

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

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|----------------------------|--|
| 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 |