



F-GUARD IR3-HD



Triple IR Flame Detector



gas detection | designed for support | gastech.com

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The Gastech F-Guard IR3-HD will detect fires and explosions extremely reliable and fast allowing preventative action to be initiated rapidly and minimize the consequences!

The Gastech F-Guard-IR3-HD flame detector provides ultra-fast response, high performance and reliable detection of all types of hydrocarbon fires (visible and non-visible). The detector addresses slow growing fires as well as fast eruption of fire using improved triple IR (IR3) technology. It operates in all weather and light conditions with highest immunity to false alarms.

- Detection within 40 milliseconds of fireballs or explosions
- Standard fire in only 1.2 seconds from 50 ft. (15m) and 4.1 seconds from 230 ft. (70m).

The detector provides high-definition video output with clear imaging of fire event at up to 100 ft. (30m), allowing rescuers to know the exact situation before entering the hazardous area. It will automatically record a video of a fire event (1 min pre-alarm / up to 3 min post-alarm).

Add to that, the integral HD quality video, with event recording, on top of the proven superior capabilities of Triple IR (IR3) flame detection and you have a very powerful safety tool to protect your personnel, plant and process.

KEY FEATURES

- High immunity to false alarm
- Extreme sensitivity – up to 260 ft. (80m) for a 1 ft² (0.1m²) n-heptane pan fire
- Ultra-fast detection mode – detection within 40 milliseconds for fireballs or explosions
- 1.2 seconds detection time – for 1 ft² (0.1m²) n-heptane pan fire at up to 50 ft. (15m) distance
- HD video output with Automatic HD video recording of fire events. Data/Event logger: Alarms, faults and other relevant events are logged to non-volatile memory
- Built-in-Test (BIT) – Automatic and manual 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.



False Alarm Source	Modulated			Unmodulated		
	Distance ft.	Distance m	Response	Distance ft.	Distance 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	2.0	0.6	No Alarm	2.0	0.6	No Alarm
Arc welding	13.1	4.0	No Alarm	13.1	4.0	No Alarm
Radiation heater, 1850W	2.0	0.6	No Alarm	2.0	0.6	No Alarm
Quartz lamp (1000W) shielded	2.0	0.6	No Alarm	2.0	0.6	No Alarm
Quartz 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		Avrg Resp. Time (s)
			ft.	m	
N-Heptane	1 x 1 ft.	Extreme	262	80	9.0
N-Heptane	1 x 1 ft.	Extreme	230	70	4.1
N-Heptane	1 x 1 ft.	High	197	60	3.2
N-Heptane	1 x 1 ft.	Medium	98	30	2.2
N-Heptane	1 x 1 ft.	Low	49	15	1.2
Gasoline	2 x 2 ft.	Extreme	328	100	5.3
Gasoline	1 x 1 ft.	Extreme	230	70	3.6
Gasoline	1 x 1 ft.	Medium	98	30	1.5
Methane	32-in Plume	Extreme	148	45	3.3
Methane	32-in Plume	Medium	82	25	0.8
LPG	32-in Plume	Extreme	180	55	4.8
LPG	32-in Plume	High	148	45	2.9
LPG	32-in Plume	Medium	98	30	1.4
LPG	32-in Plume	Low	49	15	1.4
Diesel	1 x 1 ft.	Extreme	164	50	2.9
Diesel	1 x 1 ft.	Medium	79	24	3.9
JP5	2 x 2 ft.	Extreme	295	90	9.2
JP5	1 x 1 ft.	Extreme	164	50	5.8
JP5	1 x 1 ft.	High	148	45	4.9
JP5	1 x 1 ft.	Medium	79	24	1.9
JP5	1 x 1 ft.	Low	39	12	8.8
Kerosene	1 x 1 ft.	Extreme	164	50	4.1
Kerosene	1 x 1 ft.	Medium	79	24	2.5
Methanol	1 x 1 ft.	Extreme	131	40	4.1
Methanol	1 x 1 ft.	High	125	38	5.5
Methanol	1 x 1 ft.	Medium	75	23	1.2
Methanol	1 x 1 ft.	Low	39	12	1.2
Ethanol	1 x 1 ft.	Extreme	125	38	4.2
Ethanol	1 x 1 ft.	Medium	75	23	1.6
Isopropanol	1 x 1 ft.	Extreme	180	55	3.5
Isopropanol	1 x 1 ft.	Medium	75	23	1.0
Polypropylene	1 x 1 ft.	Extreme	115	35	10.1
Polypropylene	1 x 1 ft.	Medium	66	20	2.6
Paper	1 x 1 ft.	Extreme	79	24	0.9
Paper	1 x 1 ft.	Medium	39	12	0.8

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SPECIFICATIONS

Specifications subject to change without notice

FIRE DETECTION	Detection time and distance	40ms for fast fire burst or explosion 1.5s for 1 ft ² (0.1m ²) pan fire at 0–100 ft. (0–30m) 4.1s for 1 ft ² (0.1m ²) pan fire at 100–230 ft. (30–70m)
	Field of view (IR detection)	90° Horizontal, 75° Vertical
	Time Delay	0-30 seconds
	Built in Test	Automatic and Manual
VIDEO FUNCTIONALITY	HD Video	Allows clear imaging of fire and people at 100 ft. (30m) distance
	Video recording of alarm events	1-minute pre-event and 3 minutes post-event
	System integration protocol	ONVIF (Open Network Video Interface Forum) Profile S
ELECTRICAL SPECIFICATIONS	Operating Voltage	24 VDC nominal (18-32 VDC)
	Current Consumption	Standby: 180mA Maximum: 250mA all systems in operation (including window heater)
	Electrical 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 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
	Digital (for video)	IP network IEEE 802.3 10Base-t
	Composite video	NTSC or PAL
	MECHANICAL SPECIFICATIONS	Size
	Weight	Detector (Stainless Steel 316): 9.8 lbs. (4.4 kg) Tilt mount (Stainless Steel 316): 5.4 lbs. (2.4 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; 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 IIB T5 Gb -50°C≤Ta≤75°C Ex db IIB 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 IIB T4 Gb T4 -50°C≤Ta≤85°C T5 -50°C≤Ta≤75°C
	Performance	ANSI FM 3260 EN 54-10
	Functional safety (pending)	SIL2, per IEC 61508
	DNV GL (pending)	Standard DNVGL-CG-0339 for open deck locations Temperature class D; Vibration Class A, B and C
	EAC CU TR	Pending
	ACCESSORIES	Weather shield Adapters for connecting different mounts
	WARRANTY	5 years

*All products designed and tested to relevant approval standards



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