

## Analog Transmitter with Electrochemical Ozone (O<sub>3</sub>) Sensor

|                                        |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Dimensions:</b>                     | <b>Size</b>       | 5.0 x 5.0 x 3.0 in (127 x 127 x 76 mm) without optional splash guard (Option -S)                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                        | <b>Weight</b>     | 14 oz / 400 g                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Construction:</b>                   |                   | Black ABS / Polycarbonate blend, water/dust tight, corrosion resistant                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Sensor:</b>                         | <b>Type:</b>      | Electrochemical                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                        | <b>Life Span:</b> | Approx. 2 years (application & exposure dependent)                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Gases Detected:</b>                 |                   | Ozone (O <sub>3</sub> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Sensor Range:</b>                   |                   | 0 – 1 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>System Power:</b>                   |                   | 3-wire: VDC: 16-30 VDC, 3-Watts, Class 2<br>4-wire: VAC: 12-27 VAC, 3-VA, Class 2                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Operating Temperature:</b>          |                   | 0°C to +40°C (32°F to 104°F), -40°C (-40°F) with low temperature Option -LT                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Operating Humidity:</b>             |                   | 15 to 90% non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Indicators:</b>                     |                   | LCD digital display, 2 line x 16 character, backlit                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Signal:</b>                         |                   | Current: Linear 4-20 mA (maximum 216 ohm load, wiring plus termination resistor @ 12VDC) Maximum 316 ohm load, wiring plus termination resistor @ 12VAC                                                                                                                                                                                                                                                                                                                                                       |
| <b>Relay:</b>                          |                   | not available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Audible:</b>                        |                   | none                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Minimum Detection:</b>              |                   | 0.02 ppm (with regular calibration maintenance of sensor)                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Accuracy:</b>                       |                   | no data available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Repeatability:</b>                  |                   | no data available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Long Term Drift</b>                 |                   | <10% per 6 months at 20°C / 68°F and 30-50% RH; sensitivity might increase over lifetime depending on application; high air flow conditions might affect lifetime.                                                                                                                                                                                                                                                                                                                                            |
| <b>Response Time (T<sub>90</sub>):</b> |                   | <60s calculated from 3 min. exposure time @ 30 ccm/ min.                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Resolution:</b>                     |                   | Display resolution: 0.01ppm      Sensor resolution: <0.02 ppm at 20°C                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Warm Up Time:</b>                   |                   | 3 minutes after power up (to full operation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Cross Sensitivity:</b>              |                   | Bromine, Iodine yes; n/d, Carbon dioxide @5000ppm = 0ppm, Carbon Monoxide @100ppm = 0ppm, Chlorine @1ppm = 1.2ppm, Chlorine Dioxide @1ppm = 1.5ppm, Hydrazine @3ppm = -3ppm, Hydrogen @3000ppm = 0ppm, Hydrogen Sulphide @20ppm = -1.6ppm, Nitrogen @100% = 0ppm, Nitrogen Dioxide @10ppm = 6ppm<br>Interference factors may differ from sensor to sensor and with lifetime. It is not advisable to calibrate with interference gases. Abrupt changes in temperature and humidity will cause short term drift |
| <b>Safety:</b>                         |                   | Automatic resetting thermal overload fuse (reset capabilities to 500 times)                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Wiring:</b>                         |                   | VDC or ground referenced VAC, 3-conductor shielded 18 awg stranded<br>VAC 4-conductor shielded 18 awg stranded                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Sensor Mounting:</b>                |                   | Heavier than air, 6 in / 15 cm from floor, application dependent                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Monitoring Area:</b>                |                   | 3000 ft <sup>2</sup> / 279 m <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Suggested Alarm Setpoints</b>       |                   | Low Alarm: 0.1 ppm / Mid Alarm: 0.2 ppm / High Alarm: 0.3 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Certifications:</b>                 |                   | CSA-C22.2 No. 205-12, UL508 (Edition 18):2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>(tested to)</b>                     |                   | EMC Directive 2014/30/EU, EN 50270:2015, Type 1, EN61010<br>RoHS compliant circuit boards<br>This device complies with part 15 of the FCC Rules                                                                                                                                                                                                                                                                                                                                                               |
| <b>Notes:</b>                          |                   | Never install gas detectors in the direct path of moving air.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

### Conditions Affecting Electrochemical Sensors:

- Typically designed to operate between -10°C and +50°C, do not exposed to extreme temperatures for prolonged periods of time. Repeated or prolonged exposure to temperatures like 60-65°C / 140-149 can lead to evaporation of the electrolyte and shifts in baselines readings.
- Continuous operation in low relative humidity environments can dry out the electrolyte and extended periods of exposure to high moisture environments can cause the electrolyte to absorb the moisture, causing dilution and inaccurate measurements.
- Sensitive to abrupt changes in temperature and humidity, causing short term drift.
- Prolonged exposure to extremely high gas concentrations can compromise sensor performance.
- Paint fumes, cleaning products, dust, sand, water, insects can reduce lifespan and compromise performance. Avoid exposure to high concentrations of solvent vapours both during storage and operation. Organic solvents may block the sensing electrodes, create false baselines and in some cases damage the electrodes and physically damage the body of the sensor.
- Negative cross-sensitivities may cause the sensor to produce lower readings than the true concentration of gas in ambient air.
- Before initial use after production may be stored at room temperature ideally at 20°C / 68°F and 60%RH or preferably in the fridge for up to 6 months. Beyond this period, the sensor performance is likely to deteriorate, such as with longer response time and lower sensitivity regardless of whether sensor has been used or not.
- The more exotic gases (chlorine, ozone etc.) tend to have shorter life spans than the more common gases (CO, nitrogen dioxide)
- Install gas detector vertically so the display is over top of the sensor vent and device is flat against a wall or column. Never install gas detectors in the direct path of moving air.

In addition to the factors listed above, most sensors will suffer general wear and tear and it may not always be easy to detect the damage caused, making regular maintenance important to help keep the sensors in good working order. Regular maintenance includes inspecting, cleaning if necessary, bump testing and calibration.



# PRODUCT SPECIFICATION

## CGAS-A-03 Transmitter

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