# blacklinesafety

## Sensor Cross-Sensitivities

| Sensor | Manu-facturer | Cross Sensitivities | Additional Notes | Response Time |
|---|---|---|---|---|
| **$Cl_2$** | City Technology | **$SO_2$**: 20ppm sample can cause 3.5ppm reading.<br>**BR**: 1ppm sample can cause 1ppm reading.<br>**$ClO_2$**: 1ppm sample can cause 0.5ppm reading.<br>**$F_2$**: 1ppm sample can cause 0.4ppm reading.<br>**$O_3$**: 0.25ppm sample can cause 0.05ppm reading. | • Exposure to $H_2S$ will poison the sensor, exposure to $Cl_2$ will re-activate the sensor. | t50 <10 s<br>t90 <60s |
| **$ClO_2$** | City Technology | **$H_2S$**: 20ppm sample can cause -5ppm reading.<br>**$Cl_2$**: 1ppm sample can cause 0.6ppm reading.<br>**O3**: 0.25ppm sample can cause 0.7ppm reading. | | t50 <20 s<br>t90 < 120s |
| **CO** | City Technology | **$H_2$**: 200ppm sample can cause 25ppm reading."<br>**$H_2S$**: 20ppm sample can cause <5ppm reading.<br>**CO**: 50ppm sample can cause 25ppm reading.<br>**$C_2H_4$**: 100ppm sample can cause 100ppm reading. | • Solvent vapors can poison sensors.<br>• Alcohols from de-icing fluids, bug repellent, hand sanitizer, aerosol cans, antiseptics, windshield washer fluid, engine coolant, and any other source of ethanol, methanol, or propanol can poison the sensor.<br>• Poisoned sensors can be repaired in the field. For more information, contact Blackline Safety Customer Care. | t90 <20 s |
| **CO High-range** | City Technology | **$H_2$**: 100ppm sample can cause 28ppm reading.<br>**NO**: 48.6ppm sample can cause 14ppm reading.<br>**$NO_2$**: 19.5ppm sample can cause <0.5ppm reading.<br>**$Cl_2$**: 13.7ppm sample can cause <0.5ppm reading.<br>**$C_2H_4$**: 100ppm sample can cause 97ppm reading.<br>**$C_2H_2$**: 100ppm sample can cause 88ppm reading.<br>**$C_2H_6$**: 100ppm sample can cause 88ppm reading. | • Solvent vapors can poison sensors.<br>• Alcohols from de-icing fluids, bug repellent, hand sanitizer, aerosol cans, antiseptics, windshield washer fluid, engine coolant, and any other source of ethanol, methanol, or propanol can poison the sensor.<br>• Poisoned sensors can be repaired in the field. For more information, contact Blackline Safety Customer Care.<br>*NOTE: Activated carbon filter cloth removes $SO_2$, $NO_2$, and $H_2S$, and provides short term (<1000ppm hours) protection against methanol, ethanol, IPA.* | t90 ≤ 10s |
| **COSH (CO + $H_2S$) (NA & Int'l)** | City Technology | **CO Sensor:**<br>**$H_2$**: 100ppm sample can cause 20ppm reading.<br>**$H_2S$**: 15ppm sample can cause 0 6ppm reading.<br>**NO**: 35ppm sample can cause <0.1ppm reading.<br>**$NO_2$**: 5ppm sample can cause <0.1ppm reading.<br><br>**$H_2S$ Sensor:**<br>**CO:** 300ppm sample can cause <6ppm reading.<br>**$H_2$**: 100ppm sample can cause 0.03ppm reading.<br>**NO**: 35ppm sample can cause <0.1ppm reading.<br>**$NO_2$**: 5ppm sample can cause -1ppm reading.<br>**$SO_2$**: 5ppm sample can cause <1ppm reading. | • Alcohols from de-icing fluids, bug repellent, hand sanitizer, aerosol cans, antiseptics, windshield washer fluid, engine coolant, and any other source of ethanol, methanol, or propanol can poison the sensor.<br>• Poisoned sensors can be repaired in the field. For more information, contact Blackline Safety Customer Care. | t90 CO <35 s<br>t90 H2S <35 s |
| **COSH (CO + $H_2S$ (UK/EU)** | DD Scientific | **CO Sensor:**<br>**$H_2S$:** 25ppm sample of H2S can cause <5ppm CO reading.<br>**$SO_2$**: 5ppm sample of SO2 can cause 0ppm CO reading.<br>**H2**: 100ppm sample H2 can cause <30ppm CO reading.<br>**NO**: 35ppm sample NO can cause <0.01ppm CO reading.<br>**$NO_2$**: 5ppm sample NO2 can cause <0.1ppm CO reading.<br>**Cl2**: 15ppm sample Cl2 can cause 0ppm CO reading.<br><br>**$H_2S$ Sensor:**<br>**$SO_2$**: 5ppm sample can cause < 1ppm H2S reading.<br>**$H_2$**: 100pm sample can cause <0.05 ppm H2S reading.<br>**NO**: 35 ppm sample can cause <1ppm H2S reading.<br>**CO**: 300ppm sample can cause <5ppm H2S reading.<br>**$Cl_2$**: 15ppm sample can cause 0ppm H2S reading. | • Alcohols from de-icing fluids, bug repellent, hand sanitizer, aerosol cans, antiseptics, windshield washer fluid, engine coolant, and any other source of ethanol, methanol, or propanol can poison the sensor.<br>• Poisoned sensors can be repaired in the field. For more information, contact Blackline Safety Customer Care. | t90 CO <35 s<br>t90 H2S <35 s |

