



**sierra monitor corporation**

Solutions for Hazardous Gas Risk Management  
Gas and Flame Detection Systems



[www.sierramonitor.com](http://www.sierramonitor.com)

# Sierra Monitor Corporation

With over 25 years of experience and more than 15,000 installations worldwide, Sierra Monitor is a leading designer and manufacturer of product solutions that enhance the safety, efficiency and communications capabilities in both process control and building automation industries. The primary product groups are:

- **Hazardous Gas Detection Systems** used in a wide variety of industries, including chemical/petrochemical, wastewater treatment, transportation and oil and gas industries.
- **FieldServer Protocol Translator/Gateways and ProtoCessor protocol coprocessors** manufactured and sold by the FieldServer Technologies division of Sierra Monitor provide the interoperability desired in the process control and building automation industries.
- **Telecom Site Management Products** used by most telecommunications companies nationwide to monitor, manage and control HVAC, safety and security in remote environmental enclosures.

Sierra Monitor is an industry leader in its fields with a long lists of "Firsts" including:

- **First** to utilize a microprocessor based controller for area safety monitoring
- **First** to use digital two-way communication between the controller and the sensor for improved diagnostics, easy one-person calibration and multiplexing configuration
- **First** to use Modbus serial communication to enable the hazardous gas detection system to link to the plant-wide Distributed Control Systems
- **First** to provide a browser based graphical interface to a hazardous gas detection system
- **First** to provide the building automation industry with a universal protocol gateway supported by an extensive library of drivers for open systems and legacy devices;
- **First** to provide the telecommunications industry with a comprehensive facilities environment controller
- **First** to provide a protocol coprocessor for OEM use to enable the manufacturer's product to meet the communications needs of its customer



# Hazardous Gas Detection



Hazardous gas and flame monitoring are an integral part of programs designed to maintain personnel safety and protect the plant and the environment. There are three major categories of hazardous gases:

- **Combustible gases** - posing a risk to personnel and facilities through fire or explosion
- **Toxic gases** - creating both immediate and long term risk to personnel
- **Oxygen displacing gases** - depleting workers' oxygen supply in confined spaces

The gas and flame monitoring system required for a specific application depends upon the scope of the hazardous gas risk. Important factors in determination of level of protection needed include:

- Identify the hazards
- Assess risk of hazardous event
- Comply with laws and insurance requirements
- Consider liability and financial risks
- Develop and implement a strategy of comprehensive event response and prudent risk management



For applications where the risk is minor, a simple gas monitor, such as the Model 20X or 200X, interfacing with a panel that sounds an alarm when the concentration reaches the setpoint may meet the need. Applications involving a higher risk generally require continuous output of gas concentration from gas sensor modules such as the analog gas sensor modules, to a display, printer or other indicating/control device. Sierra Monitor has the experience and the products to meet any level of gas monitoring necessary to meet the user's safety requirements.

For more complex or larger applications, a comprehensive gas risk management system including smart sensors provide a range of features necessary to meet this higher level of risk. The Sentry system and the *IT* series sensors provide the user the intelligent data handling, ease of installation, comprehensive alarm logic, low operating costs and reliable proven performance demanded by today's instrumentation and safety professionals.



