Dräger PIR 7000
Detection of flammable gases and vapours

The Dräger PIR 7000 is an explosion proof point infrared gas detector for continuous monitoring of flammable gases and vapours. With its stainless steel SS 316L enclosure and drift-free optics this detector is built for the harshest industrial environments, e.g. offshore installations.
Benefits

**Dräger PIR 7000**

Two models of the Dräger PIR 7000 are available – type 334 and type 340. Each model works with a different measuring wavelength, thus giving the broadest possible range of detectable substances with superior accuracy.

**Advanced signal stability**

Following the success of the most stable point infrared gas detector worldwide – the Dräger Polytron IR – Dräger now introduce the Dräger PIR 7000 which encompasses the latest in revolutionary technology.

Based on patented innovations, the Dräger PIR 7000 combines a maximum light collecting construction with a 4-beam signal stabilising system. The total optical system uses no light beam split, simply a set of various reflectors. This double-compensating optical system is very resistant towards known influences such as dust, fog or insects frequently found in the measuring cuvette or by dirt accumulation on the optical surfaces. Due to its non-imaging construction, the measuring signal is not affected by a partial beam block.

This innovative optical system ensures that the Dräger PIR 7000 fulfils the customer requirements of ›no false alarms‹, longer service intervals and a drift-free signal output.

**Fast response**

Equally important is being informed about a potential hazard as early as possible. An early and reliable gas alarm allows for safety measures to be initiated on site.

To support this, the Dräger PIR 7000 offers a configurable response mode which allows the end user to choose between ›normal‹ or ›high speed‹ response subject to the application. Using the ›high speed‹ option, and combining it with the lowest feasible alarm threshold, the Dräger PIR 7000 shortens the reaction time in case of an alarm. Leakages can be detected at the earliest stage of their existence.

**Multiple configuration capabilities**

The Dräger PIR 7000 is delivered with the optimum default settings, but remains fully flexible to meet with the customers demands on an application-by-application basis. Whether it be reduced measuring ranges, configurable special signals (fault, beam block warning, maintenance), adjustable LEL values (values which are different across regions) all coupled with the configurable gas library (for other substances to be monitored) – all these features of the Dräger PIR 7000 offer the possibility to set up every device exactly to the customer’s needs and preferences.
Benefits

**Maximum reliability – SIL 2 certified**

After almost two decades of experience with infrared technology, leading to a continuously enhanced product quality, the Dräger PIR 7000 is further advanced as the total product has been developed in line with the Functional Safety standard EN 61508. This is applicable to both the devices hardware and software.

Furthermore, the excellent parameters as detailed in the SIL 2 (Safety Integrity Level) certificate, issued by the German TÜV show that only 2% from the entire SIL 2 budget is allocated to the field device, thus providing flexibility to choose control systems and actuators.

This is a new understanding of reliability – not only fulfilling but exceeding the SIL 2 requirements significantly.

**Dräger PIR 7000 offers**

- Configurable gas library – methane, propane and ethylene fixed, up to 10 additional substances can be uploaded
- Multiple mounting and configuration capabilities (signals acc. to NAMUR NE 43)
- Precise and stable measurement
- Fastest response of less than 1 second
- Beam block warning in case of dirty optics for preventive maintenance
- Long maintenance intervals
- Extended temperature range of up to +77 °C / +170 °F
- Double-compensating, non-imaging optics (using 4-beam technology)
- Single cable multidrop capability using HART® communication
- Conventional 4-to-20-mA analogue signal output
- Hermetically sealed SS 316 L enclosure
- Integrated tag holder for individual labelling
- No moving parts
- Resistant towards shock and vibration up to 4 G
- Continuous self-testing in the context of the IEC/EN 61508 standard
- Developed and manufactured according to the SIL guidelines, SIL 2 certified by TÜV
- Ex approvals for worldwide application: ATEX, IECEx, UL, CSA
- Dust approval for zone 21 and 22
- Typical lifetime greater than 15 years
System Components

Dräger REGARD® 7000

The Dräger REGARD® 7000 is a modular and therefore highly expandable analysis system for monitoring various gases and vapours. Suitable for gas warning systems with various levels of complexity and numbers of transmitters, the Dräger REGARD® 7000 also features exceptional reliability and efficiency. An additional benefit is the backward compatibility with the REGARD®.

