

FlameSpec™ UV-IR-F-HD

UV-IR-F Flame Detector with HD Camera

The FlameSpec™ UV-IR-F-HD flame detector provides ultra-fast response, high performance and reliable detection of a large variety of hydrocarbon fires (visible and non-visible).

The detector addresses slow growing fires as well as fast eruptions of fire using improved UV-IR technology 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 (30 m) allowing responders to know the exact situation before entering the hazardous area.

Video and data of events are quickly stored to 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 flame detection, using IR spectrum in the 4.0 - 5.0µm range.
- High sensitivity – up to 100 ft (30 m) for a 1 ft² (0.1 m²) n-heptane fire.
- Ultra-fast detection within 5 milliseconds for fireballs or explosions.
- High speed (<0.5 s) model [X5] available for compliance with NFPA 33.
- HD or composite video output with automatic recording of fire events.
- Data/Event logger: Alarms, faults & video as well as 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.
- HART® 7, option available - for configuration and maintenance.
- Window heater to avoid condensation and icing.
- Stainless steel tilt mount with horizontal and vertical adjustment.
- Functional safety - SIL 2 capable - option available.
- Detect high UV (sparks and arcs) or IR levels via auxiliary relay & 4-20 mA.



FlameSpec™ UV-IR-F-HD delivers our fastest response for detecting hydrocarbon fires and explosions, providing the extra, extremely valuable time that, in many cases, can make all the difference.

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Model: FLS-UV-IR-F-HD

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Response Characteristics

| Fuel | Size | Sensitivity | Distance ft (m) | Avrg Resp.Time (s) |
|--|-------------|-------------|-----------------|--------------------|
| n-Heptane | 1 x 1 ft | Extreme | 98 (30) | 3.2 |
| n-Heptane | 1 x 1 ft | High | 75 (23) | 1.6 |
| n-Heptane | 1 x 1 ft | Medium | 49 (15) | 1.4 |
| n-Heptane | 1 x 1 ft | Low | 16 (5) | 0.9 |
| Gasoline | 2 x 2 ft | Extreme | 197 (60) | 5.3 |
| Gasoline | 1 x 1 ft | Extreme | 98 (30) | 3.4 |
| Gasoline | 1 x 1 ft | Medium | 49 (15) | 2.7 |
| Methane | 32-in Plume | Extreme | 59 (18) | 1.6 |
| Methane | 32-in Plume | Medium | 30 (9) | 0.9 |
| LPG | 32-in Plume | Extreme | 75 (23) | 1.2 |
| LPG | 32-in Plume | High | 56 (17) | 1.6 |
| LPG | 32-in Plume | Medium | 33 (10) | 1.3 |
| LPG | 32-in Plume | Low | 13 (4) | 1.0 |
| Diesel | 1 x 1 ft | Extreme | 75 (23) | 4.3 |
| Diesel | 1 x 1 ft | Medium | 36 (11) | 1.6 |
| JP5 | 1 x 1 ft | Extreme | 75 (23) | 7.0 |
| JP5 | 1 x 1 ft | High | 56 (17) | 2.3 |
| JP5 | 1 x 1 ft | Medium | 36 (11) | 1.5 |
| JP5 | 1 x 1 ft | Low | 16 (5) | 2.6 |
| Kerosene | 1 x 1 ft | Extreme | 75 (23) | 2.9 |
| Kerosene | 1 x 1 ft | Medium | 36 (11) | 1.4 |
| Methanol | 1 x 1 ft | Extreme | 59 (18) | 3.6 |
| Methanol | 1 x 1 ft | Medium | 30 (9) | 1.3 |
| Ethanol | 1 x 1 ft | Extreme | 72 (22) | 4.5 |
| Ethanol | 1 x 1 ft | Medium | 31 (9.5) | 1.2 |
| Isopropanol (IPA) | 1 x 1 ft | Extreme | 75 (23) | 2.8 |
| Isopropanol (IPA) | 1 x 1 ft | Medium | 36 (11) | 1.4 |
| Polypropylene | 1 x 1 ft | Extreme | 49 (15) | 1.8 |
| Polypropylene | 1 x 1 ft | Medium | 23 (7) | 1.7 |
| Paper | 1 x 1 ft | Extreme | 33 (10) | 2.6 |
| Paper | 1 x 1 ft | Medium | 23 (7) | 2.0 |
| Syngas (30%CH ₄ , 70%H ₂) | 32" plume | Extreme | 66 (20) | 1.0 |
| Syngas (30%CH ₄ , 70%H ₂) | 32" plume | Medium | 33 (10) | 1.2 |