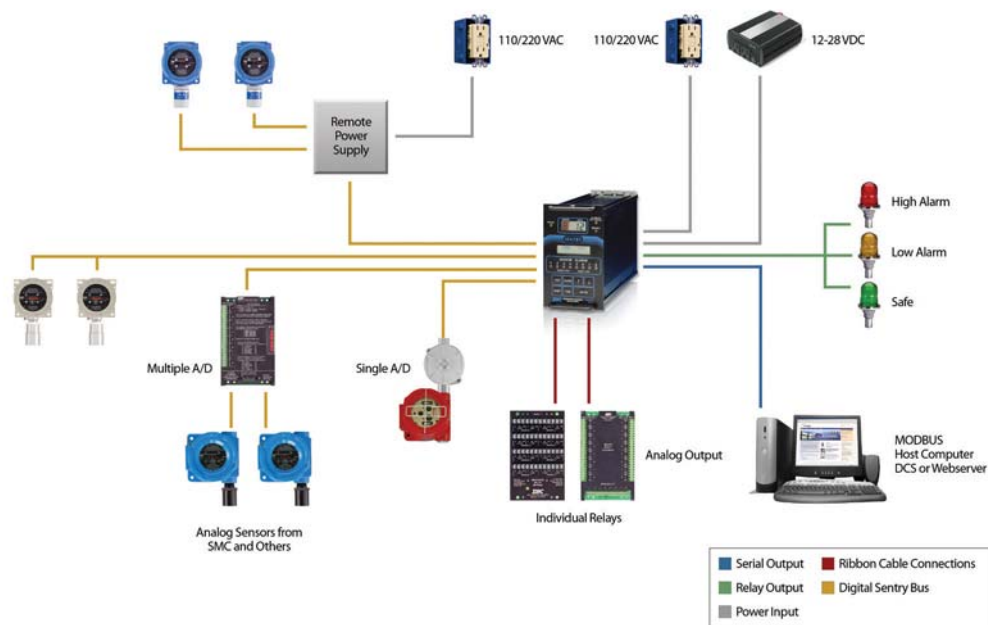
## Sentry Gas Risk Management System

Sentry is a comprehensive, stand-alone gas monitoring system that can also be easily integrated into PLC or DCS systems. This feature-rich area safety monitoring system can be configured to meet the user's specific needs. Even the basic Sentry system provides the user with multiplexed wiring for reduced installation costs; two-way digital signal between the sensor and controller for one-person, non-intrusive calibration; extensive diagnostics and user-friendly menu-driven display and common alarms.

Building upon this comprehensive package the user can construct a system that can include 4-20 mA input, individual and zone relays, battery backup, interface to other non-Sentry devices, WebBrowser output and interface to other systems utilizing Modbus or most other common process control and building automation networks.



- **User Configurable** -to meet specific application needs
- **Reliability** – FM performance approval, TUV safety approval, continuous diagnostics and EMI/RFI filtering
- **Cost Effective** - multiplexing wiring for lower installation costs and minimal maintenance requirements
- **Versatile** - options include battery backup , graphical user interface, 4-20 mA for interface to foreign devices, analog output and multiple protocol digital output
- **User Simplicity** - single person, auto-adjusting non-intrusive calibration, automatic recognition of sensor types and browser based web interface



## IT Series Smart Gas Detection Modules

The *IT* series (Information Technology) gas detection modules are the next generation of components of Gas Risk Management Systems. As the name implies, these sensors offer further advancement in information technology and interoperability.

- **Longest calibration intervals** in the industry for low cost operation
- **Multiple communication choices** - 4-20 mA, Modbus RS-485, SentryBus, integral relay outputs
- **Stand alone or system based operation** for application flexibility
- **Comprehensive menu based operation** utilizing scrolling LED display and user-friendly messaging
- **Integral alarm relays** or optional 8 amp control relays
- **Flexible configuration parameters** – including remote sensor, remote alarm acknowledge, easy interface to plant-wide control systems



## 2-Wire Toxic Gas Sensor Modules

The Sierra Monitor 2-wire gas sensor module series provides the latest in loop-powered gas detection loaded with features not normally found in these easy to install sensor modules. The 2-wire series require minimal maintenance, continuous self-diagnostics, scrolling 16-character display and non-intrusive calibration. Key benefits to the user of this best of class product include:

- **Low maintenance costs** due to FM-approved, 180-day calibration interval (the longest calibration interval in the industry)
- **Low installation costs** utilizing 4-20 mA, 2-wire, loop-powered design
- **User-friendly operator interface** with integral scrolling, menu-driven LCD display
- **Performance confidence** with FM performance and hazardous area approvals for Class 1, Div. I, Group B, C, D.
- **Fastest response time**, highest accuracy and specifications unmatched in the industry
- **Durability** in tough applications with a stainless steel transmitter/sensor enclosure
- **Non-intrusive calibration** to enable calibration without declassifying the area
- **Commonly used 4-20 mA signal output** enables interface to typical industrial and safety systems



## Gas Detectors and Monitors

Sierra Monitor provides a full range of gas and flame detectors to meet instrumentation and safety requirements

### Analog Gas Sensor Modules



Sierra Monitor analog gas sensor modules provide continuous trouble-free monitoring of hazardous gas conditions to protect your personnel and facility. The modules provide an industry standard 4-20 mA output that can interface with single or multichannel controllers and distributed control systems. Single Channel Controllers provide the user with concentration display, two independent adjustable alarm relays and a fault relay.

