



Trusted above all.



VSF Visual Flame Detectors

Detectors for hazardous applications where fast optical flame detection is critical





Is there an alternative technology better equipped than UV or IR to reliably detect a flame?

What is a flame? Remarkably, this is not so commonly asked question when looking for a fire. The fundamental interpretation of a flame is that the carbon particles, most frequently referred to as soot, when heated by the exothermic energy created during oxidation of the fuel; incandesce or in simpler terms, glow white.

As they cool the color of these particles turn to orange then red and then finally to black as smoke. This is how humans interpret a flame visually and hence recognize it as fire.

Image capture from a CCD pixel array is possible via the photoelectric effect, where light energy is produced by the flame's incandescence. Photons are emitted from the flame then received by the pixels of the array, creating a picture of the flame. The photoelectric effect transforms the energy intensity from the photons into a proportional electrical charge.

Viking VSF300 and VSF301 flame detectors can analyze the array output and similarly as the human brain would. The equipment interprets images visually and confirms whether or not a fire is present. The VSF300 and VSF301 can make this decision and output the appropriate alarm condition.

The video is constantly monitored at 25 frames per second (this speed causes persistence of vision which is faster than the human eye) seeking out flame characteristics.

Video flame detection was developed out of a necessity to detect fires on-board offshore oil and gas installations yet did not react to sources of spurious alarms that are responsible for expensive production losses. Since then, video flame detection has become commonplace in environments and facilities that cannot afford these false alarm situations.

The motive for advancement toward video flame technology was because previous flame detection was achieved largely by measuring radiation of specific UV and IR wavelengths that are emitted from fires. False alarms from blackbody radiation, process relief flare reflections, hot CO₂ emissions, as well as desensitization from all number of sources, can be laid to rest with the realization of video flame detection. Having a reliable flame detector that is immune to these nuisance alarms is crucial to protect lives and assets and keep productivity up and running costs down.

Multi-Frequency Infrared Flame Detection

The Viking VSF303 multi-spectrum infrared (IR) flame detector quickly detects all hydrocarbon fires over a long range, including those not detectable in the visible spectrum.

The VSF303 compliments the VSF300 and VSF301 video flame detectors by delivering superior performance in the detection of hydrocarbon fires. The VSF303 utilizes the latest IR flame detection algorithms to ensure maximum false alarm immunity.



Video or Multi-Spectrum Flame Detection?

Fire Type	Video Flame Detection	Multi-Spectrum IR
Gasoline / n-Heptane	✓	✓
Diesel Fuel	✓	✓
JP4 / Kerosene	✓	✓
Ethanol	✓	✓
Methanol		✓
Methane	✓	✓
Hydrogen		
Wood stack	✓	✓
Silane	✓	
Inhibitor	Immunity to False Alarm	
Sunlight	✓	✓
Dust/Sand/Oil/Grease	✓	✓
Water	✓	
Arc Welding	✓	

VSF - Flame detectors and accessories

VSF300 Video Flame Detector

VSF300 is an explosion-proof intelligent videoflame detector capable of detecting an n-Heptane (gasoline) fire at 61 m and JP4 (kerosene-gasoline blend jet fuel) at 91 m. The detector processes live video images using onboard digital signal processing and advanced software.



- Massive 120° horizontal and 80° vertical field(s) of view (FoV)
- Maximum false alarm immunity & eliminates sensitivity loss from sunlight & black body heat
- Continuous optical test, without a reflector
- International hazardous area approvals: FM/ATEX/IEC Ex
- Certified performance testing to multiple fuels: FM 3260
- Spatially aware —single sensitivity detection
- Easy integration using industry-standard outputs: alarm & fault relays (0-20 mA)
- Worldwide marine approvals

VSF301 Video Flame Detector

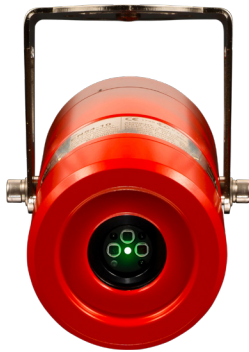
The VSF301 is an explosion-proof video flame detector like the VSF300, that adds a live video feed and on-board recording capabilities



