

Analog Transmitter with Electrochemical Oxygen (O₂) Sensor

Dimensions:	Size	5.0 x 5.0 x 3.0 in (127 x 127 x 76 mm) without optional splash guard (Option -S)
	Weight	14 oz / 400 g
Construction:		Black ABS / Polycarbonate blend, water/dust tight, corrosion resistant
Sensor: Type		Electrochemical capillary type
Life Span		3 years
Gases Detected:		Oxygen (O ₂)
Sensor Range:		0 – 25% vol standard
System Power:		3-wire: VDC: 16-30 VDC, 3-Watts, Class 2 4-wire: VAC: 12-27 VAC, 3-VA, Class 2
Operating Temperature:		0°C to +40°C (32°F to 104°F), -40°C (-40°F) with low temperature Option -LT
Operating Humidity:		15 to 90% non-condensing
Indicators:		LCD digital display, 2 line x 16 character, backlit
Signal:		Current: Linear 4-20 mA (maximum 216 ohm load, wiring plus termination resistor @ 12VDC) Maximum 316 ohm load, wiring plus termination resistor @ 12VAC
Relay (Option -RLY):		1 SPDT relay rated 30 volts, 2 amp max
Relay and Audible (Option -RBZ):		1 SPDT dry contact relay rated 30 volts, 2 amp max Internal buzzer, rated 90 dB @ 10 cm / 4 in, enable/disable
Accuracy:		No data available
Repeatability:		< 2% of signal
Pressure Sensitivity		<0.1% change of output @ 20 kPa
CO₂ Sensitivity:		+0.1 % change in output / % CO ₂ @ 5% CO ₂
Clean Air Output Drift:		< 2% change @ 3-months
Response Time:		< 15 seconds T ₉₀ from 20.9% to 0%
Resolution:		Display resolution: 0.1% vol Sensor resolution: ± 0.05% vol
Warm Up Time:		Minimum 2 hours before looking at the readings If after a minimum of 2 hours the gas reading is not 20.9%, do a respan.
Safety:		Automatic resetting thermal overload fuse (reset capabilities to 500 times)
Wiring:		VDC or ground referenced VAC, 3-conductor shielded 18 awg stranded VAC 4-conductor shielded 18 awg stranded
Sensor Mounting:		Breathing Zone 4 to 6 ft / 1.2 to 1.8 m from the floor
Monitoring Area:		5000 ft ² / 465 m ²
Suggested Alarm Points		Low Alarm: descending 19.5 % vol, Mid Alarm: ascending 23% vol, High Alarm: descending 18.5% vol
Certifications:		CSA-C22.2 No. 205-12, UL508 (Edition 18):2018
(tested to)		EMC Directive 2014/30/EU, EN 50270:2015, Type 1, EN61010 RoHS compliant circuit boards This device complies with part 15 of the FCC Rules
Notes:		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.
- 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.
- Continuous exposure to high concentrations of sulphide compounds like hydrogen sulphide can poison an oxygen sensor.
- Oxygen sensors require 99.9% nitrogen (N₂) for a true zero. During calibration, recommend doing the span first, followed by zeroing.
- 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.