

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

Detection limit:	1 ppm
Resolution:	0.1 ppm
Measurement range/ relative sensitivity	0 to 30 ppm HCl (hydrogen chloride) 1.00 0 to 30 ppm HNO ₃ (nitric acid) 1.00 0 to 30 ppm HBr (hydrogen bromide) 1.00 0 to 30 ppm POCl ₃ (phosphoryl trichloride) 1.00 0 to 30 ppm PCl ₃ (phosphorous trichloride) 3.00 0 to 30 ppm HF (hydrogen fluoride) 0.66
Response time:	≤ 60 seconds (T ₅₀)
Measurement accuracy	
Sensitivity:	≤ ± 15% of measured value
Long-term drift, at 20°C (68°F)	
Zero point:	≤ ± 0.5 ppm/month
Sensitivity:	≤ ± 5% of measured value/month
Warm-up time:	≤ 1 hour
Ambient conditions	
Temperature:	(–20 to 40)°C (–4 to 104)°F
Humidity:	(30 to 90)% RH
Pressure:	(700 to 1,300) hPa
Influence of temperature	
Zero point:	≤ ± 0.5 ppm
Sensitivity:	≤ ± 10% of measured value
Influence of humidity	
Zero point:	No effect
Sensitivity:	≤ ± 2% of measured value/% RH
Test gas:	HCl test gas between 3 to 30 ppm; or one of the other target gases HNO ₃ , HBr, POCl ₃ , PCl ₃ , 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 (HNO₃), hydrogen bromide (HBr), phosphoryl trichloride (POCl₃), phosphorous trichloride (PCl₃) 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 ± 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 ₃	500 ppm	No effect
Carbon dioxide	CO ₂	10 Vol. %	No effect
Carbon monoxide	CO	150 ppm	No effect
Chlorine	Cl ₂	5 ppm	≤ 22
Hydrogen	H ₂	1.5 Vol. %	No effect
Hydrogen cyanide	HCN	20 ppm	≤ 9
Hydrogen peroxide	H ₂ O ₂	20 ppm	No effect
Hydrogen sulfide	H ₂ S	30 ppm	≤ 2
i-propanol	(CH ₃) ₂ CHOH	500 ppm	No effect
Methane	CH ₄	2 Vol. %	No effect
Nitrogen dioxide	NO ₂	20 ppm	≤ 0.8
Nitrogen monoxide	NO	20 ppm	≤ 5
Sulfur dioxide	SO ₂	20 ppm	≤ 20

* Volatile alkaline substances (such as NH₃, amines) can impair the function of the sensor. If in doubt, perform a function test.