

# DrägerSensor® XXS Odorant

Order no. 68 12 535

Used in	Plug & Play	Replaceable	Guaranty	Expected sensor life
Dräger X-am 5000	no	yes	1 year	> 2 years
Dräger X-am 5600	no	yes	1 year	> 2 years
Dräger X-am 8000	no	yes	1 year	> 2 years

## Selective filter

B2X (68 12 424) – replaceable.

Cross sensitivities to hydrogen sulfide (H<sub>2</sub>S) and sulfur dioxide (SO<sub>2</sub>) are eliminated.

The filter's service life can be calculated as follows: 1,000 ppm x hours of contaminant gas. Example: Given constant concentration of 10 ppm H<sub>2</sub>S will be: Service life = 1,000 ppm x hours / 10 ppm = 100 hours. Due to the change of sensitivity, a calibration is necessary after installation. The measurement value response time increases after the installation of the filter.

## MARKET SEGMENTS

Gas supply companies

## TECHNICAL SPECIFICATIONS

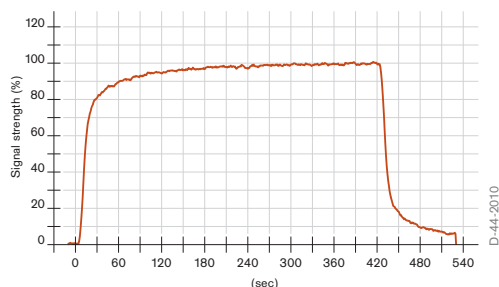
<b>Detection limit:</b>	1 ppm														
<b>Resolution:</b>	0.5 ppm														
<b>Measurement range/ relative sensitivity</b>	<table border="0"> <tr> <td>0 - 40 ppm THT (tetrahydrothiophene)</td> <td>1.00</td> </tr> <tr> <td>0 - 40 ppm (CH<sub>3</sub>)<sub>3</sub>CSH (tert.-butyl mercaptane)</td> <td>2.50</td> </tr> <tr> <td>0 - 40 ppm C<sub>2</sub>H<sub>5</sub>CH(CH<sub>3</sub>)SH (sec.-butyl mercaptane)</td> <td>2.00</td> </tr> <tr> <td>0 - 40 ppm CH<sub>3</sub>SH (methyl mercaptane)</td> <td>4.00</td> </tr> <tr> <td>0 - 40 ppm C<sub>2</sub>H<sub>5</sub>SH (ethyl mercaptane)</td> <td>3.00</td> </tr> <tr> <td>0 - 100 ppm (CH<sub>3</sub>)<sub>2</sub>S (dimethyl sulfide)</td> <td>1.80</td> </tr> <tr> <td>0 - 40 ppm CH<sub>3</sub>SSCH<sub>3</sub> (dimethyl disulfide)</td> <td>4.00</td> </tr> </table>	0 - 40 ppm THT (tetrahydrothiophene)	1.00	0 - 40 ppm (CH <sub>3</sub> ) <sub>3</sub> CSH (tert.-butyl mercaptane)	2.50	0 - 40 ppm C <sub>2</sub> H <sub>5</sub> CH(CH <sub>3</sub> )SH (sec.-butyl mercaptane)	2.00	0 - 40 ppm CH <sub>3</sub> SH (methyl mercaptane)	4.00	0 - 40 ppm C <sub>2</sub> H <sub>5</sub> SH (ethyl mercaptane)	3.00	0 - 100 ppm (CH <sub>3</sub> ) <sub>2</sub> S (dimethyl sulfide)	1.80	0 - 40 ppm CH <sub>3</sub> SSCH <sub>3</sub> (dimethyl disulfide)	4.00
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<b>Response time:</b>	≤ 90 seconds (T <sub>90</sub> )														
<b>Measurement accuracy</b>															
<b>Sensitivity:</b>	≤ ± 3 % measured value/month														
<b>Long-term drift, at 20°C (68°F)</b>															
<b>Zero point:</b>	≤ ± 2 ppm/year														
<b>Sensitivity:</b>	≤ ± 2% measured value/month														
<b>Warm-up time:</b>	≤ 12 hours														
<b>Ambient conditions</b>															
<b>Temperature*:</b>	(-20 to 50)°C (-4 to 122) °F for THT, TBM, SBM (5 to 40)°C (32 to 104) °F for MeM, EtM, DMS, DMDS														
<b>Humidity*:</b>	(10 to 90) % RH														
<b>Pressure:</b>	(700 to 1300) hPa														
<b>Influence of temperature</b>															
<b>Zero point:</b>	≤ ± 2 ppm														
<b>Sensitivity:</b>	≤ ± 10 % of measured value														
<b>Influence of humidity</b>															
<b>Zero point:</b>	≤ ± 0,1 ppm / % RH														
<b>Sensitivity:</b>	≤ ± 0,2 % of measured value/ RH														
<b>Test gas:</b>	THT test gas of approx. 2 to 18 ppm or an other of the target gases: (CH <sub>3</sub> ) <sub>3</sub> CSH, C <sub>2</sub> H <sub>5</sub> CH(CH <sub>3</sub> )SH, CH <sub>3</sub> SH, C <sub>2</sub> H <sub>5</sub> SH, (CH <sub>3</sub> ) <sub>2</sub> S, CH <sub>3</sub> SSCH <sub>3</sub>														

