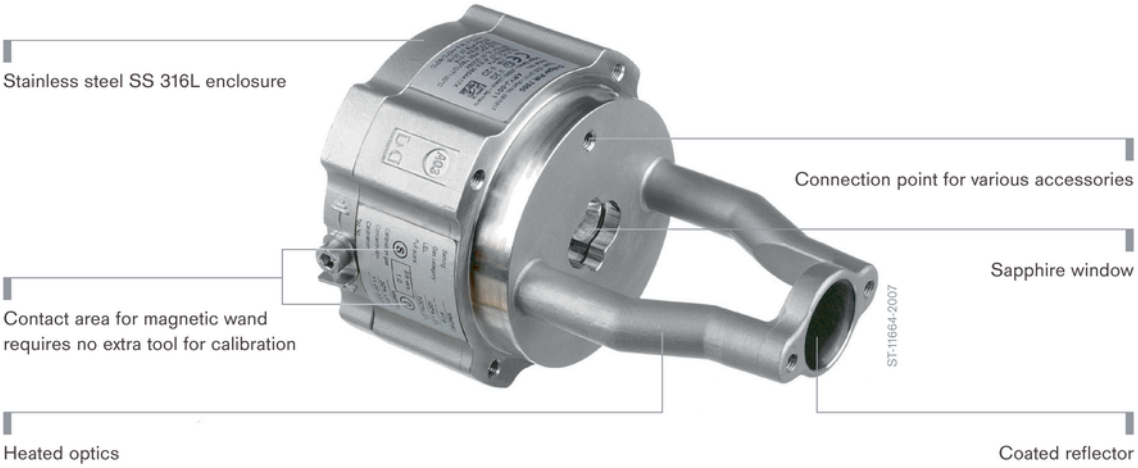
# Dräger PIR® 7000
# Flammable Gas Detection Transmitter

Constant monitoring of flammable gases and vapors is essential for a safe workplace. The Dräger PIR® 7000 is an explosion-proof point gas detection transmitter that uses infrared (IR) technology to continuously monitor flammable gases and vapors. With its stainless steel SS 316L enclosure and drift-free optics, this detector is built for the harshest industrial environments, including offshore installations.


Dräger. Technology for Life®

# Benefits

### Accurately detects a wide range of flammable substances

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

### Advanced signal stability

Following the success of the most stable point infrared gas detector worldwide—the Dräger Polytron IR—Dräger has introduced the 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 stabilizing system. The total optical system uses no light beam split, simply a set of various reflectors. This double-compensating optical system is very resistant to accumulation of dirt on the optical surface, as well as known influences such as dust, fog and insects, which are frequently found in the measuring cuvette. 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 fulfills the customer requirements of no false alarms, longer service intervals, and a drift-free signal output.

### Early detection enables fast response

For optimal safety, it is essential to be informed about a potential hazard as early as possible. A reliable gas monitor that detects leakages at the earliest stage allows you to initiate safety measures on site.

To support fast response, the Dräger PIR 7000 offers a configurable response mode that lets you choose between “normal” or “high speed” response, subject to the application. By 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 has a maximum number of default settings, but remains fully flexible to meet your needs on an application-by-application basis—whether you want to reduce measuring ranges, configure special signals (fault, beam block warning, maintenance), or adjust LEL values that 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 enable you to set up every device exactly to your specific needs and preferences.

### Standards-based design ensures high safety and reliability—SIL 2 certified

Almost two decades of experience with infrared technology has enabled Dräger to continuously enhance product quality. With the Dräger PIR 7000, the entire product—hardware and software—has been developed according to the Functional Safety standard EN 61508.

# Benefits

The International Electrotechnical Commission's (IEC) standard IEC 61508 defines Safety Integrity Level (SIL) using requirements grouped into two broad categories: hardware safety integrity and systematic safety integrity. A device or system must meet the requirements for both categories to achieve a given SIL.

The Drager PIR 7000 not only fulfills but exceeds SIL 2 requirements.

