Product Datasheet

FlameSpec™ IR3-StretcH2-HD

Triple IR Flame Detection with HD Camera for Energy Transition

The FlameSpec™ IR3-StretcH2-HD flame detector provides unrivalled response, high performance and reliable detection for a number of fires found in Energy Transition applications.

The detector addresses slow growing fires as well as fast eruptions of fire using improved IR3 technology. The detector operates in all weathers and light conditions.

The detector provides high-definition (HD) video output of the monitored area with near IR filtered imaging of fire events and personnel at distances up to 100 ft. (30m). This allows the rescue team to be aware of 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.

Key Benefits

- High immunity to false alarm, including arc welding.
- Detects, hydrogen flames and hydrocarbon fires using three infrared wavelengths, 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 mode detection within 40 milliseconds for fireballs or explosions.
- 5 selectable sensitivity levels.
- Data/Event logger – alarms, faults & videos as well as 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.
- Universal outputs, 3 and 4 wire, 4-20 mA sink / source, Fire, Auxiliary and Fault Relays. RS485 port using Modbus RTU.
- HART® 7 for configuration & maintenance.
- Heated window to avoid condensation and icing.
- Stainless steel tilt mount with horizontal and vertical adjustment.
- Functional safety - SIL 2 capable.

FlameSpec-IR3-StretcH2-HD offers the fastest detection of flames and explosions, providing extra time that can be used to reduce damage to plant & property and evacuation of people.

Model: FLS-IR3-StretcH2-HD

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Response Characteristics

Fuel	Size	Sensitivity	Distance ft. (m)	Avrg Resp.Time (s)
n-Heptane	1 x 1 ft.	Extreme	180 (55)	2.8
n-Heptane	1 x 1 ft.	High	131 (40)	3.3
n-Heptane	1 x 1 ft.	Medium	82 (25)	3.1
n-Heptane	1 x 1 ft.	Low	49 (15)	1.4
n-Heptane	1 x 1 ft.	Very Low	25 (7.5)	2
Gasoline	1 x 1 ft.	Extreme	131 (40)	7.1
Gasoline	1 x 1 ft	Medium	98 (30)	2.3
Methane	32-in Plume	Extreme	66 (20)	4.4
Methane	32-in Plume	Medium	52 (16)	2.6
Methane	32-in Plume	Low	26 (8)	3.7
Methane	32-in Plume	Very Low	13 (4)	3.7
LPG	32-in Plume	Extreme	102 (31)	2.9
LPG	32-in Plume	High	75 (23)	2.7
LPG	32-in Plume	Medium	39 (12)	3.7
LPG	32-in Plume	Low	20 (6)	0.9
LPG	32-in Plume	Very Low	10 (3)	0.9
Diesel	1 x 1 ft.	Extreme	164 (50)	4.7
Diesel	1 x 1 ft.	Medium	49 (15)	4.9
Jet fuel	1 x 1 ft.	Extreme	147 (45)	5.1
Jet fuel	1 x 1 ft.	High	131 (40)	4.1
Jet fuel	1 x 1 ft.	Medium	49 (15)	3.1
Jet fuel	1 x 1 ft.	Low	25 (7.5)	0.9
Jet fuel	1 x 1 ft.	Very Low	13 (4)	2.8
H_2	32-in Plume	Extreme	98 (30)	4
H_2	32-in Plume	Medium	66 (20)	4.2
H_2	32-in Plume	Low	33 (10)	4
H_2	32-in Plume	Very Low	16 (5)	4
Kerosene	1 x 1 ft.	Extreme	164 (50)	4.6
Kerosene	1 x 1 ft.	High	131 (40)	5.1
Kerosene	1 x 1 ft.	Medium	49 (15)	3
Kerosene	1 x 1 ft.	Low	25 (7.5)	4.4
Kerosene	1 x 1 ft.	Very Low	13 (4)	2
Methanol	1 x 1 ft.	Medium	36 (11)	3.3
Ethanol	1 x 1 ft.	Medium	46 (14)	3.1
Isopropanol (IPA)	1 x 1 ft.	Medium	66 (20)	2.8
Ethylene glycol	1 x 1 ft.	Medium	26 (8)	5
Syngas (30%CH_4:70%H_2)	32-in Plume	Extreme	82 (25)	3.8

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Immunity to False Alarm

False Alarm Source	Modulated		Unmodulated	
	Distance ft. (m)	Response	Distance ft. (m)	Response
Sunlight, (direct or 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 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Fluorescent, 70W (3x23.3W)	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Arc welding	11.5 (3)	No Alarm	11.5 (3)	No Alarm
Radiation heater, 1850W	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Quartz lamp (500W) 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

Part Numbers

FLS-IR3-H2-HD-AS13	Triple IR (IR3) HD Flame Detector for hydrocarbon and hydrogen fires with near infrared HD camera. SS316 Stainless Steel Housing with 2 x M25 Entries & one certified plug
FLS-IR3-H2-HD-AS23	Triple IR (IR3) Flame Detector for hydrocarbon and hydrogen fires with near infrared HD camera. ` SS316 Stainless Steel Housing with 2 x 3/4 NPT Entries & one certified plug
FLS-IR3-H2-HD-AS14	As FLS-IR3-H2-HD-AS13 but with colour HD camera.
FLS-IR3-H2-HD-AS24	As FLS-IR3-H2-HD-AS23 but with colour HD camera.

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FIRE DETECTION	**Detection Time and Distance**	40ms for fast fire burst or explosion 3.9s for 32" (0.8m) hydrogen fire at 100 ft. (30m)
	Sensitivity Range	5 sensitivity ranges: Extreme, High, Medium, Low, Very 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**	Near IR filtered HD, as standard. Color HD 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: 180mA Maximum: 300mA (including window heater)
	Electrical Entries	2x cable and conduit entries 3/4" NPT(F) or M25x1.5
	Wiring	14-17 AWG (2.5–1.0 mm^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 configurations (sink and source) HART® rev 7.0
	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" (200x130x130mm)
	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; 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
	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
	EAC CU TR	1Ex d IIC T5 Gb or 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≤°TCa≤85°C
	Performance	ANSI FM 3260 EN54-10
	Functional Safety	Certified SIL2 capable, per IEC 61508:2010 High & Low demand
ACCESSORIES	**Tilt mount**	**Paint shield / cover**
	Weather cover	**Flame simulator**
	2" & 3" pole mount adaptor	**Airshield**
	Duct mount with window	**Duct mount for airshield**
WARRANTY	**5 years**	

FGD® FIRE & GAS DETECTION TECHNOLOGIES, INC.

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