FlameSpec™ UV-IR

UV-IR Flame Detector

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

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



Key Benefits

- High immunity to false alarm.
- High sensitivity – up to 100 ft (30 m) for a 1 ft^2 (0.1m^2) n-heptane pan fire.
- Hydrocarbon and non-hydrocarbon flame detection.
- Ultra-fast detection mode detection within 5 milliseconds for fireballs or explosions.
- High speed (<0.5 s) model [X5] available for compliance with NFPA 33.
- Four sensitivity levels.
- Universal outputs, 3 and 4 wire, 4-20 mA sink / source, Fire, Auxiliary and Fault Relays. RS485 port using Modbus RTU.
- 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 overall detector operation.
- 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.

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

FGD® FIRE & GAS DETECTION TECHNOLOGIES, INC.

Fire and Gas Detection Technologies, Inc. | 2570 E. Cerritos Ave, Anaheim, CA 92806 USA
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Specifications subject to change without notice. This datasheet is non-contractual. Version: F110V0010.09 10/26

Model: FLS-UV-IR

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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)	2.0
n-Heptane	1 x 1 ft	High	75 (23)	1.7
n-Heptane	1 x 1 ft	Medium	49 (15)	1.0
n-Heptane	1 x 1 ft	Low	16 (5)	1.0
Gasoline	2 x 2 ft	Extreme	197 (60)	3.3
Gasoline	1 x 1 ft	Extreme	98 (30)	1.8
Gasoline	1 x 1 ft	Medium	49 (15)	1.3
Methane	32-in Plume	Extreme	59 (18)	1.4
Methane	32-in Plume	Medium	30 (9)	0.9
LPG	32-in Plume	Extreme	75 (23)	1.2
LPG	32-in Plume	High	56 (17)	1.6
LPG	32-in Plume	Medium	33 (10)	1.2
LPG	32-in Plume	Low	13 (4)	1.2
Diesel	1 x 1 ft	Extreme	75 (23)	2.6
Diesel	1 x 1 ft	Medium	36 (11)	1.2
JP5	1 x 1 ft	Extreme	75 (23)	3.3
JP5	1 x 1 ft	High	56 (17)	1.8
JP5	1 x 1 ft	Medium	36 (11)	1.2
JP5	1 x 1 ft	Low	16 (5)	1.2
Kerosene	1 x 1 ft	Extreme	75 (23)	1.8
Kerosene	1 x 1 ft	Medium	36 (11)	0.9
Methanol	1 x 1 ft	Extreme	52 (16)	0.8
Methanol	1 x 1 ft	High	43 (13)	3.2
Methanol	1 x 1 ft	Medium	30 (9)	1.3
Methanol	1 x 1 ft	Low	10 (3)	2.7
Ethanol	1 x 1 ft	Extreme	62 (19)	4.1
Ethanol	1 x 1 ft	Medium	31 (9.5)	2.9
Isopropanol (IPA)	1 x 1 ft	Extreme	75 (23)	2.2
Isopropanol (IPA)	1 x 1 ft	Medium	36 (11)	0.8
Polypropylene	1 x 1 ft	Extreme	49 (15)	1.4
Polypropylene	1 x 1 ft	Medium	23 (7)	0.9
Hydrogen	32-in Plume	Extreme	66 (20)	6.4
Hydrogen	32-in Plume	Medium	33 (10)	1.0
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	10.0 (3.0)	No alarm	10.0 (3.0)	No alarm
Radiation heater, 2000 W	2.0 (0.5)	No alarm	2.0 (0.5)	No alarm
Halogen lamp (500 W) non-shielded	7.0 (2.0)	No alarm	7.0 (2.0)	No alarm
Halogen lamp (1000 W)	2.0 (0.5)	No alarm	2.0 (0.5)	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 s for 1 ft² (0.1 m²) n-heptane pan fire at 0 – 50 ft (0 – 15 m) <2 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
ELECTRICAL SPECIFICATIONS	**Operating Voltage**	24 VDC nominal (18 - 32 VDC)
	Current Consumption	Standby: 120 mA 180 mA all systems in operation (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 (isolated) configurations (sink and source) HART® rev 7.0 (option available)
	Indication	Tri-color LED (Green, Yellow, Red)
	Modbus	RTU compatible on RS-485
MECHANICAL SPECIFICATIONS	**Size**	5.83 x 4.65 x 4.65" (148 x 118 x 118 mm)
	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 +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 T80°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 -50°C≤Ta≤60°C Ex db IIC T5 Gb -50°C≤Ta≤75°C Ex db IIC T4 Gb -50°C≤Ta≤85°C
	FMus & 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; T6 -50°C≤Ta≤60°C
	Performance	ANSI FM 3260 EN 54-10, as standard, VdS certified option available upon request - ASx1 model
	Functional Safety	Certified SIL2 capable, per IEC 61508:2010 High & Low demand (option available)
ACCESSORIES	**Tilt mount, model FLS-TMO-S01**	**High vibration mounting bracket, model FLS-VMO-S01**
	Weather cover, model FLS-WCO-S01	**Flame simulator, model FSIM-UV-IR-KIT**
	2" & 3" pole mount adapter, model FLS-PMA-S23	**Airshield, model FLS-ASD-S01**
	Duct mount with window, model FLS-DMW-S01	**Duct mount for airshield, model FLS-DMX-S01**
WARRANTY	**5 years**	

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