F-GUARD IR3

Triple IR Flame Detector

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

The Gastech F-Guard IR3 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 1.3 seconds from 50 ft. (15m) and 3.7 seconds from 230 ft. (70m).

Add to that, the integral 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 (0.1m^2) n-heptane pan fire**
- **Ultra-fast detection mode – detection within 40 milliseconds for fireballs or explosions**
- **1.3 seconds detection time – for 1 ft^2 (0.1m^2) n-heptane pan fire at up to 50 ft. (15m) distance**
- **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			Distance		
	ft.	m	Response	ft.	m	Response
Sunlight, Direct, Reflected			No Alarm			No Alarm
Incandescent frosted glass light, 300W	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Fluorescent, 70W (3x23.3W)	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Electric arc	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Arc welding	20.0	6.0	No Alarm	20.0	6.0	No Alarm
Radiation heater, 1850W	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Quartz lamp (1000W) shielded	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Quartz lamp (500W) non-shielded	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Mercury vapor lamp 160Wx3	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Car Exhausts	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Projector led	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Solenoid bell	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Soldering iron	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Electric Drill	2.0	0.5	No Alarm	2.0	0.5	No Alarm

RESPONSE CHARACTERISTICS

Fuel	Pan Size	ft.	m	Avg. Response Time (Sec)
N-Heptane	1 x 1 ft.	262	80	7.1
N-Heptane	1 x 1 ft.	230	70	3.7
N-Heptane	1 x 1 ft.	197	60	2.7
N-Heptane	1 x 1 ft.	98	30	2.6
N-Heptane	1 x 1 ft.	49	15	1.3
Gasoline	2 x 2 ft.	328	100	5.3
Gasoline	1 x 1 ft.	230	70	2.8
Gasoline	1 x 1 ft.	98	30	1.5
Methane	32-in Plume	148	45	2.6
Methane	32-in Plume	82	25	0.6
LPG	32-in Plume	180	55	3.7
LPG	32-in Plume	148	45	2.6
LPG	32-in Plume	98	30	1.4
LPG	32-in Plume	49	15	1.5
Diesel	1 x 1 ft.	164	50	2.6
Diesel	1 x 1 ft.	79	24	3.2
JP5	2 x 2 ft.	295	90	9.4
JP5	1 x 1 ft.	164	50	4.5
JP5	1 x 1 ft.	148	45	4.4
JP5	1 x 1 ft.	79	24	1.8
Kerosene	1 x 1 ft.	164	50	3.6
Kerosene	1 x 1 ft.	79	24	2.7
Methanol	1 x 1 ft.	131	40	4.6
Methanol	1 x 1 ft.	125	38	4.2
Methanol	1 x 1 ft.	75	23	1.5
Methanol	1 x 1 ft.	39	12	1.3
Ethanol	1 x 1 ft.	125	38	4.7
Isopropanol	1 x 1 ft.	180	55	3.6
Isopropanol	1 x 1 ft.	75	23	1.8
Polypropylene	1 x 1 ft.	115	35	7.8
Polypropylene	1 x 1 ft.	66	20	2.1
Paper	1 x 1 ft.	79	24	1.1
Paper	1 x 1 ft.	39	12	1.1

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SPECIFICATIONS
Specifications subject to change without notice

FIRE DETECTION	**Detection time and distance**	40ms for fast fire burst or explosion 2.6s for 1 ft^2 (0.1m^2) pan fire at 0–100 ft. (0–30m) 3.7s 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
ELECTRICAL SPECIFICATIONS	**Operating Voltage**	24 VDC nominal (18-32 VDC)
	Current Consumption	Standby: 120mA 180mA all systems in operation (including window heater)
	Electrical Entries	2x conduit entries 3/4" 14NPT or M25x1.5
	Wiring	12-20AWG (2.5–0.35mm2)
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 & 67; NEMA 250 4X & 6P
APPROVALS*	**Explosion proof**	ATEX: II 2 G D Ex db eb IIC T5 Gb -55°C<Ta<75°C or Ex db eb IIC T4 Gb -55°C<Ta<85°C Ex tb IIIC T95°C Db -55°C<Ta<75°C Ex tb IIIC T105°C Db -55°C<Ta<85°C Ex db eb IIC T5 Gb -55°C<Ta<75°C or Ex db eb IIC T4 Gb -55°C<Ta<85°C
	Performance	ANSI FM 3260 EN 54-10
	Functional safety	SIL2, per IEC 61508
	DNV GL	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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