

We see what you can't. The future of flame detection is here.

# Intelligent Visual Flame Detector

## FDS301

### Speed critical detection. No false alarms.

An explosion proof visual flame detector. Processing live video to detect the visual characteristics of flames. Delivered through its FM and SIL 2 certified flame detection algorithms and on-board digital signal processing. The safest and most advanced flame detector on the market. Proven to perform in the harshest environments anywhere in the world.



## Features and Benefits

### Highest Immunity to False Alarms

The FDS301 consistently demonstrates the highest immunity to false alarms in areas where flare reflections and / or hot CO2 emissions may cause other technologies to false alarm.

### No Sensitivity Loss

The FDS301 has been independently tested to show no sensitivity loss to a fire in the presence of modulated sunlight and modulated black body heat. This key feature means the unit has greater coverage than almost all other detectors in "real world" outdoor conditions.

### On-board Recording of Alarms

The FDS301 incorporates a micro-SD card capable of recording a video of detected fires pre and post alarm.

This recording is invaluable when carrying out an incident investigation and essentially by using the FDS301, there will never be an instance of an unknown alarm.

### Live Video

Each unit has a live color video stream output; this can provide an invaluable source of information insight into the conditions in the area being protected.

- Intelligent visual flame detection (iVFD) principle ensures maximum false alarm immunity and eliminates sensitivity loss in the presence of modulated sunlight and black body heat.
- Operates with or without color video output.
- On-board recording of pre-and post fire alarms
- Continuous optical test, without a reflector
  - Verifies operation and improves device up-time
- Microprocessor controlled heated optics
  - Maintains operation in harsh weather conditions (snow, ice, condensation)
- International hazardous area approvals
  - FM / ATEX / IEC Ex / INMETRO / PESO
- Certified performance testing to multiple fuels
  - FM 3260
  - EN 54-10
- Spatially aware—single sensitivity detection
- External testing with a long-range flame simulator
  - Minimizes the need for scaffolding
- Easy integration using industry standard outputs:
  - Alarm and Fault Relays
  - 0-20mA
  - HART®, as standard
- Certified SIL 2 capable
- Worldwide marine approvals

# Technical Specification

## Environmental

Operating Temp: -76°F to +185°F (-60°C to +85°C)  
Storage Temp: -76°F to +185°F (-60°C to +85°C)  
Humidity: 0 to 95% RH non-condensing

## Operating Voltage

24 Vdc Nominal – (Range 18 to 32 Vdc)

## Power Consumption

6 W minimum (without heater), 15 W at 32 Vdc with heater on maximum

## Field of View

90° horizontal by 65° vertical

## Flame Sensitivity

Fuel	Fire Size	Distance
n-Heptane pan fire	1 foot x 1 foot pan	144 feet (44m)
n-Heptane: direct sun-light	1 foot x 1 foot pan	144 feet (44m)
n-Heptane: modulated sunlight	1 foot x 1 foot pan	144 feet (44m)
n-Heptane: modulated black body	1 foot x 1 foot pan	144 feet (44m)
n-Heptane: Arc welding	1 foot x 1 foot pan	144 feet (44m)
n-Heptane: 1000 W lamp	1 foot x 1 foot pan	144 feet (44m)
Gasoline	1 foot x 1 foot pan	144 feet (44m)
JP4	2 foot x 2 foot pan	200 feet (61m)
Tri-ethylene glycol	1 foot x 1 foot pan	32 feet (10m)
Diesel	1 foot x 1 foot pan	130 feet (40m)
Crude oil (heavy fuel)	20" x 20" pan	130 feet (40m)
Methane Jet Fire	36" plume	100 feet (30m)
Ethanol	1 foot x 1 foot pan	85 feet (25m)
Silane	24" plume	42 feet (13m)

## Speed of Response

<7 seconds (Typical)

## Enclosure

Dimensions: 4" Dia x 8" L (inches) 100 mm  
Dia x 200 mm

Material: Copper free aluminum or  
316 stainless steel

Entry size: 3/4 inch NPT or M25, Single or Dual.

Weight: Aluminum 5.5 lbs (2.5 Kg)  
Stainless steel 13.2 lbs (6 Kg)

## Outputs

Relay contacts (SPST 2A at 30Vdc) – alarm and fault.  
0-20mA, HART®  
Live color video—PAL or NTSC

## Certification

FM approved  
Class 1 Div 1, Groups B, C, D T4  
Class 1 Zone 1 AEx/Ex db IIC T5/T6 Gb  
T5 Ambient: -50°C to +85°C  
T6 Ambient: -50°C to +70°C



ATEX II 2 G Ex db IIC T5/T6 Gb  
IECEx Ex db IIC T5/T6  
T5 Ambient: -60°C to +85°C  
T6 Ambient: -60°C to +70°C



INMETRO Ex db IIC T4  
PESO Ex db IIC T4  
Ta= -60°C to +85°C



## Performance approvals

FM 3260  
EN 54-10



## Ingress:

IP66/67 | NEMA type 4X/6P

## IEC 61508:

Certified SIL 2 Capable



## Marine:

DNV GL Type Approval  
ABS Product Assessment

## Accessories

- Flame simulator (FS301)
- 2", 3" & 4" Pole mount bracket
- Retrofit mounting bracket
- Marine mounting bracket
- Sunshield
- Duct Mount Bracket
- Air Shield
- Detector Sealing Kit