



TECHNICAL BULLETIN

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Compensating for Hydrogen Interference in Carbon Monoxide Readings

Hydrogen and your Carbon Monoxide Sensor

The vast majority of all carbon monoxide (CO) sensors are electro-chemical sensors. Electro-chemical sensors are versatile, compact, accurate, stable and have a long lifespan. However, one of the drawbacks is that they are susceptible to cross interference from other gases. In other words, if other gases are present, the accuracy of the reading for CO may be affected. This is especially true with hydrogen (H₂). When H₂ is present it will interfere with most CO sensors and result in erroneously high readings.



This cross interference is typically not a problem, as H₂ is not normally present in ambient air. However, H₂ is present in certain applications such as steel mills, oil refineries, or in the production of metal alloys, glass, and semiconductors. The charging of commercial batteries can produce H₂ as well.

Bottom line—know your process. The standard sensor will respond to both CO and H₂. If you are working in a confined space and H₂ is present, or will be produced, you will need an H₂ compensated CO sensor.

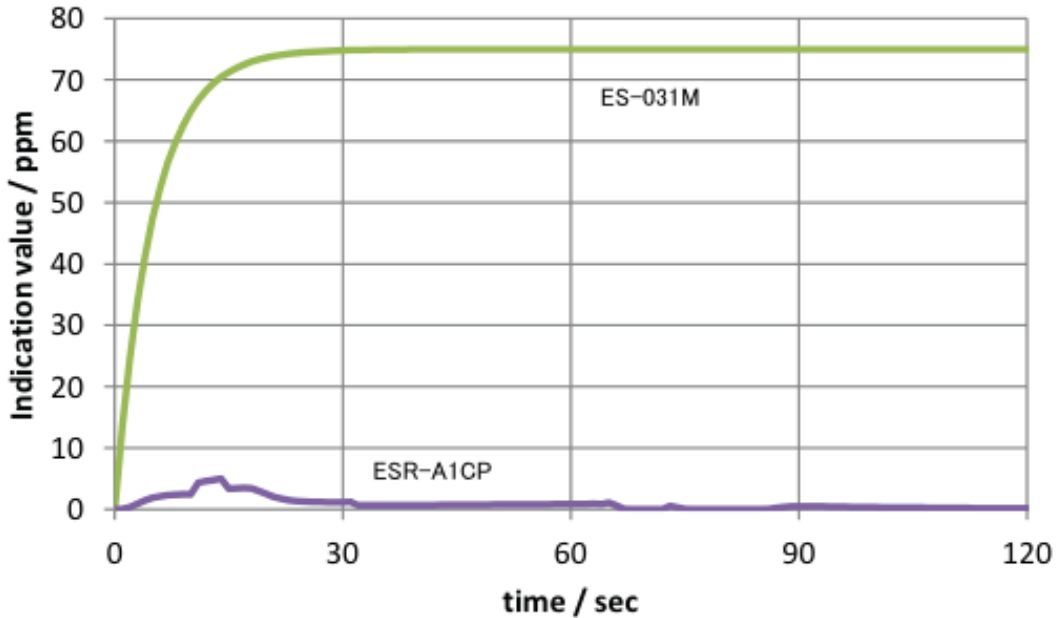


How an H₂ compensated CO sensor works

To compensate for H₂ interference an extra electrode is added to the sensor. That electrode enables the sensor to measure H₂ only. The electronics will then subtract the H₂ specific signal from the combined H₂ and CO signal to provide an accurate CO reading.

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The graph below shows the difference between a regular CO sensor (green) and the H2 compensated CO sensor (purple) when flooded with 500ppm of H2 gas. As you can see the H2 interferes with the CO reading just a little in the initial 30 seconds, but the interference is almost completely compensated for.



This new H2 compensated CO sensor fits in both the GX-3R and the GX-3R Pro. If you also need to detect hydrogen sulfide (H2S) then you would need a GX-3R Pro, as it has an additional sensor slot for toxics. Some common configurations that include the H2 compensated CO sensor are listed below. Please contact us with any questions.

H2 compensated CO Sensor		
ESR-A1CP	Sensor, CO with H2 compensated for GX-3R/GX-3R Pro	
GX-3R		
72-RD-C	GX-3R, 3 gas, LEL / O2 / CO (H2 compensated)	
72-RJ-C	GX-3R, 2 gas, LEL / CO (H2 compensated)	
72-RK-C	GX-3R, 2 gas, O2 / CO (H2 compensated)	
72-RQ-C	GX-3R, 1 gas, CO (H2 compensated CO sensor)	
GX-3R Pro		
72-PCX-C	GX-3R Pro, 4 gas, LEL / O2 / H2S / CO (H2 compensated)	
72-PFX-C	GX-3R Pro, 3 gas, LEL / O2 / CO (H2 compensated)	
72-PLX-C	GX-3R Pro, 2 gas, LEL / CO (H2 compensated)	
72-PMX-C	GX-3R Pro, 2 gas, O2 / CO (H2 compensated)	
72-PSX-C	GX-3R Pro, 1 gas, CO (H2 compensated)	