

Analog Transmitter with Electrochemical Sulphur Dioxide (SO₂) Sensor

Dimensions: Size Weight	5.0 x 5.0 x 3.0 in (127 x 127 x 76 mm) without optional splash guard (Option -S) 14 oz / 400 g
Construction:	Black ABS / Polycarbonate blend, water/dust tight, corrosion resistant
Sensor: Type Life Span	Electrochemical Approximately 2 years (application & exposure dependent)
Gases Detected:	Sulphur Dioxide (SO ₂)
Sensor Range:	0 – 20 ppm
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
Minimum Detection:	0.1 ppm (with regular calibration maintenance of sensor)
Accuracy:	No data available
Repeatability:	±2% (with regular calibration maintenance of sensor)
Sensitivity Drift	Zero drift: <0.1 ppm equivalent change / year in lab air Sensitivity drift: <4% change /year in lab air , monthly test
Response Time (T₉₀):	<35 seconds (0-10 ppm SO ₂)
Resolution:	Display resolution: 0.1ppm Sensor resolution: <0.1 ppm
Warm Up Time:	4 minutes after power up (to full operation)
Cross Sensitivity:	H ₂ S@20ppm = <3%, NO ₂ @10ppm = <-130%, CL ₂ @10ppm = <-60%, NO@50ppm = <±2%, CO@400ppm = <1.6%, H ₂ @400ppm = <0.3%, C ₂ H ₄ @400ppm = <40%, NH ₃ @20ppm = <0.1%
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:	Heavier than air 6 in / 15 cm from the floor
Monitoring Area:	3000 ft ² / 279 m ²
Suggested Alarm Setpoints	Low Alarm: 2.0 ppm / Mid Alarm: 3.0 ppm / High Alarm: 5.0 ppm
Certifications: (tested to)	CSA-C22.2 No. 205-12, UL508 (Edition 18):2018 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.

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.