## Additional advantages

- 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
- 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 analog signal output
- Hermetically sealed SS 316L enclosure
- Integrated tag holder for individual labelling
- No moving parts
- Resistant to 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 zones 21 and 22
- Typical lifetime greater than 15 years

# System Components

D-6806-2016

## Dräger REGARD® 7000

When you need to monitor and analyze a number of various gases and vapors, the Dräger REGARD® 7000 is a modular and highly expandable analysis tool. Suitable for gas warning systems with various levels of complexity and numbers of transmitters, the Dräger REGARD® 7000 is exceptionally reliable and efficient. An additional benefit is the system's backward compatibility with legacy REGARD® controllers.

D-27777-2009

## Dräger REGARD® 3900

The Dräger REGARD® 3900 is a standalone control system for the detection of toxic gases, oxygen levels, 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.

ST-335-2004

## Dräger REGARD®-1

The Dräger REGARD®-1 is a standalone single-channel control system for the detection of toxic and Ex hazards and oxygen levels. 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

ST-11673-2007

## Mounting Set

This set lets you mount the transmitter on flat or curved surfaces, is vibration-resistant up to 4 G, and swings 90° in any direction.

Part number: 68 11 648

ST-5732-2006

## Duct Mount Kit

This set lets you mount the transmitter directly in the pipes, remaining air-tight even under positive pressure. Optional accessory parts are available for functional checks and remote calibration.

Part number: 68 11 850


ST-11679-2007

## Splash Guard

This unit protects the measuring cuvette against dirt and dust, provides quick gas exchange through a “chimney effect”, and has reflective fluorescent strips.

Part number: 68 11 911

ST-11706-2007

## Insect Guard

This UV-resistant guard protects against spiders or other insects that might block the gas inlet or outlet apertures of the splash guard.

Part number: 68 11 609

# Accessories

ST-11689-2007

## Hydrophobic Filter

This filter protects the measuring cuvette against dirt and dust, and can be combined with other accessory parts.

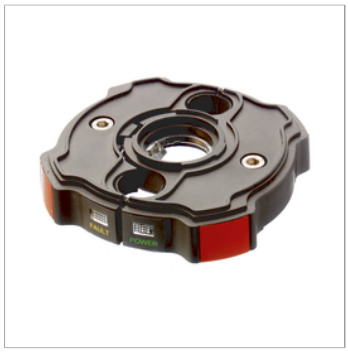
Part number: 68 11 890


ST-11681-2007

## Calibration Adapter

Mountable with one hand, this adapter lets you calibrate a transmitter (with mounted splash guard), up to a wind force of 55 mph.

Part number: 68 11 610

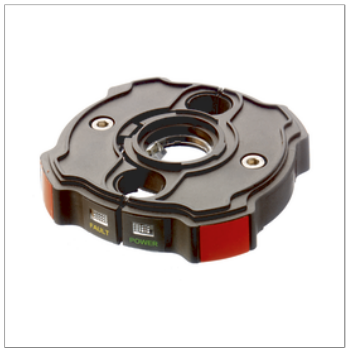


ST-11695-2007

## Status Indicator

The status indicator permanently displays the measuring mode or disruption with a green or yellow light signal, and can be combined with other accessory parts.

Part number: 68 11 625



ST-11695-2007

## Flow Cell

Suitable for process applications, this flow cells lets you perform function tests and calibrations of the transmitter in high wind forces and/or high test gas concentrations, and includes a status display.

Part number: 68 11 490

# Accessories

ST-5679-2006

## Remote Test Adapter

This adapter lets you perform function tests and calibrations of the transmitter remotely with the usual test gas concentrations, and includes a status display.

Part number: 68 11 630

ST-11687-2007

## Process Adapter

Constructed of conductible POM, this adapter is designed for sampling and process applications, and provides fast response due to minimum inner volume.

Part number: 68 11 915

D-16965-2014

## Process Cuvette SGR

Designed for sampling or process applications, this stainless steel unit provides fast response due to a minimum inner volume.

Part number: 68 13 219


ST-5673-2006

## Magnetic Wand

This device enables simple and fast calibration (zero-point and sensitivity) of the transmitter, providing feedback through status lights.

Part number: 45 43 428

## Accessories

D-34526-2009

### Dräger Polysoft

Dräger Polysoft is configuration and calibration software for the following stationary gas detection systems: Dräger PIR 7000, Dräger PIR 7200, Dräger Polytron® 8000, and includes status and diagnostic functions.

