



# Catalytic Bead DrägerSensor

## Sensor for fixed gas detectors

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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.

# Catalytic Bead DrägerSensor



# Benefits

## The catalytic bead principle

The DrägerSensors ... DQ (double detector with cross section opening) 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 six different catalytic bead sensors from Dräger, which are used in six 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 PR NPT DQ S

The DrägerSensor PR NPT DQ S has a housing made of higher quality stainless steel and is therefore more resistant to corrosion in aggressive and corrosive atmospheres.

## DrägerSensor HT M DQ

The DrägerSensor HT M DQ can be used at ambient temperatures of up to 150 °C and is also approved accordingly (HT = high temperature). This sensor also has a metric thread.

## DrägerSensor LC M

LC stands for >low concentration<. The DrägerSensor LC M detects very low gas concentrations in the measuring range from 0 to 10% LEL. This is possible by a special arrangement of the PR pellistors, as well as an amplifier electronics. The sensor has a metric thread.

## 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-1923-2022



## 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-16951-2024



## Dräger PEX 3000

The Dräger PEX 3000 transmitter detects flammable gases and vapours in concentrations below their lower explosive limit (100 % LEL). It helps you to increase the explosion protection of your plant. Its heat-tone sensor reacts to gas within just a few seconds, and the measurement signal remains particularly stable over the long term.

D-32407-2011



## Dräger Polytron 5200 CAT

The Dräger Polytron 5200 CAT is a cost-effective, explosion-proof transmitter designed for detecting flammable gases and vapours. It uses the catalytic DrägerSensor Ex... DQ. Due to the 3-wire operation and the 4 to 20 mA analogue output, you can combine the transmitter with most evaluation systems in your gas detection system.

D-797-2016



## Dräger Polytron 8200 CAT

The Dräger Polytron 8200 CAT is an explosion-proof high-end transmitter designed for detecting flammable gases and vapours. It uses the catalytic DrägerSensor Ex... DQ. In addition to the 3-wire operation with a 4 to 20 mA analogue output, it also offers HART, fieldbus options and Modbus, allowing you to integrate the transmitter with most control systems in your gas detection system.

# System Components



## Dräger PointGard 3200

The Dräger PointGard 3200 is a complete 1-channel gas detection system for measuring combustible gases or vapours in ambient air. In its robust yet compact housing with IP66 protection class, you have all the necessary alarm equipment needed.

# Related Products



## 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 (S), HT M DQ

Environmental conditions	Temperature (PR M/NPT DQ (S))	-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 <sup>1</sup> t <sub>50</sub> in s	Response time <sup>1</sup> t <sub>90</sub> 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
					≤ 7 (Diffusion)	≤ 13 (Diffusion)
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

# Technical Data

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
					≤ 8 (Diffusion)	≤ 14 (Diffusion)
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
					≤ 5 (Diffusion)	≤ 11 (Diffusion)
o-xylene	95-47-6	1.0	0.7	0.8	≤ 14	≤ 38

<sup>1</sup> Response times according to DIN EN 60079-29-1, Annex B, B.2.1 (with calibration adapter).

## Approvals

DrägerSensor PR M DQ	ATEX	II 2G Ex db IIC T6...T4 Gb, II 2D Ex tb IIIC T130 °C Db IP6x (-50 °C ≤ Ta ≤ +40 °C/55 °C/85 °C)
	IECEX	Ex db IIC T6...T4 Gb, Ex tb IIIC T130 °C Db IP6x (-50 °C ≤ Ta ≤ +40 °C/55 °C/85 °C)
DrägerSensor PR NPT DQ (S)	ATEX	II 2G Ex db IIC T6...T4 Gb, II 2D Ex tb IIIC T130 °C Db IP6x (-50 °C ≤ Ta ≤ +40 °C/55 °C/85 °C)
	IECEX	Ex db IIC T6...T4 Gb, Ex tb IIIC T130 °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 2D 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)

# Technical Data

## 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	4.4	2,640	6.0	6.5	6.0
Ammonia	7664-41-7	15.0	6,000	4.0	7.0	4.3
Ethene	74-85-1	2.3	920	4.0	5.0	3.0
Propane	74-98-6	1.7	1,020	6.0	3.5	3.2
Propene	115-07-1	2.0	800	4.0	4.0	2.4
Hydrogene	1333-74-0	4.0	2,000	5.0	5.0	3.8

## 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	6814140
DrägerSensor HT M DQ	6814145
DrägerSensor PR NPT DQ	6814150
DrägerSensor PR NPT DQ S	3701800
DrägerSensor LC M	6810350
DrägerSensor LC NPT	6810675

## Calibration / adjustment accessories

Test gas cylinder methane approx. 40 %LEL, 150 bar	on request
Pressure reducer	on request
Remote calibration adapter for PR M DQ, HT M DQ and PR NPT DQ (S) <sup>1</sup>	6812480
Process adapter for PR M DQ, HT M DQ and PR NPT DQ (S)	6812470
Process adapter LC	6812465
Remote calibration adapter LC <sup>1</sup>	6812482
Calibration adapter Viton™	6810536
Gassing adapter PE	6806978
Splash guard	6812510
Dust filter discs (10 Pcs.)	6810537
Gore® membrane VE8 set	8326840

<sup>1</sup> metrologically tested according to EN 60079-29-1 (in connection with the respective measuring heads or transmitters)

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