

# DrägerSensor® CatEx 125 PR

Order no. 68 12 950

Used in	Plug & Play	Replaceable	Guaranty	Expected sensor life	Selective filter
Dräger X-am 1/2/5000	–	yes	3 years	> 4 years	–
Dräger X-am 8000	–	yes	3 years	> 4 years	–

## MARKET SEGMENTS

Telecommunications, shipping, sewage, gas supply companies, refineries, chemical industry, mining, landfills, biogas plants, sewage treatment plants, tunneling.

## TECHNICAL SPECIFICATIONS

<b>Detection limit:</b>	2% LEL
<b>Resolution:</b>	1.0% LEL for measuring range 0 to 100% LEL, 0.1 Vol.-% for measuring range 0 to 5 Vol.-% CH <sub>4</sub> (methane)
<b>Measurement range:</b>	0 to 100% LEL in Dräger X-am 2500/5000 or 0 to 100 Vol.% CH <sub>4</sub> (methane) in Dräger X-am 5000
<b>General technical specifications</b>	
<b>Ambient conditions</b>	
Temperature:	(–20 to 55)°C (–4 to 131)°F
Humidity:	(10 to 95)% RH
Pressure:	(700 to 1,300) hPa
<b>Warm-up time:</b>	≤ 3 minutes

## FOR THE MEASUREMENT RANGE 0 TO 100% LEL WHEN CALIBRATED WITH METHANE IN AIR:

<b>Response time:</b>	≤ 17 seconds (T <sub>90</sub> ) at 25 °C (77 °F) ≤ 7 seconds (T <sub>50</sub> ) at 25 °C (77 °F) typical values for X-am 2500 T <sub>90</sub> at 25 °C (77 °F) ≤ 12 seconds typical values for X-am 5000 T <sub>90</sub> at 25 °C (77 °F) ≤ 10 seconds
<b>Measurement accuracy:</b>	≤ ± 1% LEL
<b>Long-term drift</b>	
Zero point:	≤ ± 2% LEL/month typical value in X-am 2500/5000 ≤ 1% LEL/month
Sensitivity:	≤ ± 2% LEL/month typical value in X-am 2500/5000 ≤ 1% LEL/month
<b>Influence of temperature</b>	
Zero point:	≤ ± 0.1% LEL/K at (–20 to 40)°C (–4 to 104)°F
Sensitivity:	≤ ± 0.1% of measured value/K at (–20 to 40)°C (–4 to 104)°F
<b>Influence of humidity</b>	
Zero point:	≤ ± 1% LEL
Sensitivity:	≤ ± 2% LEL (test gas 50% LEL), effect of humidity when calibrating at 0% relative humidity in the range of 10–90 % at 40°C)
<b>Effect of sensor poisons:</b>	Hydrogen sulfide H <sub>2</sub> S, 1000 ppmh ≤ ±2% of the measured value Hexamethyldisiloxane HMDS 10 ppmh ≤ ±5 % of the measured value Hexamethyldisiloxane HMDS 30 ppmh ≤ ±20 % of the measured value. After an exposure to HMDS of 10 ppm for 5 hours, the loss of sensitivity is less than 50%. Halogenated hydrocarbons, volatile substances containing sulphur, heavy metals and silicon, or substances capable of polymerisation: poisoning possible.

## FOR THE MEASUREMENT RANGE 0 TO 100% LEL WHEN CALIBRATED WITH PROPANE IN AIR:

<b>Response time:</b>	$\leq 10$ seconds ( $T_{50}$ ) at 25 °C (77 °F) $\leq 32$ seconds ( $T_{90}$ ) at 25 °C (77 °F) typical values for X-am 2500 $T_{90}$ at 25 °C (77 °F) $\leq 24$ seconds typical values for X-am 5000 $T_{90}$ at 25 °C (77 °F) $\leq 14$ seconds
<b>Measurement accuracy:</b>	1 % LEL
<b>Long-term drift</b>	
Zero point:	$\leq \pm 2\%$ LEL/month
Sensitivity:	$\leq \pm 2\%$ LEL/month
<b>Influence of temperature</b>	
Zero point:	$\leq \pm 0.1\%$ LEL/K at (-20 to 40)°C (-4 to 104)°F
Sensitivity:	$\leq \pm 0.1\%$ of measured value/K at (-20 to 40)°C (-4 to 104)°F
<b>Influence of humidity</b>	
Zero point:	$\leq \pm 1\%$ LEL
Sensitivity:	$\leq \pm 2\%$ LEL (test gas 50% LEL), effect of humidity when calibrating at 0% relative humidity in the range of 10 - 90% at 40°C.

