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## Leading-Edge CEMS Solutions

### ROSEMOUNT ANALYTICAL: THE SMART CHOICE FOR CEMS

Rosemount Analytical's CEMS are the smart choice to help you manage your business in today's regulatory environment. Our strengths include leading-edge research and development, field-proven reliability, a variety of modular solutions to fit your specific application, a comprehensive warranty and a full spectrum of global service and support options. Rosemount Analytical's CEMS reduce the total cost of ownership by maximizing uptime while minimizing installation and maintenance costs. And, our CEMS expertise ensures certification and compliance with appropriate regulations. Information can be easily and quickly communicated to the U.S. Environmental Protection Agency (EPA) or other regulatory agencies to verify compliance. In addition, the information gathered by a Rosemount Analytical CEMS goes beyond environmental monitoring, enabling plant technicians to optimize the process and increase uptime, thereby increasing profits.

### A WIDE ARRAY OF SOLUTIONS

Rosemount Analytical offers an array of CEMS solutions to fit the

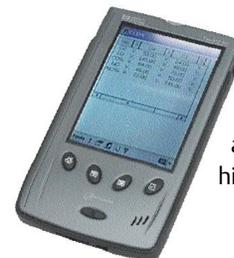
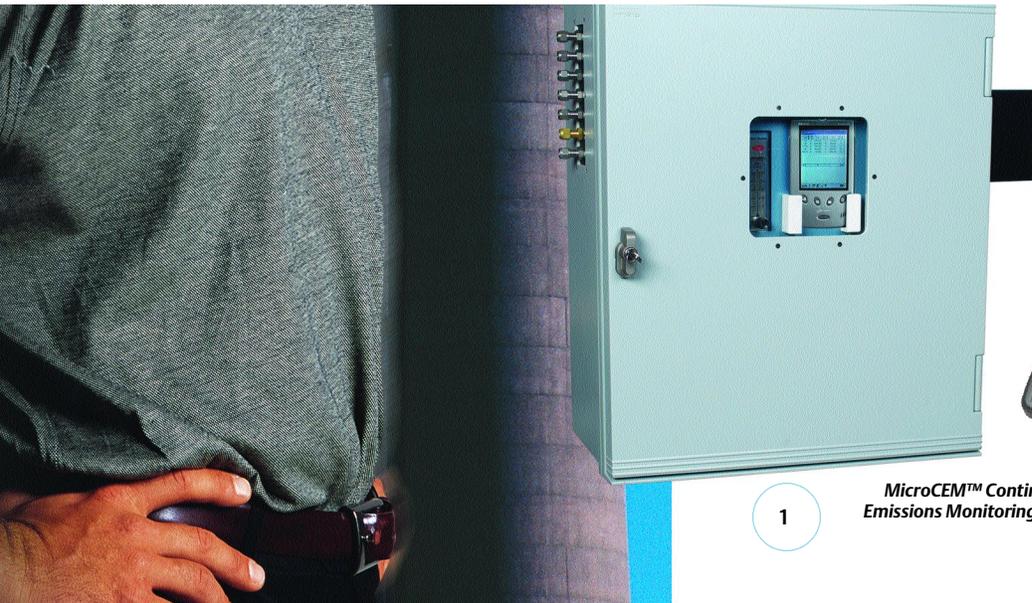
requirements specific to your industry. From compact, field-mountable systems to custom-designed CEMS, we have the solution that will keep you in compliance and fine-tune your process.

### COMPACT, FIELD- MOUNTABLE SOLUTIONS

Our latest innovation in continuous emissions monitoring is our compact, field-mountable CEMS. The **MicroCEM™ Continuous Emissions Monitoring System** is ideal for any industry requiring a complete CEM system that fits a small area, or one that can be directly mounted at the process. This complete continuous emissions monitoring system is housed in two compact, field-mountable enclosures (24" x 24" x 12"). The MicroCEM utilizes proven extractive monitoring technology, offers state-of-the-art measurement detectors and uses a standard industrial electronics platform for maximum measurement, communications and processing capabilities.

The MicroCEM extracts a sample gas, conditions the sample, analyzes the sample for desired constituents and processes the emissions data via the required calibration validation calculations/procedures and oxygen diluent corrections as stipulated in 40 CFR Part 60 regulations. The MicroCEM serves as a data acquisition system, storing relevant raw/diluent corrected emissions, flags, calibrations and alarms for three months. Data can be accessed at distances of 1000 feet using the

MicroCEM pocket PC handheld. The pocket PC allows the user to easily scroll through menus and view data via the high-resolution display.



## MODULAR SOLUTIONS

Our modular continuous emissions monitoring systems feature the NGA 2000 MLT 2 Multi-Component Gas Analyzer, the SCP 100 Sample Conditioning Package and the SP 110 Sample Extraction Probe. These components are designed for field installation. The reduced size of this new approach to CEMS minimizes the cost of installation compared to a traditional, high-cost shelter approach. This shelterless system is ideal for mounting directly in the field in an inexpensive, three-sided protective covering. It is also available in an explosion-proof wall-mount, temperature controlled housing. The sample-conditioning portion of the system is housed in a compact, purgeable weatherproof enclosure.

