DATA SHEET

IR3-HD TRIPLE IR FLAME DETECTOR



Ordering

FIK-IR3-HD-AS11[1]	Detector with HD video output and M25 conduit openings
FIK-IR3-HD-AS21[1]	Detector with HD video output and ¾" NPT conduit openings
FIK-TMO-S02[2]	Tilt Mount, Stainless Steel (shown above)
FIK-TMA-S01[2,3]	Adapter, Universal Overhead Mount
FIK-USB/RS485[2,4]	RS-485 to USB Converter Kit
FIK-Weather Cover[2,5]	Weather Cover, Stainless Steel

[1] Where ATEX approval is required, contact Fike at 1-800-979-3453 (option 2,1) for ordering information.
[2] Ordered separately
[3] Used for mounting a detector to other manufacturers mounting bracket. Installs on top of the detector.
[4] Converts detector RS-485 communication network to USB for connection to a computer port.
[5] Used only in very hot or very cold environments.

Introduction

The IR3-HD flame detector provides ultra-fast response, high performance and 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 improved triple IR (IR3) technology. It operates in all weather and light conditions with highest immunity to false alarms.

- Detection within 40 milliseconds of fireballs or explosions
- Standard fire in only 1.2 second from 50 ft. (15m) and 4.1 seconds from 230 ft. (70m).

The detector provides high-definition video output with clear imaging of fire event at up to 100 ft. (30m), allowing rescuers to know the exact situation before entering the hazardous area. It will automatically record a video of a fire event (1 min pre-alarm / up to 3 min post-alarm).

Add to that, the integral HD quality video, with event recording, on top of the proven superior capabilities of Triple IR (IR3) flame detection and you have a very powerful safety tool to protect your personnel, plant and process.

Key Benefits

- High Immunity to False Alarm
- Extreme sensitivity – up to 260 ft. (80m) for a 1 ft^2 (0.1m^2) n-heptane pan fire
- Ultra-fast detection mode – detection within 40 milliseconds for fireballs or explosions
- 1.2 second detection time – for 1 ft^2 (0.1m^2) n-heptane pan fire at up to 50 ft. (15m) distance
- HD video output with Automatic HD video recording of fire events. Data/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 the overall operation of the detector
- Window heater to avoid condensation and icing
- Tilt mounting bracket can be connected either above or below the detector

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Immunity to False Alarm

False Alarm Source	Modulated		Unmodulated	
	Distance ft. (m)	Response	Distance ft. (m)	Response
Sunlight, Direct, Reflected		No Alarm		No Alarm
Incandescent frosted glass light, 300W	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Fluorescent, 70W (3x23.3W)	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Electric arc	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Arc welding	13.1 (4.0)	No Alarm	13.1 (4.0)	No Alarm
Radiation heater, 2000W	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Quartz lamp (1000W) shielded	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Quartz lamp (500W) non-shielded	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Mercury vapor lamp 160Wx3	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Exhausts	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Projector LED	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Solenoid bell	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Soldering iron	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Electric Drill	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm

Response Characteristics

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.	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
Gasoline	2 x 2 ft.	Extreme	328 (100)	5.3
Gasoline	1 x 1 ft.	Extreme	230 (70)	3.6
Gasoline	1 x 1 ft.	Medium	98 (30)	1.5
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
Diesel	1 x 1 ft.	Extreme	164 (50)	2.9
Diesel	1 x 1 ft.	Medium	79 (24)	3.9
JP5	2 x 2 ft.	Extreme	295 (90)	9.2
JP5	1 x 1 ft.	Extreme	164 (50)	5.8
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
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)	3.9
Methanol	1 x 1 ft.	Medium	75 (23)	1.2
Methanol	1 x 1 ft.	Low	39 (12)	1.2
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

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FIRE DETECTION	**Detection time and distance**	40ms for fast burst of explosion 1.5s for 1 ft^2 ($0.1m^2$) n-heptane pan fire at 0-100 ft. (0-30m) 4.1s for 1 ft^2 ($0.1m^2$) n-heptane pan fire at 100-230 ft. (30-70m)
	Field of view (IR detection)	90° Horizontal, 75° Vertical
	Time Delay	0-30 seconds
	Built in Test	Automatic or Manual
VIDEO FUNCTIONALITY	**HD Video**	Allows clear imaging of fire and humans at 100 ft. (30m) distance
	Video recording of alarm events	1-minute pre-event and 3 minutes post-event
	System integration protocol	ONVIF (Open Network Video Interface Forum) Profile S
ELECTRICAL SPECIFICATIONS	**Operating Voltage**	24 VDC nominal (18-32 VDC)
	Current Consumption	Standby: 180mA Maximum: 250mA all systems in operation (including window heater)
	Conduit Entries	2x conduit entries ¾" 14NPT or M25x1.5
	Wiring	12-20AWG ($2.5-0.35mm^2$)
OUTPUTS	**Relays**	Volt-free contacts rated 2A at 30 VDC Alarm – normally open Fault – normally closed
	0-20mA (stepped) current output	3 wire and 4 wire configurations (sink and source)
	Indication	Tri-color LED
	Modbus	RTU compatible on RS-485
	Digital (for video)	IP network IEEE 802.3 10Base-t
	Composite video	NTSC or PAL
MECHANICAL SPECIFICATIONS	**Size**	7.87 x 5.12 x 5.12" (200 x 130 x 130 mm)
	Weight	Detector (stainless steel 316): 9.8 lbs. (4.4 kg) Tilt mount (stainless steel 316): 5.4 lbs. (2.4 kg)
ENVIRONMENTAL SPECIFICATIONS	**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 99% (RH), non-condensing
	Ingress Protection	IP66 & 68; NEMA 4X & 6P
APPROVALS*	**Explosion proof**	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 Ex db IIB T5 Gb -50°C≤Ta≤75°C Ex db IIB T4 Gb -50°C≤Ta≤85°C FM & FMC Class I, Div. 1, Groups B, C & D: T4 Class I, Zone 1, AEx/Ex db IIB T4 Gb T4 -50°C≤Ta≤85°C T5 -50°C≤Ta≤75°C
	Performance	ANSI FM 3260 EN 54-10
	Functional Safety	Complies to SIL2, per IEC 61508
	DNV GL	Designed to meet standard DNVGL-CG-0339 for open deck locations Temperature Class D; Vibration Class A, B and C
	EAC CU TR	
ACCESSORIES	**Weather shield**	
	Adapters for connecting different mounts	
WARRANTY	**5 Years**	

*All products designed and tested to relevant approval standards.

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