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

Detection limit:	2% LEL
Resolution:	1.0% LEL for measuring range 0 to 100% LEL, 0.1 Vol.-% for measuring range 0 to 5 Vol.-% CH_4 (methane)
Measurement range:	0 to 100% LEL in Dräger X-am 2500/5000 or 0 to 100 Vol.% CH_4 (methane) in Dräger X-am 5000
General technical specifications	
Ambient conditions	
Temperature:	(–20 to 55)°C (–4 to 131)°F
Humidity:	(10 to 95)% RH
Pressure:	(700 to 1,300) hPa
Warm-up time:	≤ 3 minutes

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

Response time:	≤ 17 seconds (T_{90}) at 25 °C (77 °F) ≤ 7 seconds (T_{50}) at 25 °C (77 °F) typical values for X-am 2500 T_{90} at 25 °C (77 °F) ≤ 12 seconds typical values for X-am 5000 T_{90} at 25 °C (77 °F) ≤ 10 seconds
Measurement accuracy:	≤ ± 1% LEL
Long-term drift	
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
Influence of temperature	
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
Influence of humidity	
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)
Effect of sensor poisons:	Hydrogen sulfide H_2S, 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:

Response time:	≤ 10 seconds (T_{50}) at 25 °C (77 °F) ≤ 32 seconds (T_{90}) at 25 °C (77 °F) typical values for X-am 2500 T_{90} at 25 °C (77 °F) ≤ 24 seconds typical values for X-am 5000 T_{90} at 25 °C (77 °F) ≤ 14 seconds
Measurement accuracy:	1 % LEL
Long-term drift	
Zero point:	≤ ± 2% LEL/month
Sensitivity:	≤ ± 2% LEL/month
Influence of temperature	
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
Influence of humidity	
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.

FOR THE MEASUREMENT RANGE 0 TO 100 VOL.-% CH_4:

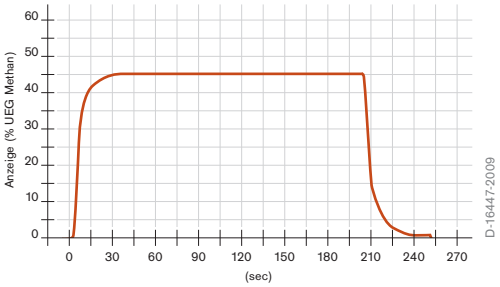
Response time:	≤ 30 seconds (T_{90}) at 5 to 100 Vol.-% at 25 °C (77 °F)
Measurement accuracy	≤ ± 1 % LEL
Linearity error:	
0 to 50 Vol.-%	≤ ± 5 Vol.-%
50 to 100 Vol.-%	≤ ± 10% of measured value
Long-term drift	
Zero point:	≤ ± 3 Vol.-%/month
Sensitivity:	≤ ± 3 Vol.-%/month
Influence of temperature:	≤ ± 0.15 Vol.-%/K at (–20 to 40)°C (–4 to 104)°F
Influence of humidity:	≤ ± 0.15 Vol.-%/ %RH at 40°C / 104°F
Test gas:	approx. 2 Vol.-% or 50 Vol.-% CH_4 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_4) 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_3COCH_3	1.25	31
Acetic acid	CH_3COOH	3.0	23
Acetylene	C_2H_2	1.15	36
Ammonia	NH_3	7.7	57
Benzene	C_6H_6	0.6	25
Butadiene -1,3	$CH_2CHCHCH_2$	0.7	27
Butane	C_4H_{10}	0.7	26
n-butanol	C_4H_9OH	0.7	20
Butanone	$CH_3COC_2H_5$	0.75	22
n-butyl acetate	$CH_3COOC_4H_9$	0.6	17
Carbon monoxide	CO	5.45	32
Cyclohexane	C_6H_{12}	0.5	20
Cyclopentane	C_5H_{10}	0.7	27
Diethylamine	$(C_2H_5)_2NH$	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_5H11OH	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 ±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).