

UV-IR-HD Flame Detector

The UV-IR flame detector provides ultra-fast response, high performance, and reliable detection of a large variety of fires, including hydrocarbon fires (visible and non-visible) and hydrogen and methane/hydrogen mixed fires. The detector uses improved UV-IR to address both slow-growing fires and fast eruptions of fire, operating in all weather and light conditions.

The detector 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 quickly stored in non-volatile memory. The recordings start one minute before detection and continue for up to four minutes. The event video can be used for post-incident investigation.



KEY BENEFITS

- High Immunity to False Alarm
- Hydrocarbon and non-hydrocarbon flame detection
- High sensitivity – up to 100 ft. (30m) for a 1 ft² (0.1m²) n-heptane pan fire
- Ultra-fast detection mode detection within 5 milliseconds for fireballs or explosions
- High speed (<0.5s) model [X5] available for compliance with NFPA 33
- HD or composite video output with automatic recording of fire events
- Data/Event logger: Alarms, faults, and other relevant events are logged to non-volatile memory
- Universal outputs, 3 and 4 wire, 4-20 mA sink/source, Fire, Auxiliary, and Fault Relays. RS485 port using Modbus RTU
- Built-in-Test (BIT) – Automatic and manual self-test of window cleanliness and overall detector operation.
- Additional dirty optics warning for preventive maintenance needs
- Ethernet communication – in addition to the standard methods, such as 4-20mA and Modbus
- HART® 7, for configuration & maintenance - option available.
- Window heater to avoid condensation and icing
- Stainless steel tilt mount with horizontal and vertical adjustment
- SIL 2 capable - option available
- Detects high UV (sparks and arcs) or IR levels via auxiliary relay and 4-20mA

ORDERING

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

^[1] Automotive / Spray booth^[2] Provides protection against dust, snow and other interferences.^[3] For PC/Laptop USB port. Includes FLS Flame Detector Communicator software.

SPECIFICATIONS

FIRE DETECTION	Detection time and distance	5ms for fast burst or explosion 1.5s for 1 ft ² (0.1m ²) n-heptane pan fire at 100 ft. (30m) <4s for 1 ft ² (0.1m ²) n-heptane pan fire at 230 ft. (70m)
	Sensitivity Range	4 sensitivity ranges: Extreme, High, Medium, Low
	Field of view (IR detection)	90° Horizontal, 80° Vertical
	Time Delay	0-30 seconds
	Built in Test	Automatic and Manual
	VIDEO FUNCTIONALITY	
VIDEO FUNCTIONALITY	HD Video	Color HD, as standard. Near-IR filtered option (X2 available on request)
	Video recording of alarm events	1-minute pre-event and up to 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)
ELECTRICAL SPECIFICATIONS	Current Consumption	Standby: 180mA Maximum: 300mA all systems in operation (including window heater)
	Conduit Entries	2x cable and conduit entries 3/4" NPT(F) or M25x1.5
	Wiring	12-20AWG (4.0-0.50mm ²)
	OUTPUTS	
OUTPUTS	Relays	SPST volt-free contacts rated 2A at 30 VDC Alarm – normally open Auxiliary – normally open Fault – normally closed
	0-20mA (stepped) current output	3 wire and 4 wire configurations (sink and source) HART® rev 7.0 (option available)
	Indication	Tri-color LED (Green, Yellow, Red)
	Modbus	RTU compatible on RS-485
	Digital (for video)	IP network IEEE 802.3 100Base-T
	Composite video	NTSC or PAL
	MECHANICAL SPECIFICATIONS	
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	
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 & 68 (2m, 24hr); NEMA 4X & 6P
APPROVALS	ATEX	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 IIC T5 Gb or Ex db eb IIC T5 Gb and Ex tb IIIC T95°C Db -50°C<Ta<75°C Ex db IIC T4 Gb or Ex db eb IIC T4 Gb and Ex tb IIIC T105°C Db -50°C<Ta<85°C
	FMus & FMc	Class I, Div. 1, Groups B, C & D; T4 Ta = -50°C≤Ta≤85°C or T5 Ta = -50°C≤Ta≤75°C Class II/III, Div. 1, Groups E, F, G; T4 Ta = -50°C≤Ta≤85°C or T5 Ta = -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 T4 Ta = -50°C≤Ta≤85°C or T5 Ta = -50°C≤Ta≤75°C and 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
	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 drops 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)

UV-IR-HD RESPONSE CHARACTERISTICS (Standard model X1 and X2)

Fuel	Size	Sensitivity	Distance ft. (m)	Average Response Time (s)
N-Heptane	1 x 1 ft.	Extreme	98 (30)	3.0
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	164 (50)	8.1
Gasoline	1 x 1 ft.	Extreme	98 (30)	2.9
Methane	32-in Plume	Extreme	59 (18)	4.8
Methane	32-in Plume	Medium	82 (25)	0.8
LPG	32-in Plume	Extreme	75 (23)	3.2
LPG	32-in Plume	High	148 (45)	2.9
LPG	32-in Plume	Medium	98 (30)	1.4
LPG	32-in Plume	Low	13 (4)	1.3
Diesel	1 x 1 ft.	Extreme	75 (23)	3.0
Diesel	1 x 1 ft.	Medium	79 (24)	3.9
JP5	1 x 1 ft.	Extreme	75 (23)	3.1
JP5	1 x 1 ft.	High	33 (10)	2.1
JP5	1 x 1 ft.	Medium	79 (24)	1.9
JP5	1 x 1 ft.	Low	39 (12)	1.2
Kerosene	1 x 1 ft.	Extreme	75 (23)	2.5
Kerosene	1 x 1 ft.	Medium	36 (11)	1.6
Methanol	1 x 1 ft.	Extreme	59 (18)	3.8
Methanol	1 x 1 ft.	High	43 (13)	1.8
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	72 (22)	3.8
Ethanol	1 x 1 ft.	Medium	75 (23)	1.6
Isopropanol	1 x 1 ft.	Extreme	75 (23)	3.0
Isopropanol	1 x 1 ft.	Medium	36 (11)	1.6
Polypropylene	1 x 1 ft.	Extreme	49 (15)	3.1
Polypropylene	1 x 1 ft.	Medium	66 (20)	2.6
Paper	1 x 1 ft.	Extreme	33 (10)	3.9
Paper	1 x 1 ft.	Medium	23 (7)	3.7
Hydrogen (H ₂)	32-in Plume	Extreme	66 (20)	3.6
Syngas (30%CH ₄ :70%H ₂)	32-in Plume	Extreme	59 (18)	3.6



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