



The state-of-the-art multi-spectral infrared technology of ESP Safety's Model **IPES-IR3** Flame Detector affords the highest sensitivity in detecting flames from combustible vapors and gases within a wide field of view. It is preferred where UV in other detectors may be a problem with false signal triggers.

IPES-IR3's advanced detection technology ensures rapid flame recognition and alarm signaling. In addition, **IPES-IR3's** selective, multi-spectral technology virtually eliminates false alarms. It ignores false triggers from sources such as direct or indirect sunlight, arc welder flashes, resistive heaters, fluorescent, halogen, and incandescent light.

IPES-IR3 sends an alarm only when data from three different IR wavelengths agree that a flame or fire is present in the field of view. Upon confirmation of flame or fire, the **IPES-IR3** transfers alarm signals to receiving control devices located in control and operations rooms and to fire alarms and burglar/fire alarm systems.

While operating, the **IPES-IR3** transmits detector-status information via:

- Source analog 4-20mA output
- A standard RS-485 communication channel under Modbus RTU protocol
- HART Communication
- Relay outputs

The **IPES-IR3** Flame Detector is constructed with an explosion-proof housing for use in hazardous (classified) locations.

Features and Benefits

- Multi-spectral IR detection provides the highest level of flame and fire sensitivity.
- Multi-spectral IR detection provides optimal rejection of false alarms.
- Power-on self-test and frequent sensor self-test ensure system integrity and correct operation.
- Heated optics, secondary heater function helps to prevent condensation problems.
- Explosion-proof package allows for hazardous environment operation.
- Tri-color status LED on the device is easily viewable for a visual report of the device's operating status.
- Continuous monitoring of the optical path for obstruction or reduced transmission affords maximum reliability.
- Power consumption of <3W means low power costs, protection against surges.
- Digital, analog and relay outputs provide reliable status information across a range of communication formats.
- Industry standard for remote alarm and fault indication ensure reliability and consistency.
- Extended detection range provides a greater area of protection.
- Expected life > 10 years
- 5-year warranty — long, reliable product life; low cost to operate over time.

Applications

- Drilling and production platforms
- Shipping tankers, freighters, and other vessels
- Fuel loading facilities
- Refineries, bulk terminals, and tank farms
- LNG/LPG processing and storage facilities
- Compressor stations and pipeline facilities
- Petrochemical, paint, and fertilizer plants
- Power plants and gas turbine facilities
- Transportation facilities (airports and subways)
- Oil and gas fired boilers / furnaces
- Aircraft hangars

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ELECTRICAL SPECIFICATION

| | | |
|--------------------|---|-----------------|
| Supply Voltage | +24VDC Nominal (+18 to 32 VDC) | |
| Power Consumption | Standby | <2 W |
| | Alarm | <3 W |
| | with heater on maximum | <7.5 W |
| Analog Outputs | Analog Signal 4-20mA sourcing NAMUR NE43 | |
| | Circuit Opening | 0 mA ± 0.1 mA |
| | Dust/blockage/Fault signal | 2 mA ± 0.1 mA |
| | Normal / Standby Mode signal | 4 mA ± 0.1 mA |
| | Fire signal | 18 mA ± 0.1 mA |
| | Self-Test-Every 35 minutes | 4.1 mA ± 0.1 mA |
| HART Communication | Compatible with HART Protocol 7 | |
| Digital Outputs | RS 485, Modbus RTU | |
| Relay Contact | Fire Alarm: One normally open / normally closed (NO/NC) user selectable, latching or non-latching. Fault: One normally open / normally closed (NO/NC) user selectable Normally Energized | |
| Wiring | 14 AWG (2.5 sq.mm) or 16 AWG (1.5 sq.mm) Shielded cable is recommended | |
| Terminals | 14 AWG - 2.5 sq.mm | |

