



## ESP SAFETY INC

Technology of the Future  
Protection for Today

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 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 flash, 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:

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

The IPES-IR3 Flame Detector is constructed with an explosion-proof housing for use in hazardous (classified) locations. It meets the certifications and requirements of Class I, Division 1, Group B, C & D, T4.

**SIL3** RATED



# IPES IR3 FLAME DETECTOR

## 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

## 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.
- 5-year warranty – long, reliable product life; low cost to operate over time.

## AUTHORIZED DISTRIBUTOR

GasDetectorsUSA.com - Houston, Texas USA  
sales@GasDetectorsUSA.com - 832-615-3588

Certifications



**APPROVED**  
Class I, Division 1  
Groups B, C & D  
T4 Ta = -40°F to +167°F  
(-40°C to +75°C)  
IP66



Ex d IIC T4  
-40°F to +185°F  
(-40°C to +85°C)  
CE Mark for EMC (TUV)  
CE Mark for IECEx  
IP66



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Response Time

Fuel	Size	Distance Feet (M)	Typical Response Time (Sec.)
n-Heptane	1 ft x 1 ft	210 (64.0)	6.0
Methanol	1 ft x 1 ft	150 (45.7)	7.0
JP5	2 ft x 2 ft	210 (64.0)	4.5

Field of View

Fuel	Horizontal (left)	Horizontal (right)	Vertical (up)	Vertical (down)	Min. Distance Feet (down)	Avg Time
n-Heptane	50°	50°	50°	50°	56.1 (17.1)	3 sec.
Methanol	50°	50°	50°	50°	41.0 (12.5)	3 sec.
JP5	50°	50°	50°	50°	82.0 (25.0)	3 sec.

Electrical Characteristics

**Operating Voltage** 18 to 32 VDC

**Power consumption** <2 W, standby  
<3 W, during alarm  
<7.5 W, with heater on maximum

**Analog Outputs** 4-20mA  
*Analog signal*      *Current*  
 Fault signal          2 mA ± 0.1 mA  
 Ready signal          4 mA ± 0.1 mA  
 Fire signal            18 mA ± 0.1 mA  
 Test Mode             8 mA ± 0.1 mA

**Digital Outputs** RS 485, Modbus RTU, Profibus

**Relay Contact** Fire Alarm:  
 - normally open relay  
 - closed on fire detection  
 - latching or non-latching  
 Fault:  
 - normally closed relay  
 - open on fault detection

**Operating Temperature** -40°F to +185°F (-40°C to +85°C)

**Extended Operating Temperature (By Request)** -75°F to +255°F (-60°C to +125°C)

**Storage Temperature** -76°F to +185°F (-60°C to +85°C)

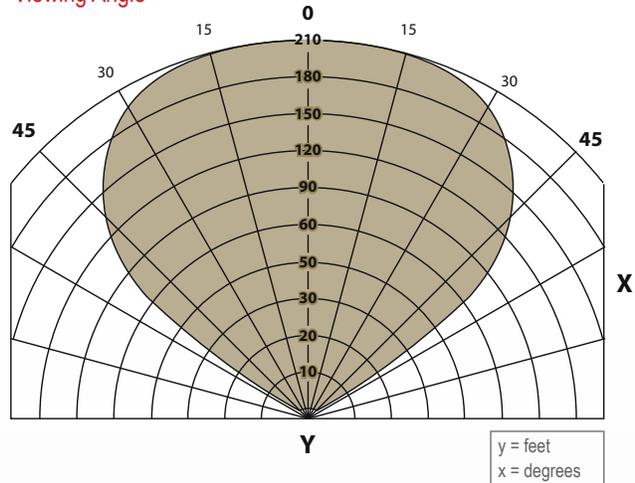
**Humidity** Up to 95 % Relative humidity, non-condensing (withstands up to 100% RH for short periods)

**Wiring** 14 AWG (2.08 mm2) or 16 AWG (1.31 mm2)  
Shielded cable is recommended

**SIL Rating** SIL 3

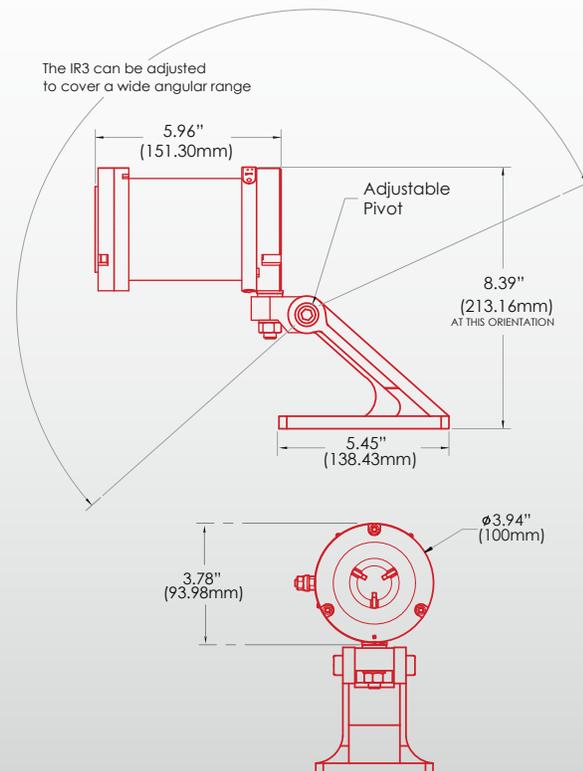
**Ingress Protection** IP66

Viewing Angle



Dimensions

in inches (millimeters)



Mechanical Characteristics

**Material** 316 Stainless Steel

**Cable Entry** 3/4" NPT

**Weight** 11 lbs (5.0 kg)

**Warranty** 5 years

FLAME DETECTOR

IPES IR3

