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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.



ST-11660-2007



ST-11664-2007

Enclosure made of stainless steel SS 316L

Various accessories to be installed

Sapphire window

Contact area for magnetic wand – no extra tool for calibration

Heated optics

Coated reflector

Dräger. Technology for Life®

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



D-6806-2016

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®.



D-27777-2009

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.



ST-335-2004

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



ST-11673-2007

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



ST-11679-2007

Splash guard

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

Order No.: 68 11 911



ST-11695-2007

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



D-16965-2014

Process cuvette SGR

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

Order No.: 68 13 219

Accessories



ST-11695-2007

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



D-11158-2011

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.



D-14979-2010

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



ST-11660-2007

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.



ST-8822-2005

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		
Type	Explosion proof gas 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 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	II 2G Ex d IIC T6 / T4 Gb (-40 to +40 °C / +80 °C)
		II 2D Ex tb IIIC 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 IIIC 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	SIL2 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

Dräger PIR 7000 type 334 (M25) HART®, complete set	68 11 817
Dräger PIR 7000 type 340 (NPT) HART®	68 11 562
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
Flowcell	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
HART® is a registered trademark of the HCF, Austin, TX.	

Notes

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