### NGA 2000 MLT 2 MULTI-COMPONENT GAS ANALYZER

Rosemount Analytical's NGA 2000 MLT 2 measures up to five gas components in a single or dual compartment IP 65 (NEMA 4/4X) wall-mount enclosure. For CEMS applications, the MLT 2 is configured as a "system control analyzer" with front panel display and keypad. For hazardous areas, the MLT 2 can be equipped with an impact tested, intrinsically safe front panel and simplified pressurization (Z purge) for Ex Zone 2. An EExpi approved "purge system" is available for CENELEC Ex Zone 1 applications, with leakage compensation or continuous purge.

### SAMPLE HANDLING SYSTEM

Rosemount Analytical's SCP 100 Sample Conditioning Package combines moisture removal, sample and calibration valving, flow regulation and power distribution in a compact, wall-mount enclosure. Integral temperature control circuits regulate the sample line and probe temperatures. A thermoelectric

### Benefits of an NGA-Based CEM System

- Reduced costs
- Improved performance
- Reduced time for:
  - installation
  - testing
  - start-up
  - servicing
- Compact size
- System expandability

cooler controls the condensation of entrained moisture vapor to present a dry sample for analysis. A diaphragm vacuum pump moves the sample through the sample handling system. Once the sample is dry, sample pressure and flow is regulated for delivery to the analyzer. Daily calibration and other routine tasks are performed automatically by the analyzer/controller. All system functionality can be manually initiated for troubleshooting and testing. The analyzer/controller eliminates the need for the integration of a separate PLC or external control system.

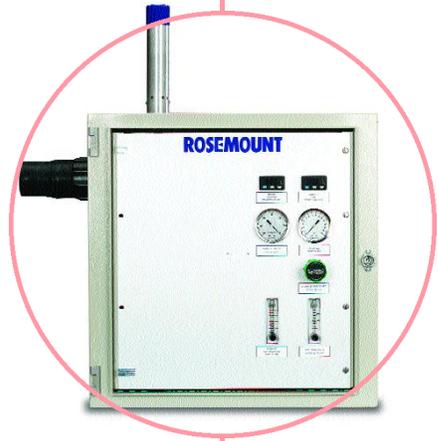
### SAMPLE PROBE

The Model SP 110 Sample Extraction Probe has standard features for supporting automatic probe blowback, including an accumulator tank and dual blowback air ports for purging both the sample filter and the sample pick-up tube.

NGA 2000 MLT 2 Multi-Component Gas Analyzer



Sample Handling System



Sample Probe



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# Modular Gas Analysis Solutions

Rosemount Analytical revolutionized continuous emissions monitoring with its NGA 2000 Series of modularized gas analyzers. The NGA 2000 analyzers offer custom-designed solutions that are flexible, easy to maintain, service and upgrade as new technologies emerge.

What makes the NGA 2000 analyzers unique is their built-in intelligence and their ability to share this intelligence. Embedded in the NGA 2000 architecture is an advanced digital communication network that allows



NGA 2000 Series components

interaction between other analyzer modules in the system. The network carries all pertinent analyzer outputs and diagnostic variables to a centralized display panel or remote device. The NGA 2000 analyzer modules support paramagnetic, electrochemical, non-dispersive infrared, non-dispersive ultraviolet, flame ionization, chemiluminescence, chromatography and thermal conductivity measurement methodologies to measure hundreds of gas components.

The NGA 2000 MLT Series analyzers offer multi-component analysis in a single module.

An NGA 2000 system provides advanced diagnostics, compact design, modular configuration, bi-directional communications, reduced downtime, exceptional reliability and a flexibility previously unavailable in gas analysis.

## PRE-ENGINEERED SOLUTIONS

Rosemount Analytical also offers a cost-effective, pre-engineered CEMS for monitoring stack gases and opacity for regulatory compliance.



GMP 1000M Continuous Emissions Monitoring Package

The GMP 1000M Continuous Emissions Monitoring Package with NGA 2000 Analyzers measures up to five gases plus opacity including O<sub>2</sub>, CO, CO<sub>2</sub>, SO<sub>2</sub> and NO<sub>x</sub>. The GMP 1000M performs self-diagnostics and is fully pre-engineered for maximum uptime. The GMP 1000 Continuous Emissions Monitoring Package measures one, two or three gases plus opacity and offers many of the features of the GMP 1000M with traditional rack-mount analyzers.

## CUSTOM SOLUTIONS

We offer custom-designed CEMS for measuring multiple gases, built to customer specifications. Please contact our customer support center for additional information.

## APPLICATIONS

### GAS TURBINES

Our CEMS are ideal for the low emissions requirements of gas turbines.



### CO-GENERATION FACILITIES