

FLAME DETECTORS



Protects **Personnel, Plant
& Assets**



A HIGHLY SENSITIVE INSTRUMENT TO DETECTS FLAMES / ELECTRIC SPARKS, IN ENVIRONMENTS WHERE CATASTROPHIC CONSEQUENCES COULD RESULT.

TECHNOLOGY :

HNL Fixed Flame Detectors are high-performance optical fire detection systems designed for rapid and reliable flame recognition in environments where combustible gases, hydrocarbons, or explosive materials are present. These detectors provide early-stage fire detection by sensing ultraviolet and/or infrared radiation emitted during combustion, enabling faster response and minimizing risk to personnel, equipment, and infrastructure.

The detector range is suitable for both indoor and outdoor hazardous areas and is available in UV, IR, UV-IR, IR3, and UV-IR3 technologies.

SPECIAL FEATURES :

- Fast flame detection response
- Suitable for hydrocarbon and hydrogen fires
- High immunity to false alarms
- Weatherproof and explosion-proof construction
- Relay and 4–20 mA outputs
- MODBUS communication support (optional)
- Automatic optical self-test
- Wide operating temperature range
- Rugged industrial-grade aluminium housing

APPLICATIONS :

- Wherever highly combustible material are involved
- Where there is a need for instantaneous response to flame
- Whenever unsupervised areas require automated fire protection
- Whenever there is a large capital investment to be protected

HNL SYSTEMS PVT. LTD.

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UV 250 UV FLAME DETECTOR

The UV Flame Detector senses ultraviolet radiation generated during combustion. Since ultraviolet radiation travels at the speed of light and is unaffected by air movement, the detector provides extremely fast fire detection, often within milliseconds to a few seconds.

IR 250 IR FLAME DETECTOR

The IR Flame Detector identifies infrared radiation emitted from hot carbon dioxide gases generated during hydrocarbon combustion. The detector analyzes specific IR wavelength patterns to distinguish real flames from background radiation sources.



UV-IR 250 UV-IR FLAME DETECTOR

The UV-IR Flame Detector combines ultraviolet and infrared sensing technologies to improve detection reliability and reduce false alarms. Dual-spectrum analysis ensures improved flame discrimination while maintaining rapid response performance.

IR3 250 IR3 FLAME DETECTOR

The IR3 Flame Detector utilizes triple infrared sensing technology to provide highly reliable hydrocarbon flame detection with superior false alarm immunity. Advanced signal processing enables rapid detection and long-range coverage.



UV-IR3 250 UV-IR3 FLAME DETECTOR

The UV-IR3 Flame Detector combines one UV sensor with triple IR sensing technology for maximum detection reliability and enhanced false alarm rejection. The detector is designed for critical hazardous environments requiring ultra-fast response and high operational stability.

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UV, IR, UV-IR, IR3, UV-IR3 FLAME DETECTORS TYPICAL APPLICATION

Parameter	UV	IR	IR3	UV-IR	UV-IR3
Hydrogen production plants	✓	✗	✗	✓	✓
Hydrogen Fueling	✓	✗	✗	✓	✓
Battery rooms (Hydrogen risk)	✓	✗	✗	✓	✓
Semiconductor manufacturing	✓	✗	✗	✓	✓
Clean rooms	✓	✗	✗	✓	✓
Gas turbine enclosures	✓	✓	✓	✓	✓
Petrochemical plants	✗	✓	✓	✓	✓
Oil refineries	✗	✓	✓	✓	✓
Offshore oil & gas platforms	✗	✓	✓	✓	✓
LNG terminals	✗	✓	✓	✓	✓
LPG storage facilities	✗	✓	✓	✓	✓
Tank farms	✗	✓	✓	✓	✓
Pipeline compressor stations	✗	✓	✓	✓	✓
Chemical processing plants	✓	✓	✓	✓	✓
Solvent storage areas	✗	✓	✓	✓	✓
Fuel loading/unloading stations	✓	✓	✓	✓	✓
Aircraft hangars	✓	✓	✓	✓	✓
Aerospace facilities	✓	✗	✓	✓	✓
Defense ammunition storage	✗	✓	✓	✗	✓
Power plants	✗	✓	✓	✓	✓
Boiler rooms	✗	✓	✓	✓	✓
Industrial burners	✗	✓	✓	✓	✓
Furnace monitoring	✗	✓	✓	✓	✓
Warehouses	✗	✓	✗	✗	✗
Conveyor systems	✗	✓	✗	✗	✗
Waste processing plants	✗	✓	✓	✗	✓
Paint spray booths	✗	✓	✗	✓	✓
Marine engine rooms	✗	✓	✓	✓	✓
Nuclear facilities	✓	✗	✓	✓	✓
Battery Energy Storage Systems (BESS)	✓	✗	✓	✓	✓
Indoor gas handling rooms	✓	✓	✗	✓	✓
Outdoor hydrocarbon storage	✗	✓	✓	✗	✓
Crude oil processing areas	✗	✓	✓	✓	✓
Jet fuel storage areas	✗	✓	✓	✓	✓
Mining equipment rooms	✗	✓	✓	✗	✓
Heavy industrial outdoor areas	✗	✓	✓	✗	✓
Coal handling plants	✗	✓	✓	✗	✗
Wood/paper processing plants	✗	✓	✗	✗	✗
High false-alarm-risk environments	✗	✗	✓	✓	✓
Mixed fuel fire risk facilities	✗	✓	✓	✓	✓
Fast ignition hazard areas	✓	✗	✓	✓	✓

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SPECIFICATIONS :

Technology	UV Technology	IR Technology	IR3 Technology	UV-IR Technology	UV-IR3 Technology
Model no.	UV 250	IR 250	IR3 250	UV-IR 250	UV-IR3 250
Detection Modes	UV	IR flicker	IR flicker	UV, IR flicker	
Response Time	< 10 seconds				
Detection Distance	Up-to 30 Metres				
Cone of vision	120°				
Optical Self-Test	Automatic continuous optical path				
Input Power	20-35VDC, 125mA standby				
Relay Contact Ratings	2 amps @ 28 VDC or 300 VAC resistive				
	1/8 HP @ 120/240 VAC				
Analog Signal	Standard 4-20 mA, self-powered				
	Ready 4 mA				
	Fault: 2 mA & Alarm: 20 mA				
Relay Outputs	NO and NC, 2Amp (Instantaneous, non-latching) fire alarms				
	Delayed Alarm (10 seconds, latching or non-latching)				
Alarm Reset	Automatic or manual when flame is no longer detected				
Visual Indicators	Detector Ready (Green LED)				
	Fault (Yellow LED) Alarm (Red LED)				
Field Connections	4-20 mA output – three-wire shielded cable				
	All other connections : 18AWG (.35mm²) to 14AWG (2.5mm²)				
Operating Temperature	-40°F to 185°F (-40°C to 85°C)				
Dimensions	125 X 125 X 71 mm				
Weight	Approx. 350 grams (Weather Proof) / Approx. 2 kg (Ex-Proof)				
Housing	Cast Aluminum				
Compliance	CE approved enclosure				
Accessories	1.Swivel Mounting Base 2.Cable Glands 3.User Manual				
					

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