DF1101-Ex

Infrared flame detector
Collective/SynoLINE 600
for explosion-hazard areas of zones 1 and 2

- For inside and outside applications
- Triple-sensor evaluation
  - Detection in various wavelengths
  - Microprocessor-controlled signal evaluation
- Selective evaluation of flicker frequency
- Selectable application algorithms
- Excellent immunity to false alarms thanks to a combination of patented fuzzy logic and Wavelet analysis
- Highest resistance to
  - electromagnetic influence
  - sunlight and heat radiation
  - humidity and corrosion
- Connection to the detection line via the DC1192 input/output module
  - for galvanic isolation and connection to the collective/SynoLINE 600, interactive or AnalogPLUS/SynoLOOP fire detection systems
- Connection to the detection line via the transponder FDCIO223
  - for galvanic isolation and connection to the addressable FDnet/C-NET fire detection system
Characteristics

- **Environmental**
  - ecologically processing
  - recyclable materials
  - electronic and synthetic material simple separable

- **Characteristics**
  - the detector housing made of aluminum also serves as a screen against electromagnetic interference (EMB)
  - the base housing consists of a robust, glass-fiber reinforced synthetic material
  - protected electronics
  - built-in alarm indicator (AI)
  - collective signal processing

- **Explosion protection category**
  - The infrared flame detector DF1101-Ex is designed to the explosion protection category ‘Intrinsic safety’ Ex i. The standards which cover this are EN50014 (IEC60079-0) und EN50020 (IEC60079-11)

Function

- Patented signal evaluation

![Signal Wavelet Fuzzy Logik Fuzzy Wavelet](image)

3 Sensors

- **Infrared radiation**
  - Sensor A: The pyroelectric sensor A reacts to infrared flame gas in the characteristic CO2 spectral range between 4.0...4.8 µm.
  - Sensor B: The pyroelectric B measures the infrared radiation of sources of interference in the range between 5.1...6 µm
  - Sensor C: The silicon photo diode measures the solar radiation in the range between 0.7...1.1 µm

- One sensor measures the hot carbon dioxide in a specific flame wavelength; the two other sensors simultaneously measure the interference radiation in other wavelengths.
- With intelligent signal processing through fuzzy algorithms and wavelet analysis, the DF1101-Ex achieves excellent detection reliability while maintaining the highest immunity to interference radiation and sunlight.
- In order to safeguard against a possible decision emergency, the detector contains an additional emergency activation channel.

- **Application**
  - Chemicals production plants, chemicals stores
  - Oil refineries
  - petrol storage and pump stations
  - Natural gas transfer points
  - Propane and butane filling installations
All explosion-hazard areas in which flaming fires involving carbonaceous materials are to be expected

**Installation in explosion-hazard areas**

Equipment installed in explosion-hazard areas must always comply with local national regulations.

The DC1192/FDCIO223 input/output module and the series-connected SB3 shunt Zener diode barrier are used as a galvanic isolation between explosion-hazard and non-hazardous areas.

**Non hazardous area**

- Input/output module DC1192
- Shunt Zener diode barrier SB3
- Flame detector DF1101-Ex

**Explosion-hazard area of zones 1 and 2**

- Transponder FDCIO223
- Equipotent bonding ground
- Alarm indicator DJ11xx-Ex, AJUT24-Ex
- Line termination EOL22(Ex) in the last detector

Further details can be found in the documents

- Fire protection in explosion-hazard areas, document no. 1204
- Input/output module DC1192, document no. 001571
- Transponder FDCIO223, document no. 009168
- Shunt Zener diode barrier SB3, document no. 001222

**Accessories**

- Mounting bracket MV1
- Ball and socket joint MWV1
- Rain hood DFZ1190
- Test lamp StabexHF

Is used to make a performance check on the flame detector.

**Design**

- easy installation of the housing on stable, vibration-free surfaces; the detector is only inserted after installation check, shortly before commissioning
- 6 threads M20 for screwed cable glands
- connection via two-wire installation with the control unit
- ext. alarm indicator connectable
- pluggable connection between flame detector and base
- mounting bracket MV1 for room surveillance to fix the detector at the right inclination angle
- ball and socket joint MWV1 for the orientation to an object
- rain hood DFZ1190 for outside applications
Technical data

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Operating voltage</td>
<td>DC 16...28 V</td>
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<tr>
<td>Operating current (quiescent)</td>
<td>0.5 mA</td>
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<tr>
<td>Alarm indicator (AI) ext. connectable and programmable</td>
<td>2</td>
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<tr>
<td>Operating temperature</td>
<td>-35...+70 °C</td>
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<tr>
<td>Storage temperature</td>
<td>-40...+75 °C</td>
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<tr>
<td>Humidity</td>
<td>≤95 % rel. (no heavy condensation of window)</td>
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<td>Connection factor KMK</td>
<td>6</td>
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<td>Connection terminals</td>
<td>0.2...2.5 mm²</td>
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<tr>
<td>Color</td>
<td>white, ~RAL 9010</td>
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<tr>
<td>Protection category EN 60529/IEC 60529</td>
<td>IP67</td>
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<tr>
<td>Standards</td>
<td>EN54-10</td>
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<td>– for flame detector</td>
<td>EN 50014 (IEC 60079-0), EN 50020 (IEC 60079-11)</td>
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<td>– for explosion-hazard areas</td>
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<tr>
<td>Ex classification</td>
<td>II 2 G Ex ib IIC T4 (-35 °C ≤Ta ≤70 °C)</td>
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<tr>
<td>Approvals</td>
<td>VdS G299085, PTB 02 ATEX 2161, LPCB 126bb/01</td>
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<td>Compatibility</td>
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<td>– By using the DC1192 input/output module and SB3 shunt Zener diode barrier it is compatible with fire detection system control units with collective/SynoLINE600, interactive or AnalogPLUS/SynoLOOP signal evaluation.</td>
<td></td>
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<tr>
<td>– By using the FDCIO223 transponder and SB3 shunt Zener diode barrier it is compatible with fire detection system control units with FDnet/C-NET signal evaluation.</td>
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</table>

Siemens Switzerland Ltd, Gubelstrasse 22
CH-6301 Zug, Switzerland
Technical data: see doc: 001673

DF1101-Ex - Flame detector for use in fire detection and fire alarm systems installed in buildings
Declared performance and conformity can be seen in the Declaration of Performance and the EC Declaration of Conformity, which is obtainable via the Customer Support center: Tel. +49 89 9221-8000 or http://siemens.com/it/download
DoP No.: 0786-CPR-20497; Doc No.: CED-DF1101-Ex
## Details for ordering

<table>
<thead>
<tr>
<th>Type</th>
<th>Part no</th>
<th>Designation</th>
<th>Weight</th>
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<tr>
<td>DF1101-Ex</td>
<td>BPZ:5166750001</td>
<td>Infrared flame detector</td>
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<td>DFB1190</td>
<td>BPZ:5165360001</td>
<td>Base</td>
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<td>–</td>
<td>A5Q00004478</td>
<td>Screwed cable gland M20 x 1.5</td>
<td>0.039 kg</td>
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<td>MV1</td>
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<td>Mounting bracket</td>
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<td>MWV1</td>
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<td>Ball and socket joint</td>
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<td>DFZ1190</td>
<td>BPZ:5302660001</td>
<td>Rain hood</td>
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<td>Stabex HF</td>
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<td>Test lamp</td>
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Building Technologies
CPS Fire Safety