## FOR THE MEASUREMENT RANGE 0 TO 100 VOL.-% CH<sub>4</sub>:

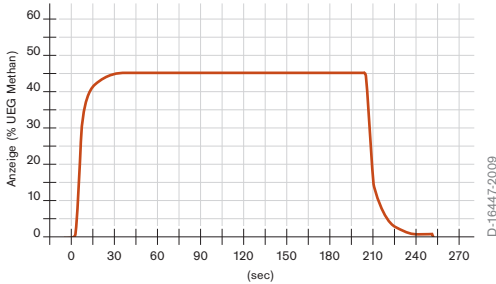
<b>Response time:</b>	$\leq 30$ seconds ( $T_{90}$ ) at 5 to 100 Vol.-% at 25 °C (77 °F)
<b>Measurement accuracy</b>	$\leq \pm 1\%$ LEL
<b>Linearity error:</b>	
0 to 50 Vol.-%	$\leq \pm 5$ Vol.-%
50 to 100 Vol.-%	$\leq \pm 10\%$ of measured value
<b>Long-term drift</b>	
Zero point:	$\leq \pm 3$ Vol.-%/month
Sensitivity:	$\leq \pm 3$ Vol.-%/month
<b>Influence of temperature:</b>	$\leq \pm 0.15$ Vol.-%/K at (-20 to 40)°C (-4 to 104)°F
<b>Influence of humidity:</b>	$\leq \pm 0.15$ Vol.-%/ %RH at 40°C / 104°F
<b>Test gas:</b>	approx. 2 Vol.-% or 50 Vol.-% CH <sub>4</sub> test gas

This setting is not suitable for the monitoring of explosive mixtures in the measuring range of 0 to 100% LEL.

## SPECIAL CHARACTERISTICS

The DrägerSensor® CatEx 125 PR (Poison Resistant) is used to detect flammable gases and vapors. The detection of hydrocarbons from methane to nonane is certified by a measurement performance certificates for use in the Dräger X-am 1/2/5000 series in accordance with EN 60079-29-1 and EN 50271. It also has a small long-term drift, few influence of humidity and excellent poison resistance against hydrogen sulfide, siloxiane and other sensor poisons.

Ansprechzeit des DrägerSensor CatEx 125 PR  
im X-am 5000 bei 45% UEG Methan



## DETECTING OTHER GASES AND VAPORS

Through the use of cross sensitivities for the measurement range of 0 to 100% LEL. The figures given are typical readings when calibrated with methane (CH<sub>4</sub>) and apply to new sensors without additional diffusion barriers. A LEL of 4.4 Vol.-% was used for methane. If a LEL of 5.0 Vol.-% is used, then the figures in the table must be multiplied by a factor of 0.88. The table does not claim to be complete. The sensor may also be sensitive to other gases and vapors.

Gas/vapor	Chem. symbol	Test gas concentration in Vol.-%	Displayed reading in % LEL
Acetone	CH <sub>3</sub> COCH <sub>3</sub>	1.25	31
Acetic acid	CH <sub>3</sub> COOH	3.0	23
Acetylene	C <sub>2</sub> H <sub>2</sub>	1.15	36
Ammonia	NH <sub>3</sub>	7.7	57
Benzene	C <sub>6</sub> H <sub>6</sub>	0.6	25
Butadiene -1,3	CH <sub>2</sub> CHCHCH <sub>2</sub>	0.7	27
Butane	C <sub>4</sub> H <sub>10</sub>	0.7	26
n-butanol	C <sub>4</sub> H <sub>9</sub> OH	0.7	20
Butanone	CH <sub>3</sub> COC <sub>2</sub> H <sub>5</sub>	0.75	22
n-butyl acetate	CH <sub>3</sub> COOC <sub>4</sub> H <sub>9</sub>	0.6	17
Carbon monoxide	CO	5.45	32
Cyclohexane	C <sub>6</sub> H <sub>12</sub>	0.5	20
Cyclopentane	C <sub>5</sub> H <sub>10</sub>	0.7	27
Diethylamine	(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> NH	0.85	28

Gas/vapor	Chem. symbol	Test gas concentration in Vol.-%	Displayed reading in % LEL
Diethyl ether	$(C_2H_5)_2O$	0.85	27
Ethane	$C_2H_6$	1.2	35
Ethanol	$C_2H_5OH$	1.55	33
Ethene	$C_2H_4$	1.2	36
Ethyl acetate	$CH_3COOC_2H_5$	1.0	25
Heptane	$C_7H_{16}$	0.4	17
Hexane	$C_6H_{14}$	0.5	20
Hydrogen	$H_2$	2.0	49
Methane	$CH_4$	2.2	50
Methanol	$CH_3OH$	3.0	40
Methyl tert-butyl ether (MTBE)	$CH_3OC(CH_3)_3$	0.8	25
Nonane	$C_9H_{20}$	0.35	14
1-Methoxy-Propanol-2-	$C_4H_{10}O_2$	0.9	21
Octane	$C_8H_{18}$	0.4	17
Pentane	$C_5H_{12}$	0.55	21
Pentanol	$C_5H_{11}OH$	0.6	19
Propane	$C_3H_8$	0.85	29
Propanol	$C_3H_7OH$	1.00	27
Propene	$C_3H_6$	1.00	35
Propylene oxide	$C_3H_6O$	0.95	25
Styrene	$C_6H_5CHCH_2$	0.5	11
Toluene	$C_6H_5CH_3$	0.5	20
o-Xylene	$C_6H_4(CH_3)_2$	0.55	22

The given values may fluctuate by  $\pm 30\%$ .

The table does not claim to be complete. The sensor may also be sensitive to other gases and vapours. Poisoning of the sensor may also alter the relative sensitivities for certain gases and vapours. After overstepping the measuring range there could be increased readings in the measuring range 0 to 100 %LEL. Calibrate the sensor, if necessary. The given test gas concentrations correspond to 50% of the lower explosion limit of each test gas (source: E. Brandes, W. Möller: Technical safety data, PTB, ISBN 978-3-86509-811-5, edition 2008).



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