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| **CO-H (Hydrogen resistent)** | City Technology | **$H_2$**: 100ppm sample can cause -5 to 5ppm reading.<br>**$H_2S$**: 15ppm sample can cause -0.5 to 0.5ppm reading.<br>**NO**: 35ppm sample can cause 12ppm reading.<br>**$NO_2$**: 5ppm sample can cause <0.5ppm reading.<br>**$C_2H_4$**: 100ppm sample can cause 60ppm reading. | • Solvent vapors can poison sensor.<br>• Alcohols from de-icing fluids, bug repellent, hand sanitizer, aerosol cans, antiseptics, windshield washer fluid, engine coolant, and any other source of ethanol, methanol, or propanol can poison the sensor.<br>• Poisoned sensors can be repaired in the field. For more information, contact Blackline Safety Customer Care. | t90 <17 s |
| **$H_2$** | City Technology | **$H_2S$**: 20ppm sample can cause 44ppm reading.<br>*NOTE: Continuous high-level exposure may reduce the efficiency of the filter material.* | | t50 <40 s<br>t90 <60 s |
| **$H_2S$** | City Technology | **CO**: 100ppm sample can cause <2ppm reading. | • Solvent vapors can poison sensor. | T90: <30 s |
| **$H_2S$ High-range** | City Technology | **CO**: 100ppm sample can cause <2ppm reading.<br>**$C_2H_4$**: Can affect reading.<br>**$C_3H_8$**: Can affect reading. | • Solvent vapors can poison sensor. | |
| **HCN** | City Technology | **$H_2$**: Short gas exposure in minute range; after filter saturation: approx. 40 ppm reading.<br>**NO**: 100ppm sample can cause 5ppm reading.<br>**$NO_2$**: 10ppm sample can cause 7ppm reading. | | t50 <25s<br>t90 <50s |
| **LEL-MPS** | Nevado-Nano | **$CO_2$** >5000ppm @ 1.75% LEL per 1000ppm. Breathing directly into sensor can result in false LEL detection.<br>**$O_2$:** O2 >~21.8%vol can result in 9.7%LEL. | • Does not detect $H_2S$.<br>• Single-gas calibration bottles with a $N_2$ balance (e.g., $SO_2$ balance $N_2$), will cause persistent cross readings and require a power cycle of the device.<br>• Exposing the MPS sensor to <10% $O_2$ will cause erroneous readings and require a power cycle of the device. | t90 <20 s |
| **$NH_3$** | City Technology | **$H_2S$**: 20ppm sample can cause reading of 2ppm. | | t50 <20 s<br>t90 <60 s |
| **$NH_3$ High-range** | City Technology | **CO**: 5% sample can cause -4ppm reading.<br>**$H_2S$**: 20 ppm can cause reading of 5ppm. | | t50 <30 s<br>t90 <90 s |
| **$NO_2$** | City Technology | **$H_2S$**: 15ppm sample can cause ~ 1.2ppm reading.<br>**$Cl_2$**: 1ppm sample can cause 1ppm reading.<br>**$O_3$**: 0.8ppm can cause $NO_2$ readings adding up to 2.3ppm after 30 seconds. After gas is stopped, the readings go back to zero after a minute. | • Solvent vapors can poison sensor. | t90 < 25s |
| **$O_2$** | City Technology | | • Solvent vapors can poison sensor. | t90 <15 s<br>t97 <35 s |
| **$O_3$** | City Technology | **$H_2S$**: 20ppm sample can cause -1.6ppm reading exposure >30 min can blind sensor.<br>**$NO_2$**: 10ppm sample can cause 6ppm reading 10ppm can cause over limit.<br>After gas is stopped, $O_3$ readings go to under limit, then back to zero after a few seconds.<br>**$Cl_2$**: 1ppm sample can cause 1.2ppm reading.<br>**Br**: Can affect reading.<br>**I2**: Can affect reading.<br>**$ClO_2$**: 1ppm sample can cause 1.5ppm reading. | | t50 <15 s<br>t90 <60 s |
| **PID MiniPID 2** | Ion Science | **$CH_4$**: Can decrease accuracy.<br>**$C_2H_6$**: Can decrease accuracy. | • Sensor accuracy decrease with increased RH% and temperature. exposure of the sensor to very humid, acidic (sour) and salty environments.<br>• This may cause inorganic salts to accumulate on PID enclosure walls, which ultimately compromises the screening potential of the MiniPID 2 fence electrode. | t90 <3 s |
| **$SO_2$** | City Technology | **CO**: 300ppm sample can cause <1ppm reading<br>**$H_2$**: 400ppm sample can cause <1ppm reading<br>**$H_2S$**: 25ppm sample can cause <0.1ppm reading<br>**NO**: 50ppm sample can cause 0 5ppm reading<br>**$NO_2$**: 6ppm sample can cause < 10ppm reading<br>**$Cl_2$**: 5ppm sample can cause <-2ppm reading<br>**$C_2H_4$**: 50ppm sample can cause <45ppm reading<br>**$C_2H_2$**: 10ppm sample can cause <30ppm reading<br>**$C_2H_6$**: 10ppm sample can cause <30ppm reading | • Solvent vapors can poison sensor. | t90 <25 s |