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.

**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**

<table>
<thead>
<tr>
<th>Region</th>
<th>Regulatory compliance/quality marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>CPR 0832-CPR-F0583 IR3 Flame Detector</td>
</tr>
<tr>
<td>Germany</td>
<td>VdS G 212189 IR3FlameDetector</td>
</tr>
<tr>
<td>Europe</td>
<td>CE 0165XX IR3 Flame Detector</td>
</tr>
</tbody>
</table>

**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 (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.
  - Detector replacement cycle: 10 years

### Parts included

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IR3 Flame Detector, Blue</td>
</tr>
</tbody>
</table>

### Technical specifications

#### Dimensions

- Detector (W x H x D): 108 x 142 x 82 mm
- Cable gland entries: 2 x 20 mm

#### Electric

- 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

<table>
<thead>
<tr>
<th>Housing material</th>
<th>Die Cast Zinc Alloy (ZA12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing color</td>
<td>Blue</td>
</tr>
<tr>
<td>Weight</td>
<td>2 kg</td>
</tr>
<tr>
<td>Protection category (EN 60529)</td>
<td>IP65</td>
</tr>
</tbody>
</table>

#### Environmental conditions

- Permissible operating temperature: -10 to +55°C
- Permissible storage temperature: -20 to +65°C
- 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

- 016589 Flame detector, IR3
- 016589 IR3 Detector for open flames, for indoor and outdoor areas, Blue
- Order number: 016589

#### Accessories

- 007127 Mounting bracket for IR3 flame detector
- Order number: 007127

- 016091 Test unit for IR3 flame detector
- Order number: 016091