FlameSpec™ UV-IR-HD

UV-IR Flame Detector with HD Camera

The FlameSpec™ UV-IR-HD flame detector provides ultra-fast response, high performance and reliable detection of a large variety of fires including hydrocarbon fires (visible and non-visible), hydrogen and methane/hydrogen mixed fires.

The detector addresses slow growing fires as well as fast eruptions of fire using improved UV-IR technology operating in all weather and light conditions.

The detector provides a high-definition (HD) color video output of the monitored area with clear imaging of fire events and personnel at distances up to 100 ft (30 m) allowing responders to know the exact situation before entering the hazardous area.

Video and data of events are quickly stored to non-volatile memory. The recordings start one minute before detection and continue for up to four minutes, the event video can be used for post incident investigation.



The FlameSpec™ UV-IR-HD detects fires and explosions extremely quickly, thereby allowing mitigation steps to be initiated more rapidly to limit event escalation.

Key Benefits

- High immunity to False Alarm.
- Hydrocarbon and non-hydrocarbon flame detection.
- High sensitivity – up to 100 ft (30 m) for a 1 ft^2 (0.1 m^2) n-heptane fire.
- Ultra-fast detection within 5 milliseconds for fireballs or explosions.
- High speed (<0.5 s) model [X5] available for compliance with NFPA 33.
- HD or composite video output with automatic recording of fire events.
- Data/Event logger: Alarms, faults & videos as well as other relevant events 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.
- Additional dirty optics warning for preventive maintenance needs.
- HART® 7, for configuration & maintenance - option available.
- Window heater to avoid condensation and icing.
- Stainless steel tilt mount with horizontal and vertical adjustment.
- Functional safety - SIL 2 capable - option available.
- Detect high UV (sparks and arcs) or IR levels via auxiliary relay and 4-20 mA.

FGD® FIRE & GAS DETECTION TECHNOLOGIES, INC.

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Specifications subject to change without notice. This datasheet is non-contractual. Version: F130V0010.09 10/26

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Model: FLS-UV-IR-HD

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Response Characteristics

Fuel	Size	Sensitivity	Distance ft (m)	Avrg Resp.Time (s)
n-Heptane	1 x 1 ft	Extreme	98 (30)	3.0
n-Heptane	1 x 1 ft	Medium	49 (15)	1.5
Gasoline	2 x 2 ft	Extreme	164 (50)	8.1
Gasoline	1 x 1 ft	Extreme	98 (30)	2.9
Methane	32-in Plume	Extreme	59 (18)	4.8
LPG	32-in Plume	Extreme	75 (23)	3.2
LPG	32-in Plume	Medium	33 (10)	0.6
Diesel	1 x 1 ft	Extreme	75 (23)	3.0
JP5	1 x 1 ft	Extreme	75 (23)	3.1
JP5	1 x 1 ft	Medium	33 (10)	2.1
Kerosene	1 x 1 ft	Extreme	75 (23)	2.5
Methanol	1 x 1 ft	Extreme	59 (18)	3.8
Methanol	1 x 1 ft	Medium	26 (8)	2.2
Ethanol	1 x 1 ft	Extreme	72 (22)	3.8
Isopropanol (IPA)	1 x 1 ft	Extreme	75 (23)	3.0
Polypropylene	1 x 1 ft	Extreme	49 (15)	3.1
Paper	1 x 1 ft	Extreme	33 (10)	3.9
Hydrogen	32-in Plume	Extreme	66 (20)	3.6
Syngas (30%CH_4:70%H_2)	32-in Plume	Extreme	59 (18)	3.2
Syngas (30%CH_4:70%H_2)	32-in Plume	Medium	33 (10)	1.2

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Immunity to False Alarm

False Alarm Source	Modulated		Unmodulated	
	Distance ft (m)	Response	Distance ft (m)	Response
Sunlight, Direct, Reflected	No response		No response	
Incandescent frosted glass light, 300 W	2.0 (0.5)	No alarm	2.0 (0.5)	No alarm
Fluorescent, 70 W (3 x 23.3 W)	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	7.0 (2.0)	No alarm	7.0 (2.0)	No alarm
Radiation heater, 2000 W	2.0 (0.5)	No alarm	2.0 (0.5)	No alarm
Quartz lamp (500 W) non-shielded	10.0 (3.0)	No alarm	3.0 (1.0)	No alarm
Mercury vapor lamp 160 W x 3	2.0 (0.5)	No alarm	2.0 (0.5)	No alarm
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

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FIRE DETECTION	**Detection Time and Distance**	5 ms for fast burst of explosion 1.5 s for 1 ft² (0.1 m²) n-heptane pan fire at 0 – 50 ft (0 – 15 m) <3 s for 1 ft² (0.1 m²) n-heptane pan fire at 50 – 100 ft (15 – 30 m)
	Sensitivity Range	4 sensitivity ranges: Extreme, High, Medium, Low
	Field of View (IR Detection)	90° Horizontal, 80° 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 Recoding of Alarm Events	1-minute pre-event and up to 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: 180 mA Maximum: 300 mA (including window heater)
	Electrical Entries	2x cable and conduit entries 3/4" NPT(F) or M25 x 1.5
	Wiring	14 - 17 AWG (2.5 – 1.0 mm²)
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 con figurations (sink and source) HART® rev 7.0 (option available)
	Indication	Tri-color LED (Green, Yellow, Red)
	Modbus	RTU compatible on RS-485
	Digital (for Video)	IP network IEEE 802.3 100Base-T
	Composite Video	NTSC or PAL
MECHANICAL SPECIFICATIONS	**Size**	7.87 x 5.12 x 5.12" (200 x 130 x 130 mm)
	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 +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	**ATEX**	ATEX: II 2 G D Ex db IIC T6 Gb or Ex db eb IIC T6 Gb and Ex tb IIIC T85°C Db -55°C<Ta<60°C 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
	ECAS, IECEx, INMETRO & PESO	Ex db IIC T6 Gb or Ex db eb IIC T6 Gb and Ex tb IIIC T85°C Db -50°C<Ta<60°C Ex db IIC T5 Gb or Ex db eb IIC T5 Gb and Ex tb IIIC T95°C Db -50°C<Ta<75°C Ex db IIC T4 Gb or Ex db eb IIC T4 Gb and Ex tb IIIC T105°C Db -50°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 or T6 -50°C≤Ta≤60°C Class II/III, Div. 1, Groups E, F, G; T4 -50°C≤Ta≤85°C or T5 -50°C≤Ta≤75°C or T6 -50°C≤Ta≤60°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 Class I, Zone 1, AEx/Ex db IIC T5 Gb or Class I, Zone 1, AEx/Ex db eb IIC T6 Gb -50°C≤Ta≤60°C Zone 21, AEx/Ex tb IIIC T105°C Db -50°C≤Ta≤85°C or Zone 21, AEx/Ex tb IIIC T95°C Db -50°C≤Ta≤75°C or Zone 21, AEx/Ex tb IIIC T80°C Db -50°C≤Ta≤60°C
	Performance	ANSI FM 3260 EN 54-10
	Functional Safety	Certified SIL2 capable, per IEC 61508:2010 High & Low demand (option available)
ACCESSORIES	**Tilt mount, model FLS-TMO-S02**	
	Weather cover, model FLS-WCO-S02	**Flame simulator, model FLS-FSIM-UV-IR-KIT**
	2" & 3" pole mount adapter, model FLS-PMA-S23	**Airshield, model FLS-ASD-S02**
	Duct mount with window, model FLS-DMW-S02	**Duct mount for airshield, model FLS-DMX-S02**
WARRANTY	**5 years**	

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