

Sentry-MSX

Open Path Xenon Source Multi-gas UVDOAS Analyzer

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Cost Effective Perimeter & LDAR Monitoring

Acrolein
Benzene
Chlorine
Formaldehyde
Naphthalene
Nitrogen Dioxide
Styrene
Sulfur Dioxide
Toluene
Xylenes
& More

The xenon equipped Sentry-MSX offers perimeter monitoring with among the lowest cost per meter of any modern gas analysis system. A single analyzer is capable of monitoring more than one kilometer of fence line. Gapless perimeter monitoring not possible with point sensor technology is standard. Long life low maintenance design ensures continued value, autonomous operation and high uptime percentages.

Direct SAFER Systems Integration

MODBUS TCP Integration

Remote Control via Ethernet

Part per Trillion Sensitivity

Automated Reporting

Automated Alarms

Simple .csv or .txt Data Logging

Easily configured for your application

Tripod mount or fixed installation

Optional Hazardous Location Hardware



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CEREX MONITORING SOLUTIONS
www.cerexms.com



Cost Effective Perimeter and LDAR Monitoring

Multi-Compound Detection Capabilities

Offering real time quantification of multiple compounds, the Cerex Sentry-MSX provides dramatic cost savings in perimeter monitoring applications. One analyzer is capable of monitoring linear path lengths in excess of 1000 meters, while reliably delivering accurate data without reporting inflated concentrations due to interferent background gases. The Sentry-MSX is offered fully configured to meet the requirements of your air quality monitoring application. Target gases are selected from Cerex's library of UV compounds. Changing target gases incurs no additional costs and is simple as copying and pasting.

Low Maintenance Costs, Automated Operation, Increased Uptime

The Sentry-MSX is designed for fully autonomous continuous operation. Inherent calibration eliminates the need for time consuming and expensive routine calibration. Quality assurance audits require only small quantities of primary standard gas. Synthetic background implementation zeros the analyzer each acquisition cycle without concern for background gas concentrations. The UV source is the only consumable, and carries a 2000 hour manufacturer half-life warranty. Optical surfaces are sealed and may be cleaned as necessary with household cleaner.



Low Cost Installation and Integration

For many installations complete perimeter monitoring may be achieved with only two power and communication installation locations. MODBUS TCP and VNC via Ethernet are standard communication and remote control protocols.

Enhanced Early Detection Performance

Part per trillion to low part per billion detection limits enhance early leak detection. Concentrations of gases below the detection thresholds of traditional sensor arrays are readily detectable with the Sentry-MS and without interference from common background gases or water vapor. Early detection translates into quicker response times, reduced environmental impact, decreased plant downtime and reduced exposure. The analyzer likewise cannot be poisoned. Even after exposure to high concentrations of gas, clear down is immediate.

Direct Integration with SAFER Systems Modeling

The Sentry-MS seamlessly integrates with SAFER Systems' emergency response software. SAFER's patented software is used in conjunction with Cerex hardware in several different ways; pre-emergency for preparation and training, during an emergency for emergency response, and post-emergency for future event mitigation, regulatory reporting, and litigation response. The complete solution utilizes live streaming data from on-site weather stations and Cerex gas detection sensors to generate a visualized model of the chemical plumes or soot clouds released during an emergency. The models automatically update as weather/sensor data changes so that emergency response teams know who or what will be impacted by the emergency (whether on-site or off-site), who needs to be evacuated or shelter in place, and how long the event will last. In the case of highly flammable chemicals, the models show where the combustion particulates will be deposited as well as the chemical composition of the soot clouds. All of the models and data are archived so they can be used for post-emergency analysis of the event, in response to odor complaints and litigation, and for reporting to regulatory agencies when needed. Not only can response teams use pre-defined scenarios prior to an emergency, but they can also use the archived data and models to base their emergency drills and training on actual events that may have occurred.

