IR3 Flame Detector Flameproof Ex d

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Invented for life

▶ Suitable for explosive areas of the zones 1, 21, 2 and 22 (ATEX and IECEx certified)

▶ Sensitivity according to EN 54-10 Class 1: 0.1 m² flames at 25m

▶ Low risk of false alarms due to different IR wavelengths and a combination of filters and signal processing techniques

▶ Reliable operation, even if the lens is contaminated by a layer of oil, dust, water-vapour, or ice
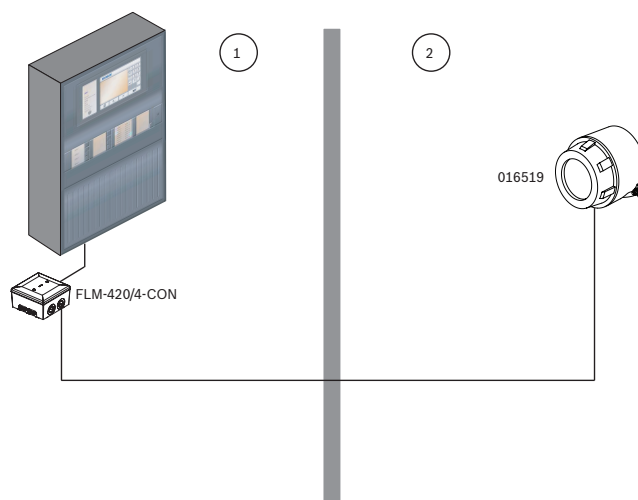
▶ Selectable response time

Flame detectors are used to detect open flames indoor and outdoor. They respond to the light emitted from flames during combustion.

Flame detectors are especially suitable for smokeless liquid and gas fires not visible for the naked eye as well as for fires of materials that contain carbon with strong smoke emission.

Typical areas of application are large industrial warehouses, airplane hangars, chemical facilities, oil refineries, machine rooms, ferries and freight ships, power plants, printing plants, wood warehouses, subway tunnels.

Flameproof equipment is contained in an enclosure so strong that an internal explosion will neither damage the enclosure nor be transmitted outside of it. The surface remains cool enough not to ignite the explosive mixture.

System overview

016519

FLM-420/4-CON

Pos.	Description
1	Non-Ex area
2	Ex area zone 1, 2, 21 or 22

Functions

Most IR flame sensors respond to 4.3 µm light, emitted by hydrocarbon flames. By responding to 0.75 to 2.7 µm light emissions from fires almost all flickering flames can be detected.

The flame detector has three IR sensors. The detector discriminates between flames and other light sources by responding only to particular optical wavelengths and flame flicker frequencies. False alarms due to factors as flickering sunlight are avoided by a combination of filters and signal processing techniques. Low-frequency detection enables the sensor to operate through a layer of oil, dust, water vapour, or ice.

An alarm is transmitted via current amplification (2-wire) or relay contact (4-wire). The alarm is also indicated with the integrated alarm LED.

Certifications and approvals

Region	Certification	
Germany	VdS	G 212189 IR3FlameDetector
Europe	CE	0165XX IR3 Flame Detector
	CPD	016519 Flameproof (Exd), IR3 Flame Detector

Installation/configuration notes

- The device complies with EN 54-10 Class 1.
- Applications and locations to avoid:
  – ambient temperatures above +55 °C
  – close proximity to radio frequency sources
  – exposure to severe rain and ice
  – large amounts of flickering reflections
  – large IR sources for instance heaters, burners, flares
  – obstructions to field of view
  – sunlight falling directly on the detector optics
  – spot lighting directly on the detector optics
- Latching mode is recommended (factory setting). Different alarm signalling modes can be set via DIP switches: current amplification (for 2-wire configuration) or relay contact (for 4-wire configuration).
- The device can be connected using an FLM-420/4-CON Conventional Interface Module to the Local Security Network LSN. The device can also be used in conjunction with a CZM 0004 A module. For connecting more than one IR3 Flame Detector use a four-wire connection with end of line element. Extended line monitoring is necessary for EN 54-13 compliant operation.
- The device cannot be used with an FPC-500 Conventional Fire Panel.
- No safety barrier is needed with this device.

Parts included

1 IR3 Flame Detector, flameproof, Red

Technical specifications

Dimensions

Detector (W x H x D)	146 x 150 x 137 mm
Cable gland entries	3 x 20 mm

Electrics

Terminal functions	
1 – 2	Supply in connections or 2-Wire connections +IN and -IN
3 – 4	Remote test input connections +R and -R
5 – 6	Alarm Relay RL1 connections
7 – 8	Fault Relay RL2 connections
Operating voltage	14 to 30 V DC
Current consumption, 2-Wire configuration	
Standby	4 mA
Alarm	20 mA
Current consumption, 4-Wire configuration	
Standby	8 mA
Alarm	20 mA

Mechanics

Housing material	Copper Free Aluminium Alloy (LM25)
Housing color	Red
Weight	2.5 kg
Protection category (EN 60529)	IP66

Equipment markings

ATEX	Ex II 2GD Ex d IIC T4 Gb Ex tb IIIC T135℃ Db IP66 A21
IECEx	Ex d IIC T4 Gb Ex tb IIIC T135℃ Db IP66 A21

Environmental conditions

Permissible operating temperature	-10 to +55℃
Permissible storage temperature	-20 to +65℃
Relative humidity	95%, no condensation

Special features

Detection principle	Detection of low frequency (1 to 15 Hz) flickering infrared radiation
Operating wavelength band	0.75 to 2.7 µm
Detection area	90° cone
Sensitivity	High (Class 1) and Low (Class 3)
Range	Class 1: 0.1 m² n-heptane at 25m Class 3: 0.1 m² n-heptane at 12m

Ordering information

IR3 Flame Detector Flameproof Ex d
016519 IR3 Flame Detector, flameproof, Red
Order number **016519**

Accessories

Stainless Steel Adjustable Mounting bracket
Order number **007127**

Portable Flame Detector Test Unit
Order number **016091**