FlameSpec™ Blade

Video Enhanced Flame Detector (VEFD™)

The FlameSpec™ Blade detector combines the superior detection, stability and reliability of the market leading FlameSpec™ IR3 flame detector with the latest AI advances in video flame imaging, to deliver a new standard in flame detection.

The combination delivers extremely fast detection of visible hydrocarbon fires, with near total immunity to false alarms, including to those caused by Flare Reflections.

Considering the costs for a shutdown due to a false alarm on an FPSO might typically range from $500,000 to $5 million, it's clear alarms due to reflected flares are financially damaging.

FlameSpec™ Blade – proven FlameSpec™ IR3 performance, enhanced with near-IR imaging (VEFD™) for superior immunity to flare reflections.

Key Benefits

- Highest immunity to false alarms and high immunity to reflected flare - FM certified.
- Video Enhanced Flame Detection (VEFD™). Visible hydrocarbon flame detection using three clearly separated IR wavelengths (4.0 –5.0 µm), combined with near-IR imaging for superior performance.
- 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.
- Fast flame detection, typically less than 5 s.
- Detects up to 147 ft (45 m) for a 1 ft^2 (0.1 m^2) n-heptane fire.
- 5 selectable sensitivity levels.
- 3 and 4 wire, 0-20 mA sink / source, Alarm, Auxillary and Fault Relays.
- RS485 port using Modbus RTU.
- Event logger: Alarms, faults & videos are logged to non-volatile memory for post event analysis & investigation..
- Built-in-Test (BIT) – Automatic and manual self-test of window cleanliness and overall detector operation, plus HART® 7, for configuration and maintenance.
- Dirty optics warning for preventive maintenance needs.
- Window heater to avoid condensation and icing.
- Stainless steel tilt mount with horizontal and vertical adjustment.
- Marine approval - DNV Type approved.

FGD® FIRE & GAS DETECTION TECHNOLOGIES, INC.

Fire and Gas Detection Technologies, Inc. | 2570 E. Cerritos Ave, Anaheim, CA 92806 USA
Tel: (+1) 714-671-8500 | **support@fg-detection.com**

Model: FLS-BLADE-VEFD

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Response Characteristics

Fuel	Size	Sensitivity	Distance ft (m)
n-Heptane	1 x 1 ft	High	147 (45)
n-Heptane	1 x 1 ft	Medium	98 (30)
n-Heptane	1 x 1 ft	Low	49 (15)
n-Heptane	1 x 1 ft	Very Low	24.5 (7.5)
Gasoline	1 x 1 ft	Extreme	147 (45)
Gasoline	1 x 1 ft	Medium	98 (30)
LPG	32-in Plume	Extreme	147 (45)
LPG	32-in Plume	High	147 (45)
LPG	32-in Plume	Medium	88 (27)
LPG	32-in Plume	Low	49 (15)
LPG	32-in Plume	Very Low	25 (7.5)
Diesel	1 x 1 ft	Extreme	147 (45)
Diesel	1 x 1 ft	Medium	79 (24)
Jet Fuel	1 x 1 ft	Extreme	147 (45)
Jet Fuel	1 x 1 ft	High	147 (45)
Jet Fuel	1 x 1 ft	Medium	79 (24)
Jet Fuel	1 x 1 ft	Low	39 (12)
Jet Fuel	1 x 1 ft	Very Low	20 (6)
Kerosene	1 x 1 ft	Extreme	147 (45)
Kerosene	1 x 1 ft	High	147 (45)
Kerosene	1 x 1 ft	Medium	79 (24)
Kerosene	1 x 1 ft	Low	39 (12)
Kerosene	1 x 1 ft	Very Low	20 (6)
Ethanol	1 x 1 ft	Medium	82 (25)
Isopropanol (IPA)	1 x 1 ft	Medium	98 (30)
Wood	1 x 1 ft	Medium	33 (10)

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Immunity to False Alarm

False Alarm Source	Modulated	Unmodulated
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, 300 W	No alarm	No alarm
Fluorescent, 70 W (3 x 23.3 W)	No alarm	No alarm
Electric arc	No alarm	No alarm
Arc welding	No alarm	No alarm
Radiation heater, 1850 W	No alarm	No alarm
Radiation heater, 1850 W with water droplets on the sensors	No alarm	No alarm
Quartz lamp (1000 W) shielded	No alarm	No alarm
Quartz lamp (500 W) non-shielded	No alarm	No alarm
Mercury vapor lamp 160 W x 3	No alarm	No alarm
Car exhausts	No alarm	No alarm
Projector led	No alarm	No alarm
Solenoid bell	No alarm	No alarm
Soldering iron	No alarm	No alarm
Electric drill	No alarm	No alarm
n-Heptane fire, 5 m from dull metallic surface	Distance from dull metallic surface to detector 13 ft (4 m) No alarm	Distance from dull metallic surface to detector 29 ft (9 m) No alarm
LPG flame, 5 m from dull metallic surface	Distance from dull metallic surface to detector 13 ft (4 m) No alarm	Distance from dull metallic surface to detector 29 ft (9 m) No alarm

Part Numbers

FLS-IR3-HD-AS17	FlameSpec-Blade-IR3-HD Flame Detector, SS316. Near IR VID. HART® with 2 x M25 entries.
FLS-IR3-HD-AS27	FlameSpec-Blade-IR3-HD Flame Detector, SS316. Near IR VID. HART® with 2 x 3/4 NPT entries.

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FIRE DETECTION	**Detection Time and Distance**	Typically less than <5 s for 1 ft² (0.1 m²) n-heptane pan fire up to 147 ft (45 m)
	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**	As standard (Near IR/Greyscale)
	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
	0-20 mA (Stepped) Current Output	3 wire and 4 wire configurations (sink and source) HART® rev 7.0
	Indication	Tri-color LED (Green, Amber, 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; 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
	Marine	DNV Type Approval
	Performance	ANSI FM 3260
ACCESSORIES	**Tilt mount, model FLS-TMO-SO2**	**2" & 3" pole mount adapter, model FLS-PMA-S23**
	Weather cover, model FLS-WCO-SO2	**Airshield, model FLS-ASD-S02**
WARRANTY	**5 years**	

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