Core Data Acquisition and Integrated Meteorological Monitoring

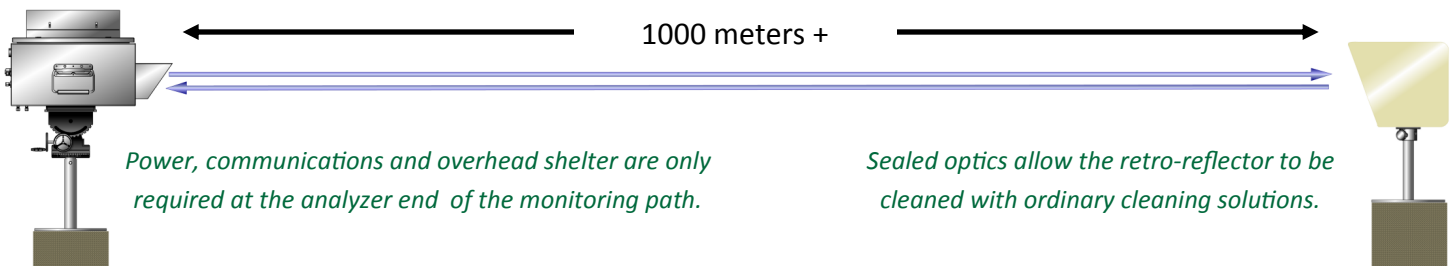
With optional inputs the Sentry-MS may be configured to acquire and integrate data from ancillary analyzers and meteorological monitoring hardware to offer definitive records of site conditions.

Open Path UVDOAS Principle of Operation

The Cerex Sentry-MSX operates by sending a beam of UV light through the open air. The UV beam is reflected back to the analyzer by a retro-reflector array (mono-static), where the absorption due to target gases is measured and recorded. The analyzer uses a classical least squares regression analysis to compare the measured absorption spectrum to calibrated reference absorption spectra files. Beer's Law is used to report accurate gas concentrations.

Mono-static Design and Installation

The Sentry-MSX mounts to a precision pan and tilt head which may be used with a tripod for rapid deployment, or with a fixed mount for permanent installations. The retro-reflector array is housed in a protective enclosure and may be tripod or fixed mounted to a mast, pole or superstructure. Power and overhead shelter are required on at the analyzer end of the monitoring path. Path lengths in excess of 1 Km are possible.



Sentry-MSX Features

Software and hardware features are specifically designed to simplify integration , automate operation and reduce maintenance. Tedious calibrations are unnecessary and the use of synthetic background functionality allows continuous and accurate quantification of gases that are always present without the need for complex background acquisition procedures.

Sentry– MSX Features

- Simultaneous multi-gas detection capabilities
- Part per billion minimum detection limits (gas specific)
- Inherent calibration: No need for ongoing calibrations
- Automated background acquisition
- Automated synthetic background implementation
- Integrated Computer with Windows®
- User configurable alarms and data acquisition rate
- Integrated WiFi , LAN, USB
- Remote control via MODBUS TCP, Ethernet Networking
- Integrated instrument air conditioning



Monitoring Performance

The Sentry-MSX reports concentrations of individual species of gases.

Sentry-MSX Single Gas Minimum Detection Limits

Compound	MDL PPM-m	MDL 1000 Meter Path PPB (2000m total)
Acetaldehyde (C ₂ H ₄ O)	3.2	1.60
Benzene (C ₆ H ₆)	0.27	0.14
Carbon Disulfide (CS ₂)	13.31	6.66
Chlorine (Cl ₂)	5	2.50
Ethylbenzene (C ₆ H ₅ CH ₂ CH ₃)	0.3	0.15
Formaldehyde (CH ₂ O)	3.2	1.60
Naphthalene (C ₁₀ H ₈)	0.2	0.10
Ozone (O ₃)	2	1.00
Phenol (C ₆ H ₅ OH)	0.3	0.15
Styrene (C ₈ H ₈)	0.6	0.30
Sulfur Dioxide (SO ₂)	6.7	3.35
Toluene (C ₇ H ₈)	0.84	0.42
m-Xylene (C ₈ H ₁₀)	0.35	0.18
o-Xylene (C ₈ H ₁₀)	3.77	1.89
p-Xylene (C ₈ H ₁₀)	0.24	0.12



The Sentry- MSX is available with an internal or external quality assurance cell. Below is a 1 meter linear cell which is placed in the beam path for QA checks.