Part number: 83 23 405

## Services


D-19072-2016

### Dräger Service

When your operation's safety equipment is backed by over 125 years of experience and supported by the same team that engineered it, you can rely on service and rental solutions that are tailored to meet your unique needs. With Dräger's safety solutions, you get complete peace of mind, budget security, and full-service support that you can count on every step of the way. That's the Dräger Service Advantage.

# Related Products

ST-11660-2007

## Dräger PIR 7200

When looking for a carbon dioxide monitor you can trust, consider the Drager PIR 7200. This explosion-proof point gas detection transmitter uses the latest infrared (IR) technology to provide early detection of toxic gas. Designed for a wide variety of industrial environments, the transmitter offers drift-free optics. Due to its robust design and engineering, the PIR 7200 can be operated in harsh industrial environments.

ST-743-2006

## Dräger Polytron® IR

The Dräger Polytron® IR is an explosion-proof infrared gas detector for continuous monitoring of combustible gases and vapors. With its stainless steel body and drift-free optics, this gas detector is built for harsh offshore environments.

ST-3932-2005

## Dräger Polytron® Pulsar 2

The Dräger Polytron® Pulsar 2 represents the latest infrared technology in open path gas detection. Equipped with all the same functions as the standard Dräger Pulsar, Dräger Pulsar 2 is fitted with an ABS molded cover and comes with either a junction box or certified connector to provide installation flexibility.

# Technical Data

| **Dräger PIR 7000** | | |
|---|---|---|
| Type | Explosion-proof gas detection transmitter with infrared sensor technology | |
| Principle of operation | Temperature-compensated infrared absorption, 4-beam technology | |
| 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 (type 334, methane, 0 to 100 %LEL) | 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 |
| Electrical data | 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 1,300 hPa/23.6 to 32.5 inch Hg |
| Enclosure | Material | Stainless steel SS 316L |
| | Connecting thread | M25 or 3/4" NPT |
| | Weight | 2.2 kg (without accessories) |
| | Dimensions | 160 mm x Ø 89 mm / 6.3" x Ø 3.5" |
| | Ingress protection | IP66 and IP67, NEMA 4X |
| Approvals | ATEX | II 2G Ex d(e) IIC T6/T4 |
| | | II 2D Ex tD A21 IP65 T80 °C/T130 °C |
| | IECEx | Ex d IIC T6/T4 |
| | | Ex tD A21 IP65 T80 °C/T130 °C |
| | UL (Classified) | Class I, Div. 1, Groups A, B, C, D |
| | | 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 | SIL2 certified by TÜV (EN 61508, EN 50402) |
| | CE mark: electromagnetic compatibility (directive 89/336/EEC) | |

# Ordering Information

| **Dräger PIR 7000** | |
|---|---|
| Dräger PIR 7000 type 334 (NPT) HART® | 68 11 552 |
| Dräger PIR 7000 type 334 (M25) HART® | 68 11 550 |
| Dräger PIR 7000 type 334 (M25) HART®, complete set | 68 11 817 |
| Dräger PIR 7000 type 340 (NPT) HART® | 68 11 562 |

# Ordering Information

| | |
|---|---|
| Dräger PIR 7000 type 340 (M25) HART® | 68 11 560 |
| Dräger PIR 7000 type 340 (M25) HART®, complete set | 68 11 819 |
| The complete set contains an Ex e junction box, splash guard, status indicator and mounting set, already pre-assembled. | |

**Accessories**

| | |
|---|---|
| Mounting Set | 68 11 648 |
| Duct Mount Set | 68 11 850 |
| Splash Guard | 68 11 911 |
| Insect Guard | 68 11 609 |
| Hydrophobic Filter | 68 11 890 |
| Calibration Adapter | 68 11 610 |
| Status Indicator | 68 11 625 |
| Flow Cell | 68 11 490 |
| Bump Test Adapter | 68 11 630 |
| Process Adapter | 68 11 915 |
| Process Cuvette | 68 11 415 |
| Magnetic Wand | 45 43 428 |
| USB PC Adapter | 68 11 663 |

# Notes



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