FUNCTIONAL SPECIFICATION

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|---------------------------|--|
| Wavelengths | 4.0 to 5.0µm |
| Detector Range-Distance | Maximum 210 feet (64meters), Minimum 41 feet (12.5meters) depending on detected fuel |
| Cone of Vision | 90 degrees (Horizontal / Vertical) |
| Response Time | 3 sec. typically |
| Optical Integrity | Automatic and Manual built-in test |
| Local Indication | Alarm status indication - LED indicator |
| Self Test and Diagnostics | Self-Test-Every 35 minutes |
| False Alarm Immunity | Integrated |

MECHANICAL SPECIFICATION

| | |
|--------------------|---|
| Material | 316 SS Electropolished Marine Grade 6061 aluminum alloy RAL3000 |
| Conduit Connection | Two (2) M20 X 1.5, (¾" NPT with adapter) |
| Dimensions | 3.94"x 9.08"x 14.2" (with Mounting Bracket) 100 x 231 x 361 mm (with Mounting Bracket) |
| Weight | 316 SSL: 11 lbs (5 kg) Aluminum: 5.5 lbs (2.5 kg) |
| Ingress Protection | IP66 |
| Warranty | 5 years |

ENVIRONMENTAL SPECIFICATION

| | |
|---|--|
| Operating Temperature | -40°F to +185°F (-40°C to +85°C) |
| Extended Operating Temperature (By Request) | -76°F to +257°F (-60°C to +125°C) |
| Storage Temperature | -76°F to +185°F (-60°C to +85°C) |
| Humidity | 0 to 95% relative humidity (can withstand 100% condensing humidity for short periods of time) - tropicalized/conformal coated electronics G3 |

PERFORMANCE

| | |
|--------------------------------|-----------------------------------|
| EMC/RFI | Complies with IEC 61000-6-2 and 4 |
| Performance reference standard | According to FM3260 and EN54-10 |

APPROVALS

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|---------------|--|
| North America | FM: Class I, Division 1 Groups B, C & DT4 Ta = -40°F to +167°F (-40°C to +75°C), IP66 ABS: Class I, Division 1 Groups B, C & D T4 Ta = -40°F to +167°F (-40°C to +75°C), IP66 |
| European | ATEX: Ex d IIC T4 -40°F to +185°F (-40°C to +85°C) CE Mark for EMC (TUV), CE Mark for IECEx, IP66 |
| International | IEC, IECEx: Ex d IIC T4 -40°F to +185°F (-40°C to +85°C) IP66 |
| EN Standard | EN 54-10:2002 + A1 :2005 |
| SIL Rating | IEC61508 SIL Assessment SIL 3 |
| UAE | ECAS-Ex |

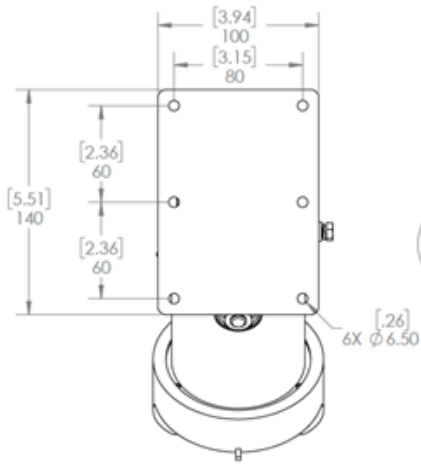
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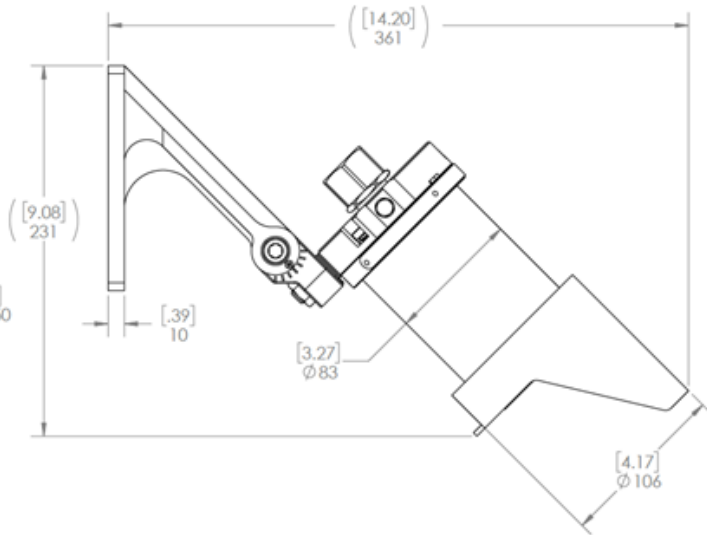
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GENERAL ARRANGEMENT DRAWING