Dräger REGARD® 3900

The Dräger REGARD® 3900 is a standalone, self contained control system for the detection of Toxic, Oxygen and Ex hazards. The control system is fully configurable between 1 and 16 channels, depending upon the type and quantity of input/output boards installed.

Dräger REGARD®-1

The Dräger REGARD®-1 is a standalone, self contained single channel control system for the detection of Toxic, Oxygen and Ex hazards. The control system is fully configurable for a single input from either a 4 to 20 mA transmitter or a Dräger Polytron® SE Ex measuring head.
## Accessories

### Mounting set

Mounting the transmitter on flat or curved surfaces, vibration-resistant up to 4 G, flexibly mountable in any 90° direction.

Order No.: 68 11 648

### Splash guard

Guards the measuring cuvette against dirt and dust, quick gas exchange through "chimney effect", reflecting fluorescent strips.

Order No.: 68 11 911

### Status display

The permanent display of the measuring mode or disruption with a green or yellow light signal, can be combined with other accessory parts.

Order No.: 68 11 625

### Process cuvette SGR

Sampling or process applications, fast response behavior through minimum inner volume, material: Stainless steel.

Order No.: 68 13 219
Accessories

**Flow cell**

Function test/calibration of the transmitter in high wind forces and/or high test gas concentration, including status display, suitable for process applications.

Order No.: 68 11 490

Related Products

**Dräger PEX 3000**

The transmitter Dräger PEX 3000 detects flammable gases and vapours in concentrations below their lower explosive limit. Its DD-sensor provides a long-term stable measuring signal and responds to gas within a few seconds.

**Dräger Polytron® 5700 IR**

The Dräger Polytron® 5700 IR is a cost effective explosion-proof transmitter for the detection of flammable gases in the lower explosive limit (LEL). It uses a high performance infrared Dräger PIR 7000 sensor that will quickly detect most common hydrocarbon gases. A 3-wire 4 to 20-mA analogue output with relays makes it compatible with most control systems.
Related Products

**Dräger PIR 7200**

The Dräger PIR 7200 is an explosion proof point infrared gas detector for continuous monitoring of carbon dioxide. Designed for the industrial use, the transmitter offers drift-free optics. And due to its robust product design the PIR 7200 can be operated even in harsh environments.

**Dräger PIR 3000**

The Dräger PIR 3000 is an explosion proof infrared gas detector for continuous monitoring of combustible gases and vapors. Based on a stainless steel SS 316 enclosure as well as on a good measuring performance, this transmitter offers an excellent price-performance-ratio.
## Technical Data