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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 response | | No response | |
| Incandescent frosted glass light, 300 W | 2.0 (0.5) | No alarm | 2.0 (0.5) | No alarm |
| Fluorescent, 70 W (3 x 23.3 W) | 2.0 (0.5) | No alarm | 2.0 (0.5) | No alarm |
| Electric arc | 2.0 (0.5) | No alarm | 2.0 (0.5) | No alarm |
| Arc welding | 10.0 (3.0) | No alarm | 10.0 (3.0) | No alarm |
| Radiation heater, 2000 W | 2.0 (0.5) | No alarm | 2.0 (0.5) | No alarm |
| Halogen lamp (500 W) non-shielded | 10.0 (3.0) | No alarm | 10.0 (3.0) | No alarm |
| Halogen lamp (1000 W) | 2.0 (0.5) | No alarm | 2.0 (0.5) | No alarm |
| Mercury vapor lamp 160 W x 3 | 2.0 (0.5) | No alarm | 2.0 (0.5) | No alarm |
| Exhausts | 2.0 (0.5) | No alarm | 2.0 (0.5) | No alarm |
| Projector led | 2.0 (0.5) | No alarm | 2.0 (0.5) | No alarm |
| Solenoid bell | 2.0 (0.5) | No alarm | 2.0 (0.5) | No alarm |
| Soldering iron | 2.0 (0.5) | No alarm | 2.0 (0.5) | No alarm |
| Electric drill | 2.0 (0.5) | No alarm | 2.0 (0.5) | No alarm |

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| | | |
|--|---|--|
| FIRE DETECTION | Detection Time and Distance | 5 ms for fast burst of explosion 1 s for 1 ft ² (0.1 m ²) n-heptane pan fire at 0 – 50 ft (0 – 15 m) < 3 s for 1 ft ² (0.1 m ²) n-heptane pan fire at 50 – 100 ft (15 – 30 m) |
| | 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 | HD Video |
| Video Recoding 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) |
| | Current Consumption | Standby: 180 mA Maximum: 300 mA (including window heater) |
| | Electrical Entries | 2x cable and conduit entries 3/4" NPT(F) or M25 x 1.5 |
| | Wiring | 14 - 17 AWG (2.5 – 1.0 mm ²) |
| OUTPUTS | Relays | SPST volt-free contacts rated 2A at 30 VDC 3 relays: Alarm & Auxiliary – normally open; Fault – normally closed |
| | 0-20 mA (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 | 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 +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 T6 Gb or Ex db eb IIC T6 Gb and Ex tb IIIC T85°C Db -55°C<Ta<60°C 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 & PESO | Ex db IIC T6 Gb or Ex db eb IIC T6 Gb and Ex tb IIIC T85°C Db -50°C<Ta<60°C 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 -50°C≤Ta≤85°C or T5 -50°C≤Ta≤75°C or T6 -50°C≤Ta≤60°C Class II/III, Div. 1, Groups E, F, G; T4 -50°C≤Ta≤85°C or T5 -50°C≤Ta≤75°C or T6 -50°C≤Ta≤60°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 Class I, Zone 1, AEx/Ex db IIC T6 Gb or Class I, Zone 1, AEx/Ex db eb IIC T6 Gb -50°C≤Ta≤60°C Zone 21, AEx/Ex tb IIIC T105°C Db -50°C≤Ta≤85°C or Zone 21, AEx/Ex tb IIIC T95°C Db -50°C≤Ta≤75°C or Zone 21, AEx/Ex tb IIIC T80°C Db -50°C≤Ta≤60°C |
| | Performance | ANSI FM 3260 EN 54-10 |
| | Functional Safety | Certified SIL2 capable, per IEC 61508:2010 High & Low demand (option available) |
| | ACCESSORIES | Tilt mount, model FLS-TMO-S02 |
| 2" & 3" pole mount adapter, model FLS-PMA-S23 | | Airshield, model FLS-ASD-S02 |
| Duct mount with window, model FLS-DMW-S02 | | Duct mount for airshield, model FLS-DMX-S02 |
| Weather cover, model FLS-WCO-S02 | | |
| WARRANTY | 5 years | |