

UV/IRS Flame Detector

Ultraviolet and Infrared Optical Sensors

The UV/IRS (Ultraviolet/Infrared) flame detector delivers exceptional performance with many distinct functions and features. Two precise spectrums of radiation must be recognized and confirmed by highly tuned sensors for the UV/IRS to initiate a fire condition. This accurate and reliable flame monitoring technology combined with immunity to arc welding, hot body radiation, lightning, and sunlight greatly reduces costly false alarms while providing critical safety performance to your site and personnel.

- Two radiation wavelengths necessary for alarm – minimizing false alarm events
- Low power consumption increases uptime and lowers overall costs
- Manual and automatic testing of optical surfaces
- Global certifications and approvals
- Wide voltage range allows for greater stability and system compatibility
- Field-selectable sensitivity and delay settings allows operators to fine tune at installation site
- Wide area coverage, extended range with fast response times
- Analog, relay, RS-485 digital Modbus, and HART® outputs available
- Three year warranty electronics/two years on sensors



Enclosed in a rugged, explosion-proof housing, the UV/IRS flame detector uses the latest in modular microprocessor and Ultraviolet/Infrared sensor technology – delivering accurate and reliable monitoring for hydrocarbon based fires. It is capable of standalone operation or can be connected to a variety of networked safety systems to create a dependable fire monitoring system.

The UV/IRS flame detector has many unique features which make it one of the industries best: an extra wide field of view – up to 120 °C; user defined sensitivity and time delay settings can be completed in the field with no special tools required; one of the lowest power consumption levels and widest voltage range available on the market.

The UV/IRS flame detector is simple to operate and maintain while delivering all the security and performance required for high-risk, industrial installations!

Specifications

Table 1 - UV/IRS Flame Detector

| | Analog | Relay | HART® |
|--|--|--|--|
| Operating Voltage Range | 10 to 32 VDC | | |
| Power Consumption at 24 VDC *with Heater | Nom 45 mA/1.1 W Max 115 mA/2.76 W *Nom 90 mA/2.16 W *Max 165 mA/3.96 W | Nom 45 mA/1.1 W Max 115 mA/2.76 W *Nom 90 mA/2.16 W *Max 165 mA/3.96 W | Nom 71 mA/1.7 W Max 173 mA/3.36 W *Nom 106 mA/2.22 W *Max 223 mA/5.36 W |
| Power Consumption at 32 VDC *with Heater | Nom 35 mA/1.12 W Max 105 mA/3.36 W *Nom 70 mA/2.24 W *Max 145 mA/4.64 W | Nom 35 mA/1.12 W Max 105 mA/3.36 W *Nom 70 mA/2.24 W *Max 145 mA/4.64 W | Nom 57 mA/1.72W Max 158 mA/5.06 W *Nom 92 mA/2.84 W *Max 198 mA/6.34 W |
| Temperature Range | Certified -40 °C to +75 °C (-40 °F to +167 °F) | | |
| Field of View | 120° horizontal/95° vertical | | |
| Spectral Range | UV Radiation 185 to 260 nm (1850 to 2600 angstroms) IR Radiation in the 4.4 µm range | | |
| Time Delay | DIP switch selectable to 0, 3, 5, 7 s | | |
| Sensitivity Settings | DIP switch selectable to 8, 16, 24 or 32 counts per s | | |
| Response Time | < 6 seconds [depending on fuel source, fire size and distance] | | |
| Enclosure Material | Red powder coated with clear anodizing, 6061 aluminum (optional 316 stainless steel), factory sealed housing | | |
| Humidity Range | 0 to 95 % RH, non-condensing | | |
| Weight (with Swivel) | 2.1 kg/4.5 lb (Stainless Steel option 3.4 kg/7.5 lb) - does not include junction boxes | | |
| Outputs | 0 to 20 mA (±0.2 mA) - Into a maximum loop impedance of 800 ohms or 150 ohms at 11.0 VDC Non-isolated loop supply | Form C contacts rated 1 A at 30 VDC, 0.5 A at 125 VAC Selectable energized/de-energized, latching/non-latching Fire relay Fault relay factory set as energized/non-latching, cannot be modified | HART® |
| Certifications/Approvals | CSA - Class I, Division 1, Groups B, C and D - Temperature code T5 - CANADA: Class I, Zone 1, Ex d IIB + H2 T5 ANSI/UL - Class I, Division 1, Groups B, C and D - Temperature code T5 - UNITED STATES: Class I, Zone 1, AEx d IIB + H2 T5 ATEX/IECEX - Ⓜ II 2 G Ex d II B+H2 T5 Gb FM approved per approval standard 3260 Audit finding: 10-December 2014 | | |
| Warranty | Three years electronics/Two years sensors | | |