- Operates with or without color video output
- On-board recording of pre-and post-fire alarms
- Continuous optical test, without a reflector
- Microprocessor controlled heated-optics
- International hazardous area approvals: FM/ATEX/IEC Ex
- Certified performance testing to multiple fuels: FM 3260/EN 54-10
- Spatially aware —single sensitivity detection
- Easy integration using industry-standard outputs: alarm & fault relays (0-20 mA)
- Certified SIL 2 capable
- Worldwide marine approvals

VSF303 Multi-Spectrum IR Flame Detector

The Viking VSF303 is an explosion-proof multi-spectrum IR flame detector. The device delivers superior performance, responding to hydrocarbon liquid fuel and gas fires at long distances. The VSF303 has been tested by Factory Mutual (FM) to detect a hydrocarbon fuel pan fire at ~61 m within 5 seconds



- Long detection distances and enhanced false alarm immunity
- Continuous optical test, without a reflector
- Microprocessor controlled heated-optics
- International hazardous area approvals: FM/ATEX/IEC Ex
- Certified performance testing to multiple fuels to FM 3260 and EN 54-10 standards
- Adjustable sensitivity to ensure detectors do not cross vote
- Certified SIL 2 capable

VSF3008 Flame Simulator

VSF3008 is used to test the complete range of VSF flame detectors without the need for scaffolding. The simulator produces a unique flame pattern recognized by the VSF30X product line causing the detectors to initiate a full alarm function



VSF Flame Detector Accessories

- VTP4 Twisted pair to coaxial converter
- BNC Converter
- RS232—485 Converter
- VIM4 Quad channel video isolator
- Flame simulator charger (spare)
- VSF Series sunshield
- Detector sealing kit —Metric
- Standard Bracket 316 Stainless Steel (spare only)
- Vertical to horizontal mounting adapter
- Marine bracket 316 Stainless Steel

New: VSF303H – Hydrogen flame detector
Now also available from Viking!

PRODUCTS & SOLUTIONS

To address a wide spectrum of fire risk and challenges, Viking offers a broad and comprehensive range of products, systems and solutions classified into these product groups:

WATER



Fire Sprinklers

- Standard Coverage
- Extended Coverage
- Storage
- Dry
- Special
- Residential
- Nozzles

Valves

- Wet / Alarm
- Deluge & Preaction
- Dry Pipe
- Pressure Regulating
- Butterfly
- Gate
- Check

Flexible Sprinkler Hose

Escutcheons

Guards & Shields Test & Drain

Multiple Jet Control Wrenches

& Adapters

Flow Meter & Proving Pipe

Water Mist Systems

FOAM



Fluorine Free Systems

Storage Tanks

- Vertical Bladder Tank
- Horizontal Bladder Tank
- Atmospheric Storage Tank
- Tank Accessories
- Pre-assembled Foam Bladder Tank

Discharge Devices

- Foam Generator
- Foam Sprinkler / Nozzle
- Grate Nozzle
- Tank Protection

Monitor Equipment

Foam Pump Products

Valves & Accessories

Proportioning Devices

- ILBP / Balanced Proportioner

- In-line Eductor

- Ratio Controller

- Wide range Proportioner

Foam Concentrates

Synthetic Fluorine Free Foam

GAS



CO2

- High Pressure
- Low Pressure

Clean Agent Systems

- FM-200® Systems
- Novec™ 1230 Systems

Pre-Engineered Systems

- FM-200® Systems

- Novec™ 1230 Systems

Cabinet Protection System

Server Rack Protection System

Inert Gas Systems

- IG-01

- IG-100

- IG-55

- IG-541

WATERMIST



Low Pressure & High Pressure Systems

- Pump Skids
- Deluge Valves
- Strainers
- Sprinklers
- Nozzles

- Selector Sets

- Manifolds

- Butterfly Valves

- Flow Test

- Flow Meter

- Air Pressure

- Maintenance Device

- Accessories

DETECTION



Control Panels

- Addressable
- Conventional
- Extinguishing
- Mimic

Detectors

- Smoke
- Heat
- Flame
- Infra Red
- Beam

Manual Call Points Strobes

Sounders Bells

Interface Modules

I.S. / Explosion Proof Devices

Marine Application Field

Devices

VIKING ASIA NETWORK

Viking relies on a vast network of regional offices, distributors and resellers across Asia to effectively serve the market. Contact the Viking Office nearest to you and we shall connect you with a distributor nearest your location.



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