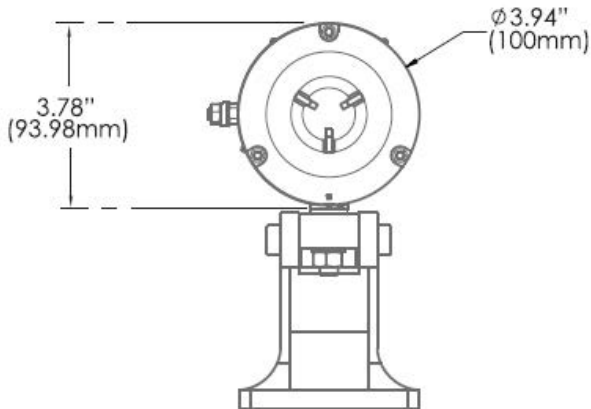


Back View

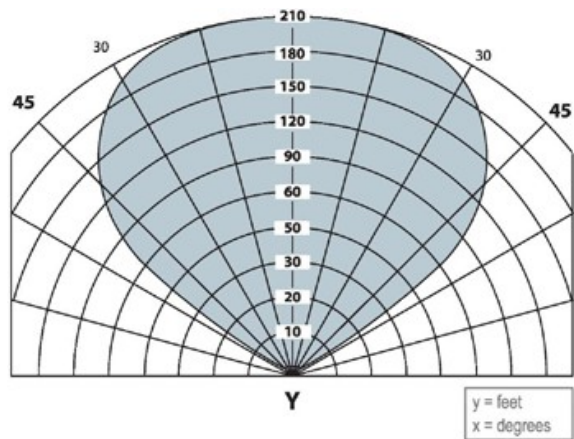


Side View

DETECTION CONE OF VISION



Front View



Viewing Angle

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SKU parts included in each configuration:

- P/N 125-0005 Visor
- P/N 125-0019 Mounting Bolts (qty 4)
- P/N 125-0003 ± 45° adjustable Mounting Bracket

Accessories:

- P/N 125-0041-CS Universal 2" Pole mounting plate
Includes Steel Galvanized Mounting and U-bolts for 2" Pole mount (Q.ty 2)
- P/N 125-0041-SS Universal 2" Pole mounting plate
Includes SS316L Mounting Plate and U-bolts for 2" Pole mount (Q.ty 2)
- P/N 120-0092-AL Awning Shield GRP
- P/N 120-0092-SS Awning Shield Stainless Steel
- P/N 120-0084-AL Vortex Air Shield Aluminum
- P/N 120-0085 Vortex Air Shield Stainless Steel
- P/N 120-0027 Plug M20**
- P/N 120-0026 M20 male to 3/4 NPT female reducer**

(**) adapters and plugs are available in nickel-plated brass and stainless steel

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Spare Part:

- P/N 125-0005 Protective Visor for Flame Detector
- P/N 125-0019 Mounting Bolts (Qty 4)
- P/N 125-0003 IPES Mounting Bracket, Stainless Steel
- P/N 333-0037 Terminal Block IPES Connector

Tools:

- P/N 120-0006 Magnetic Collar
- P/N 120-0077 4 mm Hex Wrench
- P/N 120-0093 Field of View Alignment Tool
- P/N 120-0007 ITES Dual emission source test flashlight for flame detector
- P/N 260-0009 Cable Assembly, HART Communicator

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