\*Sudden temperature or humidity changes lead to dynamic effects (fluctuations).  
These dynamic effects decrease within 2 to 3 minutes.

## SPECIAL CHARACTERISTICS

This sensor can be used to monitor seven different odorants in the ambient air or (for short periods) in natural gas. It is sufficient to calibrate the sensor using a THT test gas. By doing so, all of the other target gases are then automatically calibrated. In addition to a quick response time this Odorant sensor are highly selective. An internal, replaceable selective filter filters out most associated gases in natural gas like H<sub>2</sub>S and SO<sub>2</sub>.

Typical gas response of Odorant at 20 °C  
flow = 0,5 l/min, purged with 10 ppm THT



The values shown in the following table are standard and apply to new sensors. The values maybe fluctuate by  $\pm 30\%$ . The sensor may also be sensitive to additional gases (for more information, please contact Dräger). Gas mixtures may be displayed as the sum of all components. Gases with a negative cross sensitivity may displace an existing concentration of NH<sub>3</sub>. To be sure, please check if gas mixtures are present.

## RELEVANT CROSS-SENSITIVITIES

Gas/vapor	Chem. symbol	Concentration	Display in ppm THT without selective filter	Display in ppm THT with selective filter
Ammonia	NH <sub>3</sub>	200 ppm	No effect	No effect
Carbon dioxide	CO <sub>2</sub>	1.5 Vol.-%	No effect	No effect
Carbon monoxide	CO	125 ppm	No effect	No effect
Chlorine	Cl <sub>2</sub>	8 ppm	$\leq 3$ ppm <sup>(-)</sup>	No effect
Ethene	C <sub>2</sub> H <sub>4</sub>	50 ppm	No effect	No effect
Hydrogen	H <sub>2</sub>	1000 ppm	No effect	No effect
Hydrogen cyanide	HCN	50 ppm	No effect	No effect
Hydrogen sulfide	H <sub>2</sub> S	10 ppm	$\leq 30$ ppm	No effect
Isobutylene	(CH <sub>3</sub> ) <sub>2</sub> CCH <sub>2</sub>	100 ppm	$\leq 3.5$ ppm	$\leq 3.5$ ppm
Methane	CH <sub>4</sub>	100 Vol.-%	No effect	No effect
Methanol	CH <sub>3</sub> OH	200 ppm	$\leq 5$ ppm	$\leq 5$ ppm
Nitrogen dioxide	NO <sub>2</sub>	10 ppm	No effect	No effect
Nitrogen monoxide	NO	20 ppm	$\leq 30$ ppm	$\leq 30$ ppm
n-propyl mercaptan	C <sub>3</sub> H <sub>7</sub> SH	6 ppm	$\leq 4$ ppm	$\leq 4$ ppm
Phosphine	PH <sub>3</sub>	5 ppm	$\leq 15$ ppm	$\leq 15$ ppm
Sulfur dioxide	SO <sub>2</sub>	20 ppm	$\leq 15$ ppm	No effect

(-) Indicates negative deviation