Catalytic Bead DrägerSensor®
Sensors for Fixed Gas Detectors

The DrägerSensor® ... DQ detects flammable gases and vapours such as hydrogen. Due to the double-detector compensation method, the catalytic sensor is particularly long-term stable. The wire mesh at the gas inlet serves as a flame barrier. So it ensures explosion protection at the same time short response time.

Dräger. Technology for Life®

Benefits

The catalytic bead principle

The DrägerSensors ... DQ are based on the catalytic bead detection principle. The most important component are the hot, catalytically active pearls on platinum coils (pellistors). These pellistors burn the gas and additional heat of reaction is created. The temperature increases depending on the gas concentration and thus also changes the electrical resistance of the platinum coils. This change is passed on as a measuring signal. There are five different catalytic bead sensors from Dräger, which are used in different transmitters and measuring heads.

DrägerSensor® PR M DQ

PR stands for poison resistant. The pellistors of the DrägerSensor PR M DQ have a longer service life under the influence of poisonous substances. The sensor has a metric thread (M) on the back.

DrägerSensor® PR NPT DQ

The DrägerSensor PR NPT DQ also withstands poisoning substances for a long time. This sensor is equipped with a NPT thread on the back.

DrägerSensor® HT M DQ

The DrägerSensor HT M DQ can be used at ambient temperatures of up to 155 ° C and is also approved accordingly (HT = high temperature). This sensor also has a metric thread.

DrägerSensor® LC M

LC stands for >low concentration

DrägerSensor® LC NPT

The LC NPT sensor also detects gas concentrations in the measuring range of 0 to 10% LEL. It is equipped with a NPT thread.

System Components

D-13692-2010

Dräger Polytron® SE Ex

The Dräger Polytron® SE Ex ... DQ sensing heads are gas detectors for the continuous monitoring of flammable gases and vapours in the ambient air. Measurement is based on the heat of reaction principle where a chemical reaction takes place in a catalytic bead (also known as a pellistor) inside the sensor.

D-11158-2011

Dräger PEX 3000

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

D-32407-2011

Dräger Polytron® 5200 CAT

The Dräger Polytron® 5200 CAT is a cost-effective explosion-proof transmitter for the detection of flammable gases in the lower explosion limit (LEL). It uses a catalytic bead DrägerSensor® Ex ... DQ that will detect most flammable gases and vapours. A 3-wire 4 to 20 mA analogue output with relays makes it compatible with most control systems.

D-15042-2010

Dräger Polytron® 8200 CAT

The Dräger Polytron® 8200 CAT is an advanced explosion-proof transmitter for the detection of flammable gases in the lower explosion limit (LEL). It uses a catalytic bead DrägerSensor® Ex ... DQ that will detect most flammable gases and vapours. In addition to a 3-wire 4 to 20-mA analogue output with relays it also offers Modbus and Fieldbus protocols, making it compatible with most control systems.

System Components

D-11951-2016

Dräger PointGard 2200

The Dräger PointGard 2200 series is a self-contained gas detection system for the continuous area monitoring of flammable gases and vapours in ambient air. PointGard 2200's rugged, water-resistant housing comes complete with a horn and strobes, a built-in power supply, and reliable DrägerSensor®.

Related Products

ST-8821-2005

DrägerSensor IR

Upgrade from catalytic bead to infrared technology with ease using the DrägerSensor IR. The Sensor IR can replace catalytic ex-sensors (pellistors) from the majority of manufacturers without replacing controllers, cables, junction boxes or control systems.

Technical Data

DrägerSensor® PR M DQ, PR NPT DQ, HT M DQ

Environmental conditions	Temperature (PR M/NPT DQ)	-50 to +85 °C
	Temperature (HT M DQ)	-50 to +150 °C
	Pressure	800 to 1.200 hPa
	Relative humidity	5 to 95 % r. h.
Storage	Temperature	-40 to +65 °C
	Pressure	70 to 1.300 hPa
	Relative humidity	10 to 90 % r. h.

Gas or vapour	CAS-No.	LEL in Vol.-%	Typical sensitivity in mV/% LEL	Relative sensitivity based on propane	Response time[1] t_{50} in s	Response time[1] t_{90} in s
Acetone	67-64-1	2.5	0.8	1.1	≤ 12	≤ 24
Acetylene	74-86-2	2.3	0.9	1.3	≤ 12	≤ 21
Ammonia	7664-41-7	15.0	1.4	2.0	≤ 10	≤ 17
Petrol 065/095	---	1.1	0.6	0.9	≤ 12	≤ 24
Benzene	71-43-2	1.2	0.6	0.9	≤ 14	≤ 28
1,3-Butadiene	106-99-0	1.4	0.7	1.0	≤ 12	≤ 22
n-Butane	106-97-8	1.4	0.7	1.0	≤ 13	≤ 26
n-butyl acetate	123-86-4	1.2	0.5	0.7	≤ 14	≤ 33
Diethyl ether	60-29-7	1.7	0.7	0.9	≤ 15	≤ 30
Dimethyl ether	115-10-6	2.7	0.8	1.1	≤ 12	≤ 23
Acetic acid	64-19-7	4.0	0.5	0.7	≤ 14	≤ 34
Ethyl alcohol	64-17-5	3.1	0.8	1.1	≤ 13	≤ 24
Ethyl acetate	141-78-6	2.0	0.6	0.8	≤ 15	≤ 30
Ethylene (Ethene)	74-85-1	2.3	0.8	1.1	≤ 11	≤ 21
Ethylene oxide	75-21-8	2.6	0.7	1.0	≤ 11	≤ 22
n-hexane	110-54-3	1.0	0.5	0.7	≤ 14	≤ 29
Methane	74-82-8	4.4	1.1	1.6	≤ 10	≤ 19
Methanol	67-56-1	6.0	1.0	1.5	≤ 11	≤ 21
Methyl ethyl ketone	78-93-3	1.5	0.6	0.8	≤ 13	≤ 27
Methyl methacrylate	80-62-6	1.7	0.6	0.9	≤ 14	≤ 29
n-nonane	111-84-2	0.7	0.4	0.6	≤ 15	≤ 46
n-octane	111-65-9	0.8	0.5	0.7	≤ 15	≤ 31
n-pentane	109-66-0	1.1	0.6	0.8	≤ 14	≤ 33
Propane	74-98-6	1.7	0.7	1.0	≤ 12	≤ 23
i-propanol	67-63-0	2.0	0.7	0.9	≤ 13	≤ 25
Propylene (Propene)	115-07-1	2.0	0.8	1.2	≤ 11	≤ 21
Propylene oxide	75-56-9	1.9	0.7	0.9	≤ 13	≤ 25
Toluene	108-88-3	1.0	0.6	0.8	≤ 14	≤ 35
Hydrogene	1333-74-0	4.0	1.0	1.5	≤ 9	≤ 16
o-xylene	95-47-6	1.0	0.7	0.9	≤ 14	≤ 38

