Infrared Flame Detectors are used to detect open flames in rooms or outdoors. They are especially suitable for smokeless liquid and gas fires as well as for fires of materials that contain carbon with strong smoke development.

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.

The DF1101A-Ex is an inherently safe Infrared Flame Detector for use in explosive areas of the zones 1 and 2, e.g. in high warehouse halls for flammable liquids, where liquid fires could occur in an explosive atmosphere.

**Functions**

The detection element of the Infrared Flame Detector consists of two pyroelectric sensors (sensor 1 and 2) and a silicon photo diode (sensor 3).

**System Overview**

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Non-Ex area</td>
</tr>
<tr>
<td>2</td>
<td>Ex area zone 1 or 2</td>
</tr>
</tbody>
</table>

† Compact, robust and nearly maintenance-free
† Suitable for outdoor use under extreme conditions
† Optimal adjustment to the environmental conditions with 10 DIP switches
† Two sensitivity levels
† Easy-to-see red individual display
† For room heights from 1.50 m to 20 m
While sensor 1 detects the flame, the other two sensors measure the malfunction beam in other wavelength ranges.

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Spectral range</th>
<th>Detection from</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.0 μm to 4.8 μm</td>
<td>CO₂</td>
</tr>
<tr>
<td>2</td>
<td>5.1 μm to 6.0 μm</td>
<td>Sources of interference</td>
</tr>
<tr>
<td>3</td>
<td>0.7 μm to 1.1 μm</td>
<td>Solar radiation</td>
</tr>
</tbody>
</table>

The combination of the three sensors and the intelligent signal processing with fuzzy algorithms and wavelet creates outstanding reliability of detection with high protection against false alarms.

Certifications and Approvals
The DF1101A-Ex meets the explosion classification in line with IEC 60079 and EN 50020 (Ex eb IIC T4).

<table>
<thead>
<tr>
<th>Region</th>
<th>Certification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>VdS G 299085</td>
</tr>
<tr>
<td>Europe</td>
<td>CE DF 1192</td>
</tr>
<tr>
<td></td>
<td>DF 1101-Ex</td>
</tr>
</tbody>
</table>

Installation/Configuration Notes
- Both Infrared Flame Detectors comply with EN 54-10.
- The response sensitivity and the resulting monitoring area of an Infrared Flame Detector depend on:
  - Detection distance
  - Possible spread of fire
  - Fire material
  - Detector sensitivity
  - Detector arrangement.
- Purely for physical reasons, IR flame detectors can detect no fires of inorganic materials (e.g. sulfur, phosphorous, magnesium, natrium, hydrogen, etc.).
- The detector must have a direct visual line to all possible fire locations of the monitoring area.
- Practical area monitoring is achieved with a detector arrangement at a 45° to the corners of the area.
- If the room height is more than 5 m, the detector axis should be aligned towards the opposite corner of the room.
- The space above the detector is outside of the detection area.
- Despite wide-ranging insensitivity, the sensors must be protected against direct or indirect sunlight; it may be necessary to install a covering housing.
- The Infrared Flame Detectors can be connected using a FLM-420/4-CON Conventional Interface Module to the Local SecurityNetwork LSN.

<table>
<thead>
<tr>
<th>Parts Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detector type   Qty.</td>
</tr>
<tr>
<td>DF1192  1</td>
</tr>
<tr>
<td>DF1101A-Ex  1</td>
</tr>
</tbody>
</table>

Note With the Infrared Flame Detectors DF1192 and DF1101A-Ex, the DFB1190 detector base is not included in the scope of delivery and must be ordered separately.

Technical Specifications

**Electrical**
- Operating voltage: 16 V DC … 28 V DC
- Standby current consumption: 0.5 mA

**Mechanics**
- Individual display: LED red
- Connection terminals: 0.2 mm² … 2.5 mm²
- Dimensions (W x H x D):
  - Detector: 135 x 135 x 32 mm
  - Detector incl. base: 135 x 135 x 77 mm
- Housing material:
  - Detector: Cast aluminum
  - Base: Plastic, PC, fiber-reinforced
- Color (detector and base): White, RAL 9010
- Weight incl. base:
  - DF1192: 500 g
  - DF1101A-Ex: 750 g

**Environmental conditions**
- Protection class as per EN 60529: IP 67
- Permissible operating temperature: -35 °C … +70 °C
- Permissible storage temperature: -40 °C … +75 °C
- Relative humidity: < 100 %, no heavy condensation of the sensor window

**Planning**
- Max. installation height: 1.5 … 20 m
- Max. monitoring area: 80 m² (Heed local guidelines!)

**Special features**
- Detection principle: Detection of infrared radiation
- Detection area: 90°
<table>
<thead>
<tr>
<th><strong>Ordering Information</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DF1192 Infrared Flame Detector</strong></td>
<td>DF1192</td>
</tr>
<tr>
<td><strong>DF1101A-Ex Infrared Flame Detector for Ex Areas</strong></td>
<td>DF1101A-Ex</td>
</tr>
<tr>
<td><strong>SB3 Safety Barrier incl. DCA1192 Input/Output Module</strong></td>
<td>SB3</td>
</tr>
<tr>
<td>limits the electrical energy between non-inherently safe and inherently safe circuits</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Accessories</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DFB1192-BASE Base for Infrared Flame Detector</strong></td>
<td>DF1192-BASE</td>
</tr>
<tr>
<td>Base for Infrared Flame Detectors DF1192 and DF1101A-Ex, including line termination EOL22(Ex)</td>
<td></td>
</tr>
</tbody>
</table>