 230 ft. (70m)
	<b>Sensitivity Range</b>	5 sensitivity ranges: Extreme, High, Medium, Low, Very Low
	<b>Field of view (IR detection)</b>	90° Horizontal, 75° Vertical
	<b>Time Delay</b>	0-30 seconds
	<b>Built in Test</b>	Automatic and Manual
<b>VIDEO FUNCTIONALITY</b>	<b>HD Video</b>	Color HD, as standard. Near IR filtered option (X2 available on request)
	<b>Video recording of alarm events</b>	1-minute pre-event and 3 minutes post-event
	<b>System integration protocol</b>	ONVIF (Open Network Video Interface Forum) Profile S
<b>ELECTRICAL SPECIFICATIONS</b>	<b>Operating Voltage</b>	24 VDC nominal (18-32 VDC)
	<b>Current Consumption</b>	Standby: 180mA Maximum: 300mA all systems in operation (including window heater)
	<b>Conduit Entries</b>	2x cable and conduit entries: 3/4"NPT(F) or M25x1.5
	<b>Wiring</b>	12-20AWG (4.0-0.50mm <sup>2</sup> )
<b>OUTPUTS</b>	<b>Relays</b>	SPST volt-free contacts rated 2A at 30 VDC Alarm – normally open Auxiliary – normally open Fault – normally closed
	<b>0-20mA (stepped) current output</b>	3 wire and 4 wire configurations (sink and source) HART® rev 7.0 - option available
	<b>Indication</b>	Tri-color LED (Green, Yellow, Red)
	<b>Modbus</b>	RTU compatible on RS-485
	<b>Digital (for video)</b>	IP network IEEE 802.3 100Base-T
	<b>Composite video</b>	NTSC or PAL
	<b>MECHANICAL SPECIFICATIONS</b>	<b>Size</b>
	<b>Weight</b>	Detector (stainless steel 316): 9.8 lbs. (4.4 kg) Tilt mount (stainless steel 316): 5.4 lbs. (2.4 kg)
<b>ENVIRONMENTAL SPECIFICATIONS</b>	<b>Temperature Range</b>	Operating: -67°F to +185°F (-55°C to +85°C) Storage: -67°F to +185°F (-55°C to +85°C)
	<b>Humidity</b>	Up to 99% (RH), non-condensing
	<b>Ingress Protection</b>	IP66 & 68; NEMA 4X & 6P
<b>APPROVALS</b>	<b>ATEX</b>	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
	<b>IECEX</b>	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
	<b>FMus &amp; FMc</b>	Class I, Div. 1, Groups B, C & D; T4 -50°C≤Ta≤85°C or T5 -50°C≤Ta≤75°C Class II/III, Div. 1, Groups E, F, G; T4 -50°C≤Ta≤85°C or T5 -50°C≤Ta≤75°C Class I, Zone 1, AEx/Ex db IIC T4 Gb or Class I, Zone 1, AEx/Ex db eb IIC T4 Gb -50°C≤Ta≤85°C Class I, Zone 1, AEx/Ex db IIC T5 Gb or Class I, Zone 1, AEx/Ex db eb IIC T5 Gb -50°C≤Ta≤75°C Zone 21, AEx/Ex tb IIIC T95°C Db -50°C≤Ta≤75°C or Zone 21, AEx/Ex tb IIIC T105°C Db -50°C≤Ta≤85°C
	<b>Performance</b>	ANSI FM 3260 EN 54-10
	<b>Functional Safety</b>	Complies with SIL2, per IEC 61508 - option available
	<b>CSFM</b>	Listing 7210-2010:0524
	<b>WARRANTY</b>	<b>5 Years</b>

## 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)
Quartz lamp (500W) non-shielded with water drops on sensors	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)

