

FlameSpec UV-IR-HD

UV/IR Flame Detector



The FlameSpec UV-IR-HD detector offers extremely reliable and fast detection of fires and explosions, providing the additional, extremely valuable time that, in many cases, can make all the difference

Introduction

The FlameSpec-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), as well as Hydrogen fires. The detector addresses slow growing fires as well as fast eruptions of fire using improved UV-IR technology. The detector operates in all weather and light conditions.

The detector provides high-definition (HD) video output of the monitored area with clear imaging of a fire event and of personnel at distances 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 UV-IR flame detection and you have a very powerful safety tool to protect your personnel, plant and process.

Key Benefits

- High immunity to False Alarm
- Ultra-fast detection mode detection within 5 milliseconds for fireballs or explosions
- Hydrogen and Hydrocarbons flame detection
- High sensitivity – up to 100 ft. (30m) for a 1 ft² (0.1m²) n-heptane pan fire
- 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
- Ethernet communication – in addition to the standard methods, such as 4-20mA and Modbus
- Built-in-Test (BIT) – Automatic and manual internal self-test of window cleanliness and the overall operation of the detector (for both IR and UV channels)
- Window heater to avoid condensation and icing
- Tilt mounting bracket can be connected either above or below the detector
- UV and IR warning levels – 0-20mA – Current output warning when elevated UV or IR radiation is detected.

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Model: FLS-UV-IR-HD

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 | 7.0 (2.0) | No Alarm | 7.0 (2.0) | No Alarm |
| Radiation heater, 1850W | 2.0 (0.6) | No Alarm | 2.0 (0.6) | No Alarm |
| Quartz lamp (500W) non-shielded | 10.0 (3.0) | No Alarm | 3.0 (1.0) | 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 |

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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) | 3.0 |
| N-Heptane | 1 x 1 ft. | Medium | 49 (15) | 1.5 |
| 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 |
| LPG | 32-in Plume | Extreme | 75 (23) | 3.2 |
| LPG | 32-in Plume | Medium | 33 (10) | 0.6 |
| Diesel | 1 x 1 ft. | Extreme | 75 (23) | 3.0 |
| JP5 | 1 x 1 ft. | Extreme | 75 (23) | 3.1 |
| JP5 | 1 x 1 ft. | Medium | 79 (24) | 2.1 |
| Kerosene | 1 x 1 ft. | Extreme | 75 (23) | 2.5 |
| Methanol | 1 x 1 ft. | Extreme | 59 (18) | 3.8 |
| Methanol | 1 x 1 ft. | Medium | 26 (8) | 2.2 |
| Ethanol | 1 x 1 ft. | Extreme | 72 (22) | 3.8 |
| Isopropanol | 1 x 1 ft. | Extreme | 75 (23) | 3.0 |
| Polypropylene | 1 x 1 ft. | Extreme | 49 (15) | 3.1 |
| Paper | 1 x 1 ft. | Extreme | 33 (10) | 3.9 |
| H ₂ | 32-in Plume | Extreme | 66 (20) | 3.6 |

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| | | | |
|------------------------------|--|--|--|
| FIRE DETECTION | Detection time and distance | 5ms for fast burst of explosion 1.5s for 1 ft ² (0.1m ²) pan fire at 0–50 ft. (0–15m) <3s for 1 ft ² (0.1m ²) pan fire at 50–100 ft. (15–30m) | |
| | Field of view (IR detection) | 90° Horizontal, 80° Vertical | |
| | Time Delay | 0–30 seconds | |
| | Built in Test | Automatic and Manual | |
| VIDEO FUNCTIONALITY | HD Video | Allows clear imaging of fire and humans at 100 ft. (30m) distance | |
| | Video recording of alarm event | 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 3/4" 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" (200x130x130mm) | |
| | 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 (2m, 24hr); 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 eb IIB T5 Gb or Ex db IIB T5 Gb -50°C≤Ta≤75°C Ex db eb IIB T4 Gb or 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 (pending) | |
| | Functional safety (pending) | SIL2, per IEC 61508 | |
| | DNV GL (pending) | Standard DNVGL-CG-0339 for open deck locations Temperature class D; Vibration Class A, B and C | |
| | EAC CU TR (pending) | | |
| | ACCESSORIES | Weather shield | |
| | | Adapters for connecting different mounts | |
| | WARRANTY | 5 Years | |

*All products designed and tested to relevant approval standards