sierra monitor corporation

Sentry
Gas Sensor Modules

Two types of gas sensor modules are available for the Sentry Gas Risk Management System. For the more common gases such as Combustible Gas, Oxygen, Carbon Monoxide, Hydrogen Sulfide, Chlorine and Ammonia, Sierra Monitor offers the ***IT Series*** *Smart Gas Sensor Modules. More information on the IT Series is available in the specific* ***IT Series*** *data sheets. For other gases Sierra Monitor offers the 5100 Series Gas Sensor Modules described in this data sheet.*

Sierra Monitor toxic gas sensor modules utilize electrochemical technology to achieve the most accurate and reliable monitoring of gas concentration. All Sentry 5100 Series sensor modules easily interface to the Sentry controller. Each module has a unique address, which allows signals from multiple modules to be multiplexed for communication with the controller on the same cable. All Sierra Monitor gas sensor modules are designed for hostile or hazardous environments and are in enclosures approved for Div. 1, Class 1, Groups C, D locations.

SENTRY FEATURES INCLUDE:

Digital Signal Transmission Serial communication to the controller enables multiplexing sensor modules on a signal cable, significantly reducing installation costs. This assures RFI and EMI immunity over extended distances.

One-Person, Non-intrusive Calibration In the calibration mode, sensors continue to monitor for hazardous conditions until calibration gas is applied. All adjustments are made automatically after calibration gas has been removed. Sentry notifies the operator of calibration completion and allows acceptance or rejection of the calibration at the controller keypad. There are no manual adjustments required at the sensor module.

Low Sensitivity Check Automatic, post-calibration check of sensor for proper output. Low sensitivity alphanumeric message warns of need for sensor maintenance.

Power Up & Calibration Delays At start-up or calibration the output of the sensor is locked out and remains locked for five minutes to avoid erroneous readings during the warm-up period and after calibration.

Diagnostic Information The alphanumeric display on the Sentry Controller provides easy to understand diagnostic messages.

Sierra Monitor Corp. 1991 Tarob Ct., Milpitas, CA 95035, USA, 408-262-6611, 800-727-4377, FAX: 408-262-9042
Web Site: http://www.sierramonitor.com E-Mail: sales@sierramonitor.com

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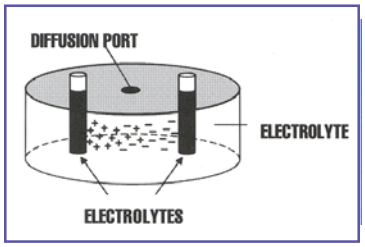
Sentry
Gas Sensor Modules

Electrochemical

Electrochemical sensors are fuel cell-like devices consisting of an anode, cathode, and electrolyte. The components of the cell are selected so a subject gas allowed to diffuse into the cell will cause a chemical reaction and generate a current. The cells are diffusion limited, so the rate at which the gas enters the cell is solely dependent on the gas concentration. The current generated is proportional to the rate of consumption of gas in the cell.



Unlike other electrochemical sensors where gas diffuses through membranes into the cell, Sierra Monitor sensors allow gas to diffuse into the sensor through a simple capillary. The result is an extremely stable sensor with very low temperature and pressure coefficients.

Common Specifications for All 5100 Series Sensors

Zero Drift:	Less than 5% per year
Calibration Frequency:	90 Days Recommended
Transmission:	Digital – RFI, EMI immune
Warranty:	2 years
Housing:	Explosion proof (NEMA 7) (Div. 1, Class 1, Groups C,D) Optional upgrade to Group B, NEMA 4X
Dimension:	7.6 X 4.6 X 4.2 inches (19.3 X 11.7 X 10.7 cm) Note that 5100-26 is larger
Weight:	2.7 lb. (1.3 Kg)

REGISTERED ISO 9001 QUALITY SYSTEM

GAS SENSOR SPECIFICATIONS

Gas	Model Number	Sensor Type	Range	Time Response	Sensor Life	Operating Temperature	Relative Humidity
Hydrogen	5100-07	Electrochem	0-1,000 PPM	90% <30 sec.	2 yr.	4° to 122° F (-20° to 50° C)	15-99% RH
Sulfur Dioxide	5100-10	Electrochem	0-100 PPM	90% <20 sec.	2 yr.	4° to 122° F (-20° to 50° C)	15-99% RH
Nitrogen Dioxide	5100-12	Electrochem	0-20 PPM	90% <35 sec.	2 yr.	4° to 122° F (-20° to 50° C)	15-99% RH
Carbon Monoxide	5100-13	Electrochem	0-1,000 PPM	90% <25 sec.	3 yr.	4° to 122° F (-20° to 50° C)	15-99% RH
Carbon Monoxide (Hydrogen Tolerant to 2,000 PPM H2)	5100-16	Electrochem	0-2,000 PPM	90% <35 sec.	2 yr.	4° to 122° F (-20° to 50° C)	15-99% RH
Nitric Oxide	5100-19	Electrochem	0-20 PPM	90% <15 sec.	3 yr.	4° to 122° F (-20° to 50° C)	15-99% RH
Hydrogen Chloride	5100-21	Electrochem	0-20 PPM	90% <100 sec.	2 yr.	4° to 122° F (-20° to 50° C)	15-99% RH
Hydrogen Cyanide	5100-22	Electrochem	0-20 PPM	90% <70 sec.	2 yr.	4° to 122° F (-20° to 50° C)	15-99% RH
Hydrogen Fluoride	5100-26	Electrochem[1]	0-10 PPM	90% <30 sec.	1 yr.	14° to 113° F(-10° to 45° C)	20-95% RH
Ethylene Oxide	5100-27	Electrochem	0-20 PPM	90% <90 sec.	2 yr.	4° to 122° F (-20° to 50° C)	15-99% RH

Note 1: Diffusion via membrane

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