**Dräger PIR 7000**

<table>
<thead>
<tr>
<th>Type</th>
<th>Explosion proof gas transmitter with infrared sensor technology</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Principle of operation</strong></td>
<td>Temperature-compensated infrared absorption, 4-beam technology</td>
</tr>
</tbody>
</table>
| **Gases and ranges** | Methane, propane, ethylene 0 to 20…100 %LEL  
Methane 0 to 100 % vol.  
Further substances and measuring ranges on request |
| **Measuring performance** | Methane 0 to 100 % vol.  
Further substances and measuring ranges on request |
| **Digital resolution** | 0.5 %LEL |
| **Repeatability** | ≤ ± 1 %LEL |
| **Response time t_0.90** | ≤ 4 seconds (“normal response”)  
< 1 second (“fast response”) |
| **Long-term drift** | ≤ ± 1 %LEL after 12 months |
| **Output signals** | 4 to 20 mA, HART^® |
| **Fault signal** | ≤ 1.2 mA (configurable) |
| **Beam block warning signal** | 2 mA (configurable) |
| **Maintenance signal** | 3 mA (configurable) |
| **Power supply** | 13 to 30 V DC, 3-wire |
| **Power consumption** | 5.6 W (typical) |
| **Ambient conditions** | Temperature  
- 40 to + 77 °C / - 40 to + 170 °F (operating)  
- 40 to + 85 °C / - 40 to + 180 °F (storage)  
Humidity 0 to 100 %RH  
Pressure 700 to 1300 hPa / 23.6 to 32.5 inch Hg |
| **Enclosure** | Material Stainless steel SS 316L  
Connecting thread M25 or ¾” NPT  
Weight 2.2 kg (without accessories)  
Dimensions 160 mm x Ø 89 mm / 6.3 " x Ø 3.5 "  
Ingress protection IP 66 and IP 67, NEMA 4X |
| **Approvals** | ATEX  
Il 2G Ex d IIC T6 / T4 Gb (-40 to +40 °C / +80 °C)  
Il 2D Ex tb IIIIC T80 °C / T130 °C Db IP65 (-40 to +40 °C / +80 °C)  
IECEx  
Ex d IIC T6 / T4 Gb (-40 to +40 °C / +80 °C)  
Ex tb IIIIC T80 °C / T130 °C Db IP65 (-40 to +40 °C / +80 °C)  
UL (Classified)  
Class I, Div. 1, Groups A, B, C, D  
Class I, Zone 1, Group IIC  
Class II, Div. 1, Groups E, F, G  
CSA (C-US)  
Class I, Div. 1, Groups B, C, D  
Class II, Div. 1, Groups E, F, G  
Safety Integrity Level SIL 2 certified by TÜV (EN 61508, EN 50402) |
| **CE mark** | Electromagnetic compatibility (directive 89/336/EEC) |

**Dräger PIR 7000**

| Dräger PIR 7000 type 334 (NPT) HART^® | 68 11 552 |
| Dräger PIR 7000 type 334 (M25) HART^® | 68 11 550 |
## Ordering Information

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dräger PIR 7000 type 334 (M25) HART*, complete set</td>
<td>68 11 817</td>
</tr>
<tr>
<td>Dräger PIR 7000 type 340 (NPT) HART*</td>
<td>68 11 562</td>
</tr>
<tr>
<td>Dräger PIR 7000 type 340 (M25) HART*</td>
<td>68 11 560</td>
</tr>
<tr>
<td>Dräger PIR 7000 type 340 (M25) HART*, complete set</td>
<td>68 11 819</td>
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</tbody>
</table>

The complete set contains an Ex e junction box, splash guard, status indicator and mounting set, already pre-assembled.

### Accessories

<table>
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<tr>
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<tbody>
<tr>
<td>Mounting set</td>
<td>68 11 648</td>
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<tr>
<td>Duct mount set</td>
<td>68 11 850</td>
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<tr>
<td>Splash guard</td>
<td>68 11 911</td>
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<tr>
<td>Insect guard</td>
<td>68 11 609</td>
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<tr>
<td>Hydrophobic filter</td>
<td>68 11 890</td>
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<tr>
<td>Calibration adapter</td>
<td>68 11 610</td>
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<tr>
<td>Status indicator</td>
<td>68 11 625</td>
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<tr>
<td>Flowcell</td>
<td>68 11 490</td>
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<tr>
<td>Bump test adapter</td>
<td>68 11 630</td>
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<tr>
<td>Process adapter</td>
<td>68 11 915</td>
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<tr>
<td>Process cuvette</td>
<td>68 11 415</td>
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<tr>
<td>Magnetic wand</td>
<td>45 43 428</td>
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<tr>
<td>USB PC adapter</td>
<td>68 11 663</td>
</tr>
</tbody>
</table>

HART* is a registered trademark of the HCF, Austin, TX.
Notes

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