### Gas Alarm Monitors and Systems



Gas alarm monitors are single unit detectors for Combustible Gas, Hydrogen Sulfide or Carbon Monoxide in the PPM ranges providing both audible and relay output. The optional Alarm Panel serves as a common alarm device and power supply, accepting the input from two individual gas monitors.

### FieldServer Technologies



The FieldServer gateway from the FieldServer Technologies division of Sierra Monitor can link Sentry and the IT Series to other protocols including DF1, Modbus TCP, DH+, Profibus, Allen Bradley ControlLogix, ControlNet, DeviceNet, EtherNet/IP and many more.

### Optical Flame Detection



Sierra Monitor optical flame detectors, are top-of-the-line models featuring dual and tri-spectrum designs to provide a full range of capability and provide 120 degree cone of vision.

Sierra Monitor is also a distributor of Spectrex Optical Flame Detectors, offering a wide range of UV, UV/IR and Triple IR Flame detectors with a 90 degree cone of vision.

### Other Gas Detectors and Analyzers



The Model 4400 In-Stream Hydrogen Sulfide Analyzer continuously verifies the H<sub>2</sub>S content in natural gas collection lines.

The Spectrex SafEye range of "line-of-sight" Optical Gas Detectors feature a new generation of Open Path IR and UV detection systems for real-time monitoring of gaseous emissions over large areas.

- Combustible Gas
- Oxygen Deficiency
- Carbon Monoxide
- Chlorine
- Ammonia
- Ethylene Oxide
- Sulfur Dioxide
- Nitric Oxide
- Nitrogen Dioxide
- Hydrogen
- Hydrogen Chloride
- Hydrogen Cyanide
- Hydrogen Fluoride
- ... and more



# Associations and Approvals

## Sierra Monitor's Proven Quality

Sierra Monitor's quality system is ISO 9001:2000 registered and key products have FM, UL, CE, SIL and Mil-Spec approval. Sierra Monitor is also a UL508A approved panel shop. To ensure total satisfaction with the products, Sierra Monitor emphasizes comprehensive customer service and support. This commitment to the highest level of service extends beyond the sales cycle and throughout the product life cycle. Sierra Monitor places a high priority on training the sales team to be responsive to all customers.



Sierra Monitor gas detection products are widely used in various industries including:

- Chemical and Petrochemical Plants
- Waste Water Treatment Plants
- Building Automation and Controls
- Energy Management
- Hazardous Waste Sites
- Oil and Gas Drilling
- Refineries
- Buses
- Fuel Loading Facilities
- Laboratories
- Fire Control Stations
- Mines
- Storage Tanks
- Parking Garages
- Compressor Rooms
- Food Storage Warehouses
- Landfill/Brownfields Reclamation Sites
- Buildings near Landfills
- Gas Pipeline and Compressor Stations
- Semiconductor Manufacturing
- Solvent Recovery Systems
- Engine Test Facilities
- Offshore Oil Platforms
- Telecommunications Enclosures
- Wellhead Control/Monitoring
- Refrigeration Rooms
- Groundwater Reclamation
- Sulfur Recovery Plants
- Pipeline Transfer Stations
- Furnace Rooms
- Boiler Rooms
- Refrigeration Transports
- Health Care Facilities
- Battery Storage Areas
- Highway Tunnels
- Government and Military
- Pulp and Paper Plants
- Shipboard Toxic Gas Monitoring
- Transportation Maintenance Facilities
- Subways



Sierra Monitor products are used worldwide to maintain safety in plants and facilities.

*Your Highest Expectation is Ours*

Manufacturer's representatives and regional sales managers worldwide have the industry and application skills to match products to the user's specific needs. After installation, the same team members have product operation skills to assist with operator information and problem solving requirements.

The comprehensive Sierra Monitor web site at [www.sierramonitor.com](http://www.sierramonitor.com), provides 24 hour a day, 7 days a week product and technical assistance information.

The SMC CD is an extensive technical data and application assistance tool, and may be obtained from any SMC sales office or manufacturer's representative.



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