

ALTAIR® 4X Multigas Detector

Electrochemical Sensor Cross-sensitivity Data*



It is quite common for electrochemical sensors to be cross-sensitive to specific gases other than the target gas of interest. Cross-sensitivities are limited as much as possible by sensor design, but some interactions still exist. The tables below are a general guide to these common cross sensitivities. In some cases, these percentages are used to determine an approximate concentration of a gas other than the target.

In other cases, these percentages can be used to correct for possible errors in readings if one cross-sensitive gas is present together with the target gas.



MSA XCell® Electrochemical Sensor Cross-sensitivity Tables*

XCell CO and CO H ₂ -RES Sensors For XCell CO/H ₂ S Sensor • XCell CO/H ₂ S-LC Sensor • XCell CO H ₂ -RES/H ₂ S Sensor		
Gas applied	Concentration applied (ppm)	Approximate % cross-sensitivity
CO	100	100% ⁽¹⁾
H ₂ S	40	0%
SO ₂	9	-4%
NO ₂	11	0%
NH ₃	25	0%
CL ₂	10	0%
NO	50	84% ⁽²⁾
HCN	30	-5% ⁽³⁾
Toluene	53	0%
Isopropanol	100	-8%
H ₂	100	48%
H ₂	100	<5% ⁽⁴⁾

⁽¹⁾ 50 ppm CO applied on CO XCell sensor => 50 ppm CO x 100% = 50 ppm CO displayed.

⁽²⁾ NO cross-sensitivity on XCell CO sensor is positive, 84%.

If 25 ppm NO in monitored air => [25 ppm NO x 84%]

= approximately 21 ppm CO displayed while no CO present in monitored air.

If 25 ppm NO & 25 ppm CO in monitored air => [25 ppm NO x 84%] + [25 ppm CO]

= 21 + 25 = approximately 46 ppm CO displayed

⁽³⁾ HCN cross-sensitivity on XCell CO sensor is negative, -5%.

If 20 ppm HCN in monitored air => [20 ppm HCN x -5%]

= approximately -1 ppm CO displayed while no CO present in monitored air.

If 20 ppm HCN & 25 ppm CO in monitored air => [20 ppm HCN x -5%] + [25 ppm CO]

= (-1) + 25 = approximately 24 ppm CO displayed

⁽⁴⁾ Note the great performance of our new XCell CO H₂-RES sensor which has a very low cross-sensitivity to H₂ of only <5% (vs 48% for the standard CO sensor). This sensor is perfect for OGP, Steel and any industry where H₂ could be present while detecting CO, eg battery rooms where lead-acid batteries are stored (Power Plants, Shipping, Telecommunications...).

XCell H ₂ S and H ₂ S-LC Sensors For XCell CO/H ₂ S Sensor • XCell CO/H ₂ S-LC Sensor • XCell CO H ₂ -RES/H ₂ S Sensor		
Gas applied	Concentration applied (ppm)	Approximate % cross-sensitivity
CO	100	1%
H ₂ S	40	100%
SO ₂	9	14%
NO ₂	11	-1%
NH ₃	25	-1%
CL ₂	10	-14%
NO	50	25%
HCN	30	-3%
Toluene	53	0%
Isopropanol	100	-3%
H ₂	100	0%



XCell Oxygen (O ₂) Sensor	
Gas applied	Approximate % cross-sensitivity
O ₂	100%

* Please note: These cross-sensitivity values are intended for reference only and may change under varying environmental conditions, varying concentrations, varying sensor lots, and varying sensor age. These tables do not contain a complete or inclusive list of cross-sensitive gases, but rather is a sampling of the most common examples.

XCell SO ₂ Sensor		
Gas applied	Concentration applied (ppm)	Approximate % cross-sensitivity
CO	1000	0%
H ₂ S	199	0.1%
SO ₂	24.5	100%
NO ₂	10	-80%
NH ₃	121	-0.1%
CL ₂	15.3	0.7%
PH ₃	5	18%
HCN	50.4	5%
Isopropanol	500	0%
H ₂	2000	1%

XCell NO ₂ Sensor		
Gas applied	Concentration applied (ppm)	Approximate % cross-sensitivity
NO ₂	10	100%
CO	60	3.3%
SO ₂	10	-86%
H ₂ S	20	-271%
NH ₃	25	0%
O ₃	1	100%
HCN	4.7	2%
Acetylene	100	-1%
H ₂	1000	-0.1%
NO	50	3%