Table 2 - Ordering Information

| | | |
|-------------------|---|--|
| UV/IRS | 4–20 mA analog output (JB-MPS-A/S included) | Additional Approvals: –X (ATEX/IECEX) Enclosure Material: Stainless Steel (–SS) [Aluminum is Standard] Additional Features: –H (Heated Optics) |
| UV/IRS-AR | 4–20 mA analog output with a fire and fault alarm relay (JB-MPR-A/S included) | |
| UV/IRS-AH | 4–20 mA analog output and HART® (JB-MPHF-A/S included) | Ordering Matrix Example: UV/IRS-AHR-X-SS-H (Detector - Output - Additional Approval - Enclosure Material - Optional Features) |
| UV/IRS-AHR | 4–20 mA analog output and fire and fault alarm relays and HART® (JB-MPHFR-A/S included) | |

Separation Boxes & Accessories

Table 2 - Summary of Distances

| Fuel | Fire Size | Typical Response |
|-----------|-------------|--------------------------------|
| n-heptane | 1 ft x 1 ft | < 11 s @ 140 ft |
| Gasoline | 1 ft x 1 ft | < 6 s @ 120 ft (< 3 s @ 50 ft) |
| Methane | 32 in plume | < 6 s @ 100 ft |

Table 3 - Immunity False Alarm Stimuli

| Stimuli | Immunity Range |
|-----------------------------|----------------|
| Direct/indirect sunlight | Total |
| 1500 W heater | 10 ft |
| Halogen, incandescent light | 3 ft |
| Florescent light | 10 ft |
| Arc welding | 30 ft |

Figure 1 - Example Field of View - Methane

32" plume - indicated in feet - consult factory for other gases

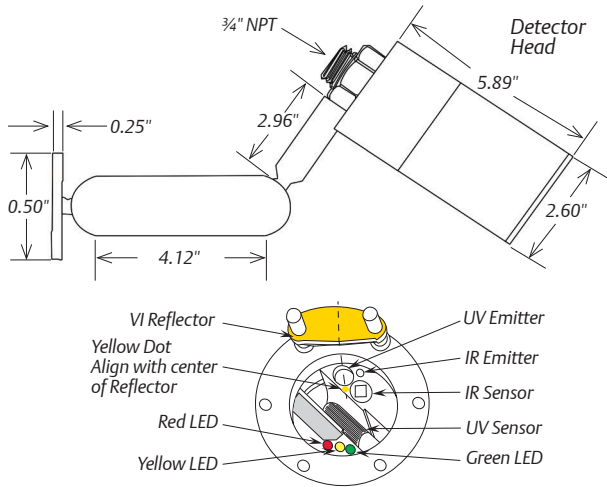
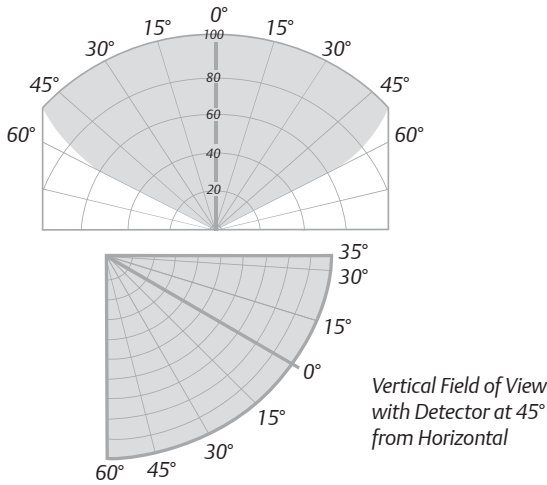


Table 4 - Termination Boxes

Class I, Division 1, Groups BCD - Class I, Zone 1 – Enclosure rated NEMA 4X, IP67

| | |
|-------------------|--|
| JB-MPS-A/S | Termination box - analog output - switch (for remote MVI testing) and test jacks - aluminum or stainless steel |
|-------------------|--|

Table 5 - Accessories

| | |
|--------------------|--|
| LAT-120 | Laser alignment tool assembly - used to define area of coverage for all flame detectors |
| AIR-SHIELD | Air shield assembly (aluminum). supplied clean instrument air keeps lens clear in areas with heavy airbourne particulate |
| HPT-001 | HART communicator port - intrinsically safe connection mounts to connected JB-MPHF and JB-MPHFR |
| FH-SHROUD | Field of view restrictor anodized (red) for "S" series fire detectors (aluminum) |
| UN-MK-41 | One inch pipe mounting kit - stainless steel |
| UN-MK-42 | Two inch pipe mounting kit - stainless steel |
| UN-MK-43 | Three inch pipe mounting kit - stainless steel |
| SSK-4 | Sunshade kit/rain guard for "S" series flame, stainless steel - mounts directly to flame detector |
| SSK-1 | Sunshade kit for "S" series flame, stainless steel - mounts directly to flame detector |
| TL-MP-KIT | Universal test lamp kit - certified rechargeable hand-held unit - produces accurate fire simulation (UV and IR sources) |
| TL-MP-KIT-X | Universal test lamp kit [ATEX] - certified rechargeable hand-held unit - produces accurate fire simulation (UV and IR sources) |

EmersonProcess.com/FlameGasDetection

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