Sensor Data Sheet

SENSALERT® PLUS

SENSIDYNE®

Chlorine Dioxide
(0 – 1.00 ppm)
Part No. 823-0239-41
FM Performance Certified [5]

Minimum Indicated Concentration	0.03 ppm
Repeatability[2]	± 5% of Reading
Accuracy[1]	± 10% of Reading
Span Drift	< 12% change per 6 months (typical)
Response Time (Rise)[2,3]	T_{90}: < 30 seconds
Recovery Time (Fall)[2]	T_{10}: < 90 seconds
Temperature Range	-20° to 50°C (-4° to 122°F)
Humidity Range (continuous)[4]	15–90 %RH, non-condensing
Humidity Range (intermittent)[4]	0–99 %RH, non-condensing
Pressure Range	Ambient atmospheric, ± 1 psi
Expected Sensor Life	3 years from Shipping Date
Recommended Calibration Flow Rate	500 to 1000 cc/min
Oxygen Requirement	1% by volume, minimum
SensAlert 4-Channel Controller	Compatible

[1] When unit is calibrated and serviced at recommended intervals.

[2] Room Temperature, seasoned system.

[3] Response to moisture containing gas, the response to a dry gas will appear to take longer due to a humidity transient.

[4] Sensor is subject to moisture transients on sudden changes in moisture level. Note that transients are positive for increasing moisture and vice versa.

[5] For use in an FM Approved SensAlert Plus Transmitter

Cross-Interferences*

Gas	Gas Exposure	Sensor Output
Carbon Dioxide	5000 ppm	None
Carbon Monoxide	300 ppm	None
Chlorine	3 ppm	+1 ppm
Hydrogen Cyanide	22 ppm	-1 ppm
Hydrogen Sulfide	9 to 17 ppm	-1 ppm◊
Nitrogen Dioxide	3 ppm	+1 ppm
Sulfur Dioxide	100 ppm	-1 ppm

* Interference factors may differ from sensor to sensor, it is not advisable to calibrate with interferent gases.
◊ Negative interferent, highly variable

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Special Calibration Considerations:
Chlorine Dioxide (PN° 823-0239-41)

Zeroing The Sensor

It is recommended that the sensors be zeroed in clean ambient air. If zero air is used, it should be moisturized and a pre-zeroing exposure of 2 to 5 minutes is recommended to overcome possible moisture transients.

Span Calibration

It is recommended that this sensor be calibrated at 0.5 ppm ClO_2 if possible. If accuracy is not an issue, Cl_2 gas may be used as a span gas with a 33% cross-interference factor. It is recommended that the sensor undergo a 3 to 5 minute pre-calibration exposure in order to overcome moisture transients and season the calibration system. This pre-exposure ensures that the gas reaches the sensor at full concentration. The use of Teflon™ tubing is recommended with this gas to prevent gas absorption into the tubing walls. Complete span calibration instructions are provided in the SensAlert*Plus* User Manual or SensAlert ASI User Manual.

Test-on-Demand Cell

Test-On-Demand cell available for this sensor: 821-0204-02 (Type C).

Moisture Effects & Moisture Barrier Use

These sensors exhibit a positive moisture transient when exposed to a rapid increase in ambient moisture. Transient magnitudes ranged from 0.5 ppm to off-scale when sensors were suddenly exposed to moist air (23ºC, 99%RH) after sitting in room air (23ºC, 55 – 60%RH). The sensors took 2 to 3 minutes for the transient to fall below 0.1ppm while moist air exposure continued. The sensors underwent a negative transient of -0.3 to -0.5ppm when suddenly exposed to dry air (23ºC, 0%RH) after sitting in room air (23ºC, 55 – 60%RH). These transients took from 3 to 4 minutes to rise above -0.1ppm. Note that this negative transient could cause the transmitter to display “Sensor Fail”. In addition to transients, moisture levels can cause a shift in the baseline level. Sensors zeroed after stabilizing under dried air displayed a 0.09 to 0.1ppm baseline when exposed to room ambient air (23ºC, 55 – 60%RH). This shift was still apparent 24 to 72 hours later.

The use of a SensAlert*Plus* moisture barrier, p/n 821-0201-01, can dampen these transients although they cannot be completely removed. Sensors used with these barriers exhibit a 0.3 to 0.4ppm transient when exposed to 99%RH moist air after stabilizing at room ambient. The barriers had no affect when used with a “forced” gas (i.e. dry or moisturized gas introduced through a calibration plug, nor does the transient timing appear to be affected by the barrier. The barriers can also dampen or inhibit transients when the operator’s hand is positioned close to the sensor. These barriers will reduce the gas concentration reaching the sensor from 50 to 70%. Sensors should be calibrated with the barriers in place in order to maintain accuracies.