



TECHNICAL DATA SHEET

VSF303 Multi-Spectrum IR Flame Detector

1. INTENDED USE

Designed for hazardous industries where fast fire detection is critical and nuisance alarms are not an option. The Viking VSF303 Multi-Spectrum IR Flame Detector is an explosion-proof multi-spectrum infrared flame detector. The device delivers superior performance, responding to hydrocarbon liquid fuel and gas fires at long distances. The VSF303 has been independently tested to demonstrate it can detect a hydrocarbon fuel pan fire at nearly 200 feet in less than 5 seconds.

Typical applications include:

- On/offshore oil and gas processing facilities
- Refineries
- Petrochemical plants
- Chemical facilities
- Pharmaceutical
- Aircraft hangars
- Road tunnels
- Power generation
- Tank farms
- Road and rail-loading racks
- LNG/LPG
- Warehouses/storage areas
- Waste recycling/biomass plants
- Printing industry



2. APPROVALS AND CERTIFICATIONS



FM Approved
Class 1 Div 1 Groups B, C, D Class 1 Zone 1
AEx/Ex db IIC T5/T6 Gb
Ambient -58 °F to +185 °F (-50 °C to +85 °C)



ATEX EX II 2 G Ex db IIC T5/T6 Gb IECEx Ex
db IIC T5/T6 Gb IP67
Ambient -76°F to +185°F (-60°C to +85°C)



California Department of Forestry & Fire Protection

- Listing number: 7210-0533:0501
- Category 7210 - Flame Detector



Ingress NEMA type 4X IP66
IEC 61508 SIL 2 Capable



Performance approvals
FM2809
EN 54-10



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3. TECHNICAL SPECIFICATIONS & FEATURES

3.1 Specifications

Parameters	Value
Operating temperature	-76 °F to +185°F (-60°C to +85°C)
Storage temperature	-76 °F to +185°F (-60°C to +85°C)
Humidity	0 to 93% RH non-condensing
Operating voltage	24 Vdc Nominal (range is 18 to 32 Vdc)
Outputs	Configurable relay contacts (SPST 2A at 30 Vdc) - alarm and fault. 0-20mA, HART®
Power consumption	3 W minimum (heater off); 12 W at 32 Vdc maximum (heater on)
Field of view	90° horizontal by 90° vertical
Speed of response	less than 5 seconds (typical)
Dimensions	Short enclosure: 4" (100 mm) diameter x 6" (145 mm) length
	Long enclosure: 4" (100 mm) diameter x 8" (200 mm) length
Materials	Copper-free aluminum or 316 stainless steel
Entry size	3/4" NPT or M25, single or dual
Weight	Short enclosure: Aluminum 5.5 lbs (2.5 Kg); Stainless steel 13.2 (6 Kg)
	Long enclosure: Aluminum 4.5 lbs (2 Kg); Stainless steel 10 lbs (4.5 Kg)

3.2 Flame Sensitivity Specifications

Flame Sensitivity			
	Fuel	Fire Size	Distance
High Sensitivity	n-Heptane	1' x 1' / 30 cm x 30 cm	196' (60 m)
	n-Heptane + arc welding	1' x 1' / 30 cm x 30 cm	196' (60 m)
	Gasoline	1' x 1' / 30 cm x 30 cm	196' (60 m)
	Diesel	1' x 1' / 30 cm x 30 cm	164' (50 m)
	Crude oil (heavy fuel)	20" x 20" / 0.5 m x 0.5 m	164' (50 m)
	JP4	1' x 1' / 30 cm x 30 cm	196' (60 m)
	Methane	24" plume / 60 cm	164' (50 m)
	Ethanol	1' x 1' / 30 cm x 30 cm	137' (42 m)
	Methane	1' x 1' / 30 cm x 30 cm	137' (42 m)
Standard Sensitivity	n-Heptane	1' x 1' / 30 cm x 30 cm	98' (30 m)
	Gasoline	1' x 1' / 30 cm x 30 cm	98' (30 m)
	JP4	1' x 1' / 30 cm x 30 cm	98' (30 m)
	Methane	24" plume / 60 cm	98' (30 m)
	Ethanol	1' x 1' / 30 cm x 30 cm	98' (30 m)



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3.3 Features

- Multi-spectrum IR design delivers long-detection distances and enhanced false alarm immunity.
- Continuous optical test, which verifies operation and improves device up-time.
- Microprocessor-controlled heated optics, which maintain operation in harsh weather conditions (e.g., snow, ice, condensation).
- International hazardous area approvals, such as FM, ATEX, IEC Ex.
- Design to meet performance testing (through FM 2809 and EN 54-10) to multiple fuels.
- Adjustable sensitivity levels for application flexibility and to ensure detectors do not cross-vote.
- External testing with a long-range flame simulator, which minimizes the need for scaffolding.
- External testing and calibration with a long-range flame simulator.
- Easy integration using industry standard outputs, such as configurable alarm and fault relays, 0-20mA, and HART®, as standard.
- Certified SIL 2 capable.

4. ORDERING INFORMATION

Detector

Part Number*	Description
NEW OFFERING! Shorter Enclosures	
29056	3/4" NPT, dual entry
29057	M25, dual entry
29058	3/4" NPT, dual entry, stainless steel
29059	M25, dual entry, stainless steel
29060	3/4" NPT, single entry, stainless steel
29061	3/4" NPT, single entry,
Long Enclosures	
24364	3/4" NPT, dual entry
24365	M25, dual entry
24366	3/4" NPT, dual entry, stainless steel
24367	M25, dual entry, stainless steel
24598	3/4" NPT, single entry
24595	3/4" NPT, single entry, stainless steel

*Additional cable entry variants are available upon request.

Accessories

Part Number	Description
24376	VSF3008 ITEST Flame simulator
24377	Vertical to horizontal mounting adapter
24378	Standard bracket (316 Stainless steel) (spare)
24379	Marine bracket (not fitted)
24382	Flame simulator charger (spare)
24591	USB to RS485 Converter
24592	USB HART Modem
24380	Detector sealing kit (metric)
24383	Sun shield
24384	2" pole mount bracket
24385	3" pole mount bracket
24386	4" pole mount bracket

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IR Flame Detector****5. CONTACT**

The detector and accessories are available through Viking distributors only. Contact your local Viking sales office which can be found on our website:

The Viking Corporation

5150 Beltway SE

Caledonia, MI 49316

Tel.: (800) 968-9501

Fax: 269-818-1680

Technical Services: 1-877-384-5464

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