

GasClam Sensor Information and Cross sensitivities:

CO and H₂S

Electrochemical sensors suffer from cross sensitivity to other gasses that may be found in the subsurface. The carbon monoxide sensor suffers especially from the cross sensitivity with H₂S, H₂ and NO.

The cross sensitivities with these gasses are:

20 ppm H₂S will read <8 ppm on the CO channel

50 ppm NO will read <50 ppm on the CO channel

400 ppm H₂ will read <55 ppm on the CO channel

The hydrogen sulphide sensor is especially cross sensitive to the following:

10 ppm NO₂ will read <-10 ppm on the H₂S Channel

10 ppm Cl₂ will read <-10 ppm on the H₂S Channel

50 ppm NO will read <10 ppm on the H₂S Channel

20 ppm SO₂ will read <10 ppm on the H₂S channel

If the sensors have been exposed to gasses they are cross sensitive to for long periods it may take some time for the sensors to recovery. The sensors can be checked after exposure to these gasses by setting the GasClam to sample every 5 minutes in clean air and the concentrations should return to zero and stabilise. If you suspect a cross sensitivity problem please contact your supplier for further advice.

Additional CO/H₂S sensor performance information

If the GasClam is located in a zero oxygen environment for longer than 24 hours the CO and H₂S sensor performance will be hindered. To return the channels to optimal performance the sensor needs to be left exposed to an oxygenated environment for the same length of time as it was deprived of oxygen for.

Methane

Methane is measured using an infrared detector tuned in to C-H bonds. The sensor is calibrated using certified methane calibration gas and will give accurate readings proving no other C-H compounds are present. If additional hydrocarbons are present they will contribute to the reading.

Carbon Dioxide

Carbon Dioxide is measured using an infrared sensor tuned in to C=O. There are no other gasses commonly found in the subsurface that adsorb infrared radiation at this wavelength so the reading will not typically suffer from cross sensitivity.

Oxygen

The oxygen sensor is a Galvanic sensor and is very specific. It has a little cross sensitivity with CO₂, 5 % CO₂ only causes a 0.1% change in reading.

VOC

The VOC sensor is a mini photo ionisation sensor and is sensitive to any VOC's that have an ionisation potential less than 10.6 eV. The sensitivity of the sensor depends on the VOC present. The sensor is calibrated to isobutylene and its response to other VOC's can be calculated using that compounds response factor. A response factor is a number, which relates the PID response to a particular VOC, to the PID response from the calibration gas (normally isobutylene). If the response of a PID to a particular VOC is eight times smaller than it is for the same concentration of isobutylene, then the response factor would be 8. Similarly, if the response factor for a particular VOC is 0.5, the response is twice that for isobutylene at the same concentration.

Concentrations greater than 10% CH₄ and CO₂ will attenuate the response of the PID sensor.

