ESPSafety

IPES IR/UV

FLAME DETECTOR

SIL3 CERT

ESP Safety's Model **IPES-IR/UV** Flame Detector provides superior sensitivity forfires from oil and petrochemical products. It is also indicated fora wide range of other fire types including metal fires.

IPES-IR/UV's advanced detection technology includes optical filters configured for maximum sensitivity to radiation produced by flame or fire and ensures rapid flame recognition and alarm signaling. Upon fire recognition within its field of view, the **IPES-IR/UV** signals a change in state from normal operation to fire in any OEM or proprietary alarm and response system.

In addition, via integrated ultraviolet **(UV)** and infrared **(IR)** sensors, the **IPES-IR/UV** monitors in specific regions of both spectral ranges. In the infrared spectrum, the device is configured for sensitivity to wavelengths in the range of 3 -5 microns, allowing optimal sensitivity to combustible gas fires while rejecting false signals from incandescent lamps, sunlight and hot objects. For ultraviolet **(UV)** radiation, the device is configured for sensitivity in the range of 180 to 250 nanometers, making the sensor "blind" to sunlight and radiation from heated objects but still able to "see" the UV radiation emitted by a flame. With these settings, the **IPES-IR/UV** detects and alarms for only those characteristic wavelength emissions from the **UV** and **IR** spectrum that indicate actual flame or fire.

The combination of multiple sensors and wavelength range settings makes the **IPES-IR/UV** an excellent choice for elimination of false positive indicators caused by non-flame sources of radiation such as artificial lighting, direct and indirect sunlight, lightning, are welding and metal grinding.
While operating, the **IPES-IR/UV** generates detector-status information via:

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

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

Features and Benefits

- 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
- Automatic and manual self-tests ensure system integrity and correct operation
- Continuous monitoring of the optical path to obstruction or reduced transmission affords maximum reliability
- Industry standard tor remote alarm and fault indication
- Combines both IR sensor configuration and UV sensor configuration
- Color status LED
- Explosion-proof package allows tor hazardous environment operation
- Heated optics, secondary heater function helps to prevent condensation problems
- 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	Analogue Signal 4-20mA sourcing NAMUR NE43 (sinking configuration available on request)	
	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 25 to 45 minutes	4.1 mA ± 0.1 mA
HART	Compatible w HART Protocol7	
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	
Wavelengths	4.2 to 4.6µm (IR) - 180 to 250µm (UV)
Detector Range-Distance	Maximum 100 feet (30meters), depending on detected fuel
Cone of Vision	90 degrees (Horizontal / Vertical) *120 degrees field of view version available by request.
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 25 to 45 minutes
False Alarm Immunity	Integrated

MECHANICAL SPECIFICATION	
Material	316SSL 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

ENVIROMENTAL 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	
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 (pending)

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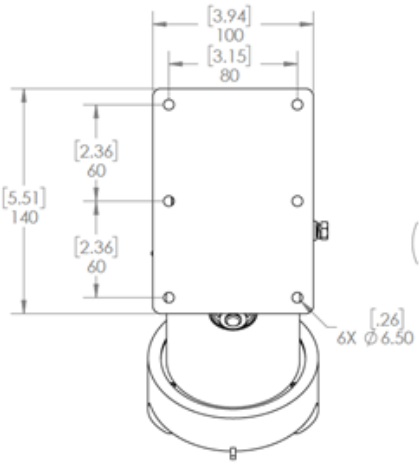
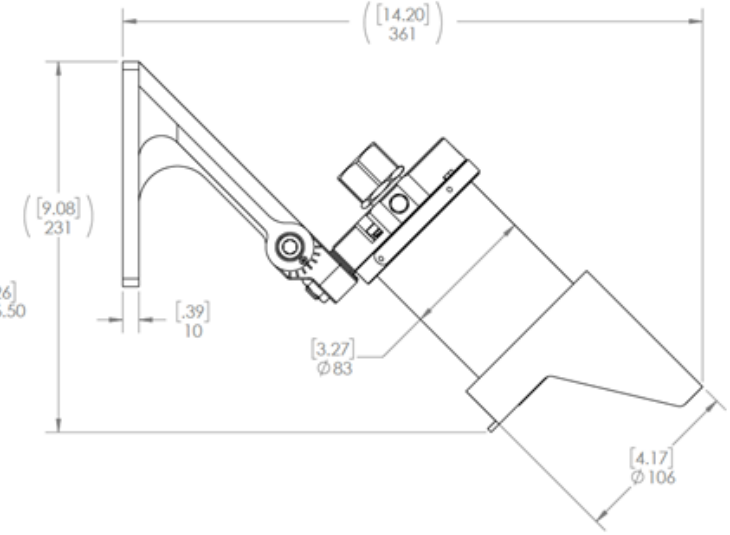
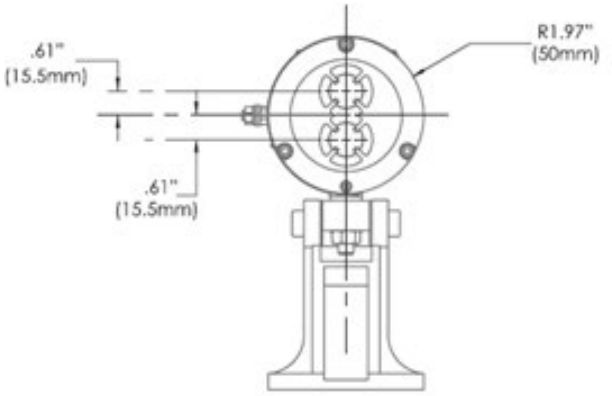
GENERAL ARRANGEMENT DRAWING



Back View

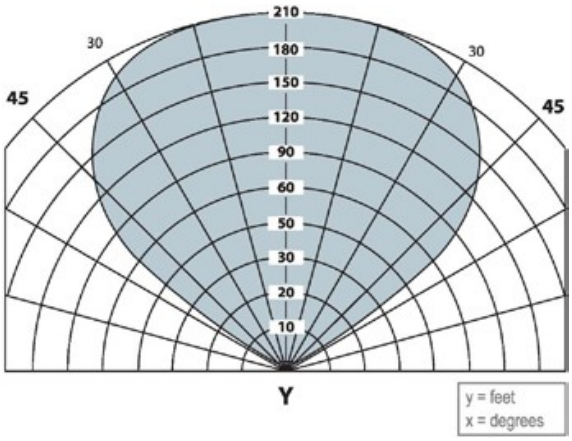


Side View



Front View

DETECTION CONE OF VISION



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

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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