[1] Response times according to DIN EN 60079-29-1, Annex B, B.2.1 (with calibration adapter).

Technical Data

Approvals

DrägerSensor® PR M DQ	ATEX	II 2G Ex db IIC T6...T4 Gb, II 2G Ex tb IIIC T130°C...T195°C Db IP6x (-50°C ≤ Ta ≤ +40°C/55°C/85°C)
	IECEx	Ex db IIC T6...T4 Gb, Ex tb IIIC T130°C...T195°C Db IP6x (-50°C ≤ Ta ≤ +40°C/55°C/85°C)
DrägerSensor® PR NPT DQ	ATEX	II 2G Ex db IIC T6...T4 Gb, II 2G Ex tb IIIC T130°C...T195°C Db IP6x (-50°C ≤ Ta ≤ +40°C/55°C/85°C)
	IECEx	Ex db IIC T6...T4 Gb, Ex tb IIIC T130°C...195°C Db IP6x (-50°C ≤ Ta ≤ +40°C/55°C/85°C)
	UL	Class I, Groups A,B,C,D Class II, Groups E,F,G (-50°C ≤ Ta ≤ +85°C)
DrägerSensor® HT M DQ	ATEX	II 2G Ex db IIC T3 Gb, II 2GD Ex tb IIIC T195°C Db IP6x (-50°C ≤ Ta ≤ +155°C)
	IECEx	Ex db IIC T3 Gb, Ex tb IIIC T195°C Db IP6x (-50°C ≤ Ta ≤ +155°C)

DrägerSensor® LC M, LC NPT

Environmental conditions	Temperature	-40 to +85 °C
	Pressure	900 to 1100 hPa
	Relative humidity	5 bis 95 % r. h.
Storage	Temperature	-40 to +65 °C
	Pressure	70 to 1300 hPa
	Relative humidity	10 to 90 % r. h.

Gas	CAS-Nr.	LEL in Vol.-%	Test gas concentration in ppm	Test gas concentration in % LEL	Sensitivity in mV / % LEL	Reading of a methane-calibrated instrument in % LEL
Methane	74-82-8	4.0	2,5	6.0	7.0	6.0
Ammonia	7664-41-7	15.0	6	4.0	9.0	5.0
Ethene	74-85-1	2.0	1	4.0	5.0	3.0
Propane	74-98-6	2.0	1	6.0	4.0	3.0
Propene	115-07-1	2.0	700	4.0	5.0	2.0
Hydrogene	1333-74-0	4.0	2	5.0	6.0	4.0

Approvals

DrägerSensor® LC M	ATEX	II 2G Ex db eb IIC T6...T4, II 2D Ex tb IIIC T80...130°C Db IP6x (-40°C ≤ Ta ≤ +40/50/85°C)
	IECEx	Ex db eb IIC T6...T4, Ex tb IIIC T80...130°C Db IP6x (-40°C ≤ Ta ≤ +40/50/85°C)
DrägerSensor® LC NPT	ATEX	II 2G Ex db IIC T6...T4, II 2D Ex tb IIIC T80...130°C Db IP6x (-40°C ≤ Ta ≤ +40/50/85°C)
	IECEx	Ex db IIC T6...T4, Ex tb IIIC T80...130°C Db IP6x (-40°C ≤ Ta ≤ +40/50/85°C)

Ordering Information

Catalytic bead DrägerSensor®	
DrägerSensor® PR M DQ	68 14 140
DrägerSensor® HT M DQ	68 14 145
DrägerSensor® PR NPT DQ	68 14 150
DrägerSensor® LC M	68 10 350
DrägerSensor® LC NPT	68 10 675

Calibration / adjustment accessories	
Test gas cylinder methane apprx. 40 %LEL, 150 bar	on request
Pressure reducer	on request
Calibration adapter for PR M DQ, HT M DQ and PR NPT DQ[1]	68 06 978
Remote calibration adapter for PR M DQ, HT M DQ and PR NPT DQ[1]	68 12 480
Process adapter for PR M DQ, HT M DQ and PR NPT DQDQ	68 12 470
Calibration adapter for LC M and LC NPT	68 06 978

[1] metrologically tested according to EN 60079-29-1 (in connection with the respective measuring heads or transmitters)

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