

DrägerSensor® IR EX

Order no. 68 12 180

Used in	Plug & Play	Replaceable	Guaranty	Expected sensor life	Selective filter
Dräger X-am 5600	–	yes	5 years	> 5 years	–

MARKET SEGMENTS

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

TECHNICAL SPECIFICATIONS

Detection limit:	1% LEL/0.2 Vol.-%
Resolution:	1% LEL/0.1 Vol.-% (dependent on measuring range)
Measurement range:	0 to 100% LEL/0 to 100 Vol.-% depending on the gas being measured
Ambient conditions	
Temperature:	(–20 to 50)°C (–4 to 120)°F
Humidity:	(10 to 95)% RH
Pressure:	(700 to 1,300) hPa
Warm-up time:	≤ 5 minutes

FOR THE MEASUREMENT RANGE 0 TO 100% LEL OR 0 TO 4.4 VOL.-% CH₄ WHEN CALIBRATED WITH METHANE IN AIR:

Response time:	Diffusion mode ≤ 10 seconds (T ₅₀) Diffusion mode ≤ 20 seconds (T ₉₀) Pump mode ≤ 10 seconds (T ₅₀) Pump mode ≤ 15 seconds (T ₉₀)
Measurement accuracy	
Sensitivity:	≤ ± 1.5% LEL methane at 50% LEL
Linearity error, typical:	≤ ± 3.5% of measured value or ≤ ± 1.5% of the highest figure in the set measuring (whichever is higher)
Long-term drift	
Zero point:	≤ ± 1% LEL methane/month
Sensitivity:	≤ ± 3% LEL methane/month at 50% LEL
Influence of temperature	
Zero point:	≤ ± 0.02% LEL methane/K at (–20 to 50)°C (–4 to 120)°F
Sensitivity:	≤ ± 0.1% LEL methane/K at 50% LEL and (–20 to 50)°C (–4 to 120)°F
Effect of humidity, at 40°C (104 °F) (0 to 95% RH, non-condensing)	
Zero point:	≤ ± 0.01% LEL methane/% RH

**FOR THE MEASUREMENT RANGE 0 TO 100% LEL OR 0 TO 1.7 VOL.-% C₃H₈
WHEN CALIBRATED WITH PROPANE IN AIR:**

Response time:	Diffusion mode ≤ 12 seconds (T ₅₀) Diffusion mode ≤ 40 seconds (T ₉₀) Pump mode ≤ 15 seconds (T ₅₀) Pump mode ≤ 20 seconds (T ₉₀)
Measurement accuracy	
Sensitivity	≤ ± 1.25% LEL propane at 50% LEL
Linearity error, typical:	≤ ± 3.0% of measured value or ≤ ± 1.0% of the highest figure in the set measuring (whichever is higher)
Long-term drift	
Zero point:	≤ ± 3% LEL propane/month
Sensitivity	≤ ± 4% LEL propane/month at 50% LEL
Influence of temperature	
Zero point:	≤ ± 0.06% LEL propane/K
Sensitivity	≤ ± 0.13% LEL propane/K at 50% LEL
Effect of humidity, at 40°C (104 °F) (0 to 95% RH, non-condensing)	
Zero point:	≤ ± 0.01% LEL propane/% RH
Test gas:	2 Vol.-% CH ₄ or 50 Vol.-% CH ₄ 0.9 Vol.-% C ₃ H ₈

SPECIAL CHARACTERISTICS

This sensor can be used for LEL monitoring, and Vol.-% monitoring for some gases. It is also the ideal sensor for measuring hydrocarbons in an inert atmosphere, since its measuring method does not depend on the presence of oxygen. This sensor also has a very long life time, and there is no risk of poisoning from sulfurous or silicone compounds.

COMPATIBLE GASES AND MEASURING RANGES:

Gas	Data set name	Measurement range
n-butane	buta	0 to 100% LEL ²⁾
n-BUTANE	BUTA	0 to 100 Vol.-%
Ethene	c ₂ h ₄	0 to 100% LEL ²⁾
ETHENE	C ₂ H ₄	0 to 100 Vol.-%
Ethanol	EtOH	0 to 100% LEL ²⁾
Ex	Ex	0 to 100% LEL
JetFuel	JetF	0 to 100% LEL ²⁾
Methane	ch ₄	0 to 100% LEL ²⁾
METHANE	CH ₄	0 to 100 Vol.-%
n-nonane	Nona	0 to 100% LEL ²⁾
n-pentane	Pent	0 to 100% LEL ²⁾
Propane	c ₃ h ₄	0 to 100% LEL ²⁾
PROPANE	C ₃ H ₈	0 to 100 Vol.-%
Toluene	Tolu	0 to 100% LEL ²⁾

²⁾ LEL figures depend on country-specific standards.

DETECTION OF OTHER GASES AND VAPORS FOR THE MEASURING RANGE 0 TO 100% LEL

Gas/vapor gas	Chemical symbol	Test gas concentration in Vol.-%	Reading displayed in % LEL (if calibrated to 0.85 Vol.-% propane)	Cross-sensitivity factor
Acetone	C_3H_6O	1.25	18	2.78
Acetylene	C_2H_2	–	not possible	–
Benzene	C_6H_6	0.6	20	2.50
Butadiene -1,3	C_4H_6	0.7	20	2.50
i-Butane	$(CH_3)_3CH$	0.75	41	1.22
n-Butane	C_4H_{10}	0.7	42	1.19
i-Butene	$(CH_3)_2C=CH_2$	0.8	31	1.61
n-Butanol	$C_4H_{10}O$	0.85	25	2.0
2-Butanone (MEK)	C_4H_8O	0.75	22	2.27
Butyl Acetate	$C_6H_{12}O_2$	0.60	20	2.5
Cyclohexane	C_6H_{12}	0.50	15	3.33
Cyclopentane	C_5H_{10}	0.7	47	1.06
Dimethyl Aether	C_2H_6O	1.35	51	0.98
Diethylamine	$C_4H_{11}N$	0.85	44	1.14
Diethyl Aether	$(C_2H_5)_2O$	0.85	46	1.09
Ethane	C_2H_6	1.2	65	0.77
Ethylalcohol	C_2H_6O	1.55	41	1.22
Ethene	C_2H_4	1.2	15	3.33
Ethylacetate	$C_4H_8O_2$	1.0	35	1.43
Ethyl acetate	$C_5H_8O_2$	0.85	26	1.92
n-Heptane	C_7H_{16}	0.55	36	1.39
n-Hexane	C_6H_{14}	0.5	34	1.47
Methane	CH_4	2.2	37	1.35
Methanol	CH_4O	3.0	92	0.54
n-Methoxy-2-Propanol	$C_4H_{10}O_2$	0.9	26	1.92
Methyl-tert-butyl aether	$C_5H_{12}O$	0.80	59	0.85
Methyl chloride	CH_3Cl	3.8	47	1.06
Methylen chlorid	CH_2Cl_2	6.5	on request	–
Methyl ethyl ketone	C_4H_8O	0.75	22	2.27
n-Nonane	C_9H_{20}	0.35	on request	–
n-Octane	C_8H_{18}	0.40	20	2.50
n-Pentane	C_5H_{12}	0.55	36	1.39
Propane	C_3H_8	0.85	50	1.00
n-Propylalcohol	C_3H_7OH	1.05	40	1.25
Propene	C_3H_6	0.90	31	1.61
Propylene oxide	C_3H_6O	0.95	49	1.02
Toluene	$C_6H_5CH_3$	0.50	19	2.63
o-Xylene	$C_6H_4(CH_3)_2$	0.5	11	4.55



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