## RESPONSE CHARACTERISTICS (Standard models, X1 and X2)

Fuel	Size	Sensitivity	Distance ft. (m)	Average Response Time (s)
N-Heptane	1 x 1 ft.	Extreme	262 (80)	9.0
N-Heptane	1 x 1 ft.	Extreme	230 (70)	4.1
N-Heptane	1 x 1 ft.	Extreme	98 (30)	1.5
N-Heptane	1 x 1 ft.	High	197 (60)	3.2
N-Heptane	1 x 1 ft.	Medium	98 (30)	2.2
N-Heptane	1 x 1 ft.	Low	49 (15)	1.2
N-Heptane	1 x 1 ft.	Very Low	25 (7.5)	1.6
Gasoline	1 x 1 ft.	Extreme	230 (70)	3.6
Gasoline	2 x 2 ft.	Extreme	328 (100)	5.3
Gasoline	1 x 1 ft.	Medium	98 (30)	1.5
Gasoline	1 x 1 ft.	Very Low	25 (7.5)	1.8
Methane	32-in Plume	Extreme	148 (45)	3.3
Methane	32-in Plume	Medium	82 (25)	0.8
LPG	32-in Plume	Extreme	180 (55)	4.8
LPG	32-in Plume	High	148 (45)	2.9
LPG	32-in Plume	Medium	98 (30)	1.4
LPG	32-in Plume	Low	49 (15)	1.4
LPG	32-in Plume	Very Low	25 (7.5)	1.8
Diesel	1 x 1 ft.	Extreme	164 (50)	2.9
Diesel	1 x 1 ft.	Medium	79 (24)	3.9
JP5	1 x 1 ft.	Extreme	164 (50)	5.8
JP5	2 x 2 ft.	Extreme	295 (90)	9.2
JP5	1 x 1 ft.	High	148 (45)	4.9
JP5	1 x 1 ft.	Medium	79 (24)	1.9
JP5	1 x 1 ft.	Low	39 (12)	8.8
JP5	1 x 1 ft.	Very Low	20 (6)	1.5
Kerosene	1 x 1 ft.	Extreme	164 (50)	4.1
Kerosene	1 x 1 ft.	Medium	79 (24)	2.5
Methanol	1 x 1 ft.	Extreme	131 (40)	4.1
Methanol	1 x 1 ft.	High	125 (38)	5.5
Methanol	1 x 1 ft.	Medium	75 (23)	1.2
Methanol	1 x 1 ft.	Low	39 (12)	1.2
Methanol	1 x 1 ft.	Very Low	18 (5.5)	1.1

Ethanol	1 x 1 ft.	Extreme	125 (38)	4.2
Ethanol	1 x 1 ft.	Medium	75 (23)	1.6
Isopropanol	1 x 1 ft.	Extreme	180 (55)	3.5
Isopropanol	1 x 1 ft.	Medium	75 (23)	1.0
Polypropylene	1 x 1 ft.	Extreme	115 (35)	10.1
Polypropylene	1 x 1 ft.	Medium	66 (20)	2.6
Paper	1 x 1 ft.	Extreme	79 (24)	0.9
Paper	1 x 1 ft.	Medium	39 (12)	0.8
Syngas (30%CH <sub>4</sub> :70%H <sub>2</sub> )	32-in Plume	Extreme	98 (30)	3.3
Syngas (30%CH <sub>4</sub> :70%H <sub>2</sub> )	32-in Plume	Medium	49 (15)	0.8
Wood	1 x 1 ft.	Extreme	148 (45)	3.8
Wood	1 x 1 ft.	Medium	74 (22.5)	2.1

### RESPONSE CHARACTERISTICS (Models X3, X4, X5)

For performance details of models 3, 4 and 5, the following documents are available on request:

- Model 3 and 4 – hangar/helideck F101V0023.06
- Model 5 – fast response enclosed space / automotive / spray paint booth applications, F101V0024.06.

## 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 (CO<sub>2</sub>)  
Hybrid Systems (N<sub>2</sub> / 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 / N<sub>2</sub>)  
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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