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})	
Precision		
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 5 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 (HNO_3), hydrogen bromide (HBr), phosphoryl trichloride ($POCl_3$), phosphorous trichloride (PCl_3) and HF (hydrogen fluoride) in the ambient air.

The values shown in the following table are standard and apply to new sensors. The values maybe 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_2O_2	20 ppm	No effect
Hydrogen sulfide	H_2S	30 ppm	≤ 2
i-propanol	$(CH_3)_2CHOH$	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 NH_3, amines) can impair the function of the sensor. If in doubt, perform a function test.