

FlameSpec IR3-H2

Triple IR Hydrogen Flame Detector



The FlameSpec IR3-H2 detector offers extremely fast detection of hydrogen fires and explosions, providing the extra, extremely valuable time that, in many cases, will make all the difference

Introduction

The FlameSpec-IR3-H2 flame detector provides ultra-fast response, high performance and reliable detection of hydrogen fires. The detector addresses slow growing fires as well as fast eruptions of fire using improved IR3 technology. The detector operates in all weather and light conditions.

These features, along with the built-in event logger, provide additional means to study the cause and development of fire events.

Key Benefits

- High immunity to false alarm
- Ultra-fast detection mode detection within 40 milliseconds for Hydrogen fireballs or explosions
- Hydrogen flame detection
- High sensitivity – up to 100 ft. (30m)
- Data/Event logger – alarms, faults and other relevant events are logged to non-volatile memory
- Built-in-Test (BIT) – Automatic and manual internal self-test of window cleanliness and the overall operation of the detector
- Window heater to avoid condensation and icing
- Tilt mounting bracket can be connected either above or below the detector.

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FlameSpec-IR3-H2

Triple IR Hydrogen Flame Detector

Model: FLS-IR3-H2

Immunity to False Alarm

False Alarm Source	Modulated		Unmodulated	
	Distance ft. (m)	Response	Distance ft. (m)	Response
Sunlight, Direct, Reflected		No Alarm		No Alarm
Incandescent frosted glass light, 300W	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Fluorescent, 70W (3x23.3W)	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Electric arc	3.0 (1.0)	No Alarm	3.0 (1.0)	No Alarm
Arc welding	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Radiation heater, 2000W	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Halogen lamp (1000W)	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Halogen lamp (500W) non-shielded	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Mercury vapor lamp 160Wx3	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Exhausts	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Projector led	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Solenoid bell	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
soldering iron	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm
Electric Drill	2.0 (0.6)	No Alarm	2.0 (0.6)	No Alarm

Response Characteristics

Fuel	Size	Sensitivity	Distance ft. (m)
H ₂	32-in Plume	Extreme	98 (30)
H ₂	32-in Plume	Medium	66 (20)
H ₂	32-in Plume	Low	33 (10)
Methanol	1 x 1 ft.	Extreme	59 (18)
Methanol	1 x 1 ft.	Medium	30 (9)

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FIRE DETECTION	Detection time and distance	40ms for fast burst of explosion 1.5s for 32" (0.8m) hydrogen fire at 0–66 ft. (0–20m) 4s for 32" (0.8m) hydrogen fire at 66–100 ft. (20–30m)	
	Field of view (IR detection)	90° Horizontal, 75° Vertical	
	Alarm Delay	0-30 seconds (Adjustable)	
	Built in Test	Automatic and Manual	
ELECTRICAL SPECIFICATIONS	Operating Voltage	24 VDC nominal (18-32 VDC)	
	Current Consumption	Standby: 120mA Maximum: 180mA all systems in operation (including window heater)	
	Conduit Entries	2x conduit entries 3/4" 14NPT or M25x1.5	
	Wiring	12-20AWG (2.5-0.35mm ²)	
OUTPUTS	Relays	Volt-free contacts rated 2A at 30 VDC Alarm – normally open and normally closed Fault – normally closed	
	0-20mA (stepped) current output	3 wire and 4 wire (isolated) configurations (sink and source)	
	Indication	tri-color LED	
	Modbus	RTU compatible on RS-485	
MECHANICAL SPECIFICATIONS	Size	5.51 x 3.54 x 3.54" (140x90x90mm)	
	Weight	Detector (Stainless Steel 316): 6.6 lbs. (3.0 kg) Tilt mount (Stainless Steel 316): 3.3 lbs. (1.5 kg)	
ENVIRONMENTAL SPECIFICATIONS	Temperature Range	Operating: -67°F to +167°F (-55°C to +75°C) Option: -67°F to +185°F (-55°C to +85°C) Storage: -67°F to +185°F (-55°C to +85°C)	
	Humidity	up to 99% (RH), non-condensing	
	Ingress Protection	IP66 & 68 (2m, 24hr); NEMA 4X & 6P	
APPROVALS*	Explosion proof	ATEX: II 2 G D Ex db IIC T5 Gb or Ex db eb IIC T5 Gb and Ex tb IIIC T95°C Db -55°C<Ta<75°C Ex db IIC T4 Gb or Ex db eb IIC T4 Gb and Ex tb IIIC T105°C Db -55°C<Ta<85°C IECEX Ex db IIC T5 Gb -50°C≤Ta≤75°C Ex db IIC T4 Gb -50°C≤Ta≤85°C FM & FMC Class I, Div. 1, Groups B, C & D; T4 Class I, Zone 1, AEx/Ex db IIC T4 Gb T4 -50°C≤Ta≤85°C T5 -50°C≤Ta≤75°C	
	Performance	ANSI FM 3260	
	Functional safety (pending)	SIL2, per IEC 61508	
	DNV GL	Designed to meet standard DNVGL-CG-0339 for open deck locations Temperature class D; Vibration Class A, B and C	
	EAC CU TR		
	ACCESSORIES	Weather shield	
		Adapters for connecting different mounts	
	WARRANTY	5 Years	

*All products designed and tested to relevant approval standards