

# DrägerSensor® XS EC HF/HCl

Order no. 68 09 140

Used in	Plug & Play	Replaceable	Guaranty	Expected sensor life	Selective filter
Dräger X-am 5100	yes	yes	1 year	> 1.5 years	–

## MARKET SEGMENTS

Semiconductor, chemical

## TECHNICAL SPECIFICATIONS

<b>Detection limit:</b>	1 ppm
<b>Resolution:</b>	0.1 ppm
<b>Measurement range/ relative sensitivity</b>	0 to 30 ppm HCl (hydrogen chloride) 1.00 0 to 30 ppm HNO <sub>3</sub> (nitric acid) 1.00 0 to 30 ppm HBr (hydrogen bromide) 1.00 0 to 30 ppm POCl <sub>3</sub> (phosphoryl trichloride) 1.00 0 to 30 ppm PCl <sub>3</sub> (phosphorous trichloride) 3.00 0 to 30 ppm HF (hydrogen fluoride) 0.66
<b>Response time:</b>	≤ 60 seconds (T <sub>50</sub> )
<b>Measurement accuracy</b>	
Sensitivity:	≤ ± 15% of measured value
<b>Long-term drift, at 20°C (68°F)</b>	
Zero point:	≤ ± 0.5 ppm/month
Sensitivity:	≤ ± 5% of measured value/month
<b>Warm-up time:</b>	≤ 1 hour
<b>Ambient conditions</b>	
Temperature:	(–20 to 40)°C (–4 to 104)°F
Humidity:	(30 to 90)% RH
Pressure:	(700 to 1,300) hPa
<b>Influence of temperature</b>	
Zero point:	≤ ± 0.5 ppm
Sensitivity:	≤ ± 10% of measured value
<b>Influence of humidity</b>	
Zero point:	No effect
Sensitivity:	≤ ± 2% of measured value/% RH
<b>Test gas:</b>	HCl test gas between 3 to 30 ppm; or one of the other target gases HNO <sub>3</sub> , HBr, POCl <sub>3</sub> , PCl <sub>3</sub> , HF. Every time the sensor is used, the following function test should be performed beforehand. Procedure: hold the unit over a container containing a (9 ± 0.5) mol of acetic acid, at room temperature. Evaluation: after 30 seconds, the figure displayed should be greater than 0.5 ppm HCl. If the figure is less than 0.5 ppm, then the sensitivity must be calibrated. A function test can also be performed using the test gas.

## SPECIAL CHARACTERISTICS

This sensor is used exclusively in the Dräger X-am 5100. This sensor can be used to monitor concentrations of hydrogen chloride (HCl), nitric acid (HNO<sub>3</sub>), hydrogen bromide (HBr), phosphoryl trichloride (POCl<sub>3</sub>), phosphorous trichloride (PCl<sub>3</sub>) and HF (hydrogen fluoride) in the ambient air.

The values shown in the following table are standard and apply to new sensors. The values may 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 HCl/HF. To be sure, please check if gas mixtures are present.

## RELEVANT CROSS-SENSITIVITIES

Gas/vapor	Chem. symbol	Concentration	Display in ppm HCl
Ammonia*	NH <sub>3</sub>	500 ppm	No effect
Carbon dioxide	CO <sub>2</sub>	10 Vol. %	No effect
Carbon monoxide	CO	150 ppm	No effect
Chlorine	Cl <sub>2</sub>	5 ppm	≤ 22
Hydrogen	H <sub>2</sub>	1.5 Vol. %	No effect
Hydrogen cyanide	HCN	20 ppm	≤ 9
Hydrogen peroxide	H <sub>2</sub> O <sub>2</sub>	20 ppm	No effect
Hydrogen sulfide	H <sub>2</sub> S	30 ppm	≤ 2
i-propanol	(CH <sub>3</sub> ) <sub>2</sub> CHOH	500 ppm	No effect
Methane	CH <sub>4</sub>	2 Vol. %	No effect
Nitrogen dioxide	NO <sub>2</sub>	20 ppm	≤ 0.8
Nitrogen monoxide	NO	20 ppm	≤ 5
Sulfur dioxide	SO <sub>2</sub>	20 ppm	≤ 20

\* Volatile alkaline substances (such as NH<sub>3</sub>, amines) can impair the function of the sensor. If in doubt, perform a function test.