



F-GUARD IR3-HDCO₂L



Triple IR Flame Detector



gas detection | designed for support | gastech.com

F-GUARD IR3-HD CO₂L



Triple IR Flame Detector

The FlameSpec IR3 will detect fires and explosions extremely quickly, thereby allowing mitigation steps to be initiated more rapidly to limit event escalation.

The FlameSpec-IR3-HD CO₂L flame detector has been optimised to provide fast, robust detection for a wide range of heavy hydrocarbon fires, where combustion exhaust gases may be present.

The detector also provides a high-definition (HD) colour video output of the monitored area with clear imaging of events and personnel up to 100 ft.

(30m) allowing responders to know the exact situation before entering the hazardous area. Video and data of events are stored saved quickly to non-volatile memory for post incident investigation. The recordings start one minute before detection and continue for up to four minutes.

Typical applications include:

- Aircraft hangars
- Hardened aircraft shelters
- Helipads (Onshore, Offshore, Hospitals)
- Areas with high vehicle activity:
 - Waste recycling facilities
 - Road / Rail tanker loading racks



KEY FEATURES

- **Highest immunity to false alarms**
- **Hydrocarbon flame detection. Three wavelengths, in the infrared spectral range of 4.0 to 5.0 µm, with clear separation.**
- **Each sensor has the same field of view to further improve false alarm immunity.**
- **HD, or composite, video output with automatic HD video recording of events.**
- **Ultra-fast detection within 40 milliseconds for fireballs or explosions.**
- **Detects up to 262 ft. (80m) for a 1 ft² (0.1m²) n-heptane fire.**
- **5 selectable sensitivity levels.**
- **Data/Event logger: Alarms, faults & videos are logged to non-volatile memory.**
- **Universal outputs, 3 and 4 wire, 4-20 mA sink / source, Fire, Auxiliary and Fault Relays. RS485 port using Modbus RTU.**
- **Built-in-Test (BIT) – Automatic and manual self-test of window cleanliness and overall detector operation.**
- **HART® 7, as standard - Easy configuration and diagnostic capability, including dirty optics warning for preventive maintenance needs.**
- **Window heater to avoid condensation and icing.**
- **Stainless steel tilt mount with horizontal and vertical adjustment.**
- **SIL 2 compliant - suitable for use as part of a SIL 2 compliant safety system.**

False Alarm Source	Modulated			Unmodulated		
	Distance ft.	Distance m	Response	Distance ft.	Distance m	Response
Sunlight, Direct, Reflected			No response			No response
Sunlight, (direct or reflected) with water droplets on sensors			No response			No response
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	12	4.0	No Alarm	12	4.0	No Alarm
Radiation heater, 1850W	2.0	0.6	No Alarm	2.0	0.6	No Alarm
Radiation heater, 1850W with water droplets on sensors	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
Car 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	4.2
N-Heptane	1 x 1 ft.	Extreme	230	70	3.7
N-Heptane	1 x 1 ft.	High	197	60	0.8
N-Heptane	1 x 1 ft.	Medium	98	30	1.2
N-Heptane	1 x 1 ft.	Very Low	49	15	1.0
Gasoline	1 x 1 ft.	Extreme	230	70	3.2
Gasoline	1 x 1 ft.	Medium	98	30	1.0
Diesel	1 x 1 ft.	Extreme	164	50	3.6
Diesel	1 x 1 ft.	Medium	79	24	2.4
JP5	2 x 2 ft.	Extreme	292	80	10.3
JP5	1 x 1 ft.	Extreme	164	50	3.6
JP5	1 x 1 ft.	High	148	45	3.2
JP5	2 x 2 ft.	Medium	148	45	3.2
JP5	1 x 1 ft.	Medium	82	25	1.4
JP5	1 x 1 ft.	Low	39	12	1.2
JP5	1 x 1 ft.	Very Low	20	6	1.1
Kerosene	1 x 1 ft.	Extreme	164	50	3.5
Kerosene	1 x 1 ft.	Medium	82	25	1.2
Isopropanol IPA	1 x 1 ft.	Extreme	180	55	2.5
Isopropanol IPA	1 x 1 ft.	Medium	75	23	1.2
Polypropylene	1 x 1 ft.	Extreme	115	35	3.3
Polypropylene	1 x 1 ft.	Medium	66	20	3.3
Wood	1 x 1 ft.	Extreme	131	40	5.7
Wood	1 x 1 ft.	Medium	66	20	1.0

F-GUARD IR3-HD

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)
Sensitivity range	5 sensitivity ranges: Extreme, High, Medium, Low, Very Low
Field of view (IR detection)	90° Horizontal, 75° Vertical
Time Delay	0-30 seconds
Built in Test	Automatic and Manual

VIDEO FUNCTIONALITY

HD Video	Color HD, as standard. Near IR filtered option (X2 available on request)
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: 300mA all systems in operation (including window heater)
Electrical Entries	2x conduit entries 3/4" NPT(F) or M25x1.5
Wiring	12-20AWG (2.5–0.35mm ²)

OUTPUTS

Relays	SPST volt-free contacts rated 2A at 30 VDC 3 relays: Alarm & Auxiliary – normally open; Fault– normally closed
0-20mA (stepped) current output	3 wire and 4 wire (isolated) configurations (sink and source) HART® rev 7.0
Indication	Tri-color LED
Modbus	RTU compatible on RS-485
Digital (for video)	IP network IEEE 802.3 100Base-T
Composite video	NTSC or PAL

MECHANICAL SPECIFICATIONS

Size	200 x 130 x 130mm
Weight	Detector (Stainless Steel 316): 3.0 kg Tilt mount (Stainless Steel 316): 1.5 kg

ENVIRONMENTAL SPECIFICATIONS

Temperature Range	Operating: -67°F to +167°F (-55°C to +75°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*

ATEX	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 & PESO	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
FMus & FMc	Class I, Div. 1, Groups B, C & D; T4 -50°C≤Ta≤85°C or T5 -50°C≤Ta≤75°C Class II/III, Div. 1, Groups E, F, G; T4 -50°C≤Ta≤85°C or T5 -50°C≤Ta≤75°C Class I, Zone 1, AEx/Ex db IIC T4 Gb or Class I, Zone 1, AEx/Ex db eb IIC T4 Gb -50°C≤Ta≤85°C Class I, Zone 1, AEx/Ex db IIC T5 Gb or Class I, Zone 1, AEx/Ex db eb IIC T5 Gb -50°C≤Ta≤75°C Zone 21, AEx/Ex tb IIIC T95°C Db -50°C≤Ta≤75°C or Zone 21, AEx/Ex tb IIIC T105°C Db -50°C≤Ta≤85°C
EAC CU TR	1Ex d IIC T5 Gb o r 1Ex de IIC T5 Gb and Ex tb IIIC T95°C Db -55°C≤Ta≤75°C 1Ex d IIC T4 Gb or 1Ex de IIC T4 Gb and Ex tb IIIC T105°C Db -55°C≤Ta≤85°C
Performance	ANSI FM 3260 EN 54-10
Functional safety (pending)	SIL2, per IEC 61508

*All products designed and tested to relevant approval standards

ACCESSORIES

Stainless steel weather cover, model FLS-WCO-S02
Flame simulator, model FLS-FSIM-IR3-KIT
2" & 3" pole mount adapter, model FLS-PMA-S23
Airshield for areas with high airborne contamination, model FLS-ASD-S02

WARRANTY

5 years



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