Multi Spectrum IR H$_2$ Flame Detector

FDS303H

Designed for hazardous industries where fast H$_2$ flame detection is critical and nuisance alarms are not an option.

The MICROPACK FDS303H is an explosion proof Multi Spectrum IR hydrogen (H$_2$) flame detector. The device delivers superior performance, responding to hydrogen fires at long distances.

The FDS303H has been independently tested to demonstrate it can detect a hydrogen plume fire at 40m (131 ft) in 5 seconds.

Description

Multi Spectrum IR H$_2$ Flame Detector

The FDS303H compliments the FDS series of Visual and IR3 Flame Detectors by delivering superior detection performance of hydrogen (H$_2$) fires. The FDS303H utilizes the latest IR flame detection algorithms to ensure maximum false alarm immunity.

Applications

Typical applications include:

- Petroleum refining
- Semiconductor manufacturing
- Aerospace applications
- Fertilizer production
- Pharmaceuticals
- Hydrogen Compressors
- Hydrogen Fueling Stations
- Hydrogen Trains / Buses
- Hydrogen Ferries
- Hydrogen to Methane Production
- Refrigeration
- Gas Plants
- Hydrogen Generators

Features and Benefits

- Multi Spectrum IR design delivers long detection distances and enhanced false alarm immunity
- 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*
- Designed to meet performance testing to multiple fuels
  - FM 3260
  - EN 54-10
- Adjustable sensitivity levels
  - For application flexibility
  - Ensure detectors do not cross vote
- 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 SIL2 capable
- 5 year warranty

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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 93% RH non-condensing

Operating Voltage

24 Vdc Nominal – (Range 18 to 32 Vdc)

Power Consumption

3 W minimum (heater off)
12 W maximum (heater on)

Field of View

90° horizontal by 90° vertical

Flame Sensitivity

	Fuel	Fire Size	Distance
High sensitivity	Hydrogen	0.9m (36 inch) plume	40m (131 feet)
	Methylated Spirits	0.3m x 0.3m (1ft^2)	20m (65 feet)
	Methanol	0.3m x 0.3m (1ft^2)	20m (65 feet)
	n-Heptane	0.3m x 0.3m (1ft^2)	12m (40 feet)
	Methane	0.9m (36 inch) plume	30m (100 feet)

Speed of Response

2–5 seconds (Typical) at 40 m (131 feet)

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®

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

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