Common Options

Sentry-MSX Options

- Integrated Meteorological Monitoring
- Analog inputs, integrated data logging
- Collocated Particulate Monitoring
- Modbus RTU, 4-20mA, 0-5VDC
- RS-232, 422, 485 output
- USB Cellular Modem or RF Modem
- Internal Flow Through QA Cell
- External QA Cell
- Extended Temperature Range
- Alarm driven control outputs
- HAZLOC Z-Purge, Air Conditioning
- Automated Multi-path Scanner

Cellular Modem provides remote access to user interface, data and alarms

Consumables

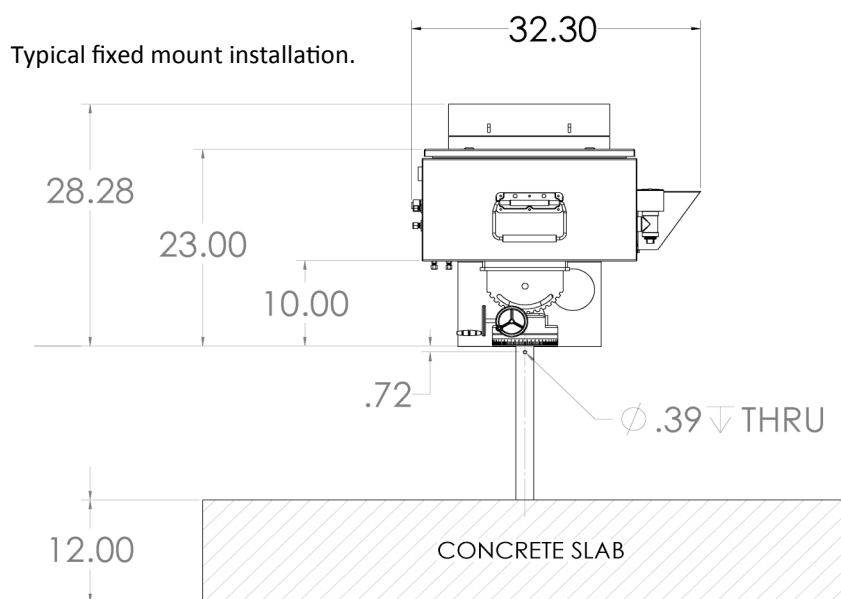
The Sentry-MSX has only one consumable component:

The UV source.

The UV source is warranted for a 2000 hour half life. Typical operation exceeds 3000 hours and the UV source is field replaceable.

Sentry-MSX Multi-Gas Analyzer Specifications

Analyzer	Sentry MS
Application	Open Path Mono-static Multi-Gas Analyzer
Maintenance	
Bulb Life	2000 Hour Half-Life Warranty (Xenon)
Installation	
Operating Temperature	0 to +50°C (extended ranges optional)
Cooling	Instrument AC
Operating Humidity	0-100%
Power	120 or 240VAC, 800W (DC Optional)
Enclosure	Steel or Aluminum
Weight	105 Lbs.
Dimensions	16 x 16.9 x 12.3 (in)
Mounting	Pan and Tilt Head via Dovetail
Performance	
Dynamic Range	Application Specific
Background Drift (TYP)	Not Applicable
Linearity Drift (TYP)	< 2%, Self-Compensating
Accuracy	Application Specific: TYP 3.5% Reading or Better
Technology	UV-Vis DOAS
UV Source	Xenon
Data Output	.CSV, ASCII via MODBUS TCP
Data Output Options	RS-232, 422, 485, RF Stream, MODBUS RTU,
Alarms	
Networking	Sealed LAN, WAN and USB Ports, optional cellular modem, optional radio modem



Call for a technology demonstration +1 678-570-6662

CEREX MONITORING SOLUTIONS
www.cerexms.com



Individual gas species
detection

Data and alarms can automati-
cally be sent to email addresses,
website or control room.

Analog Outputs available
(4-20ma, VDC)

Inherent Calibration

No ongoing calibration required.

Synthetic Background
Eliminates need for clean air
background acquisition.

Automated Dynamic Range
Automatic range shifting allows
dynamic ranges spanning orders
of magnitude.

User-configurable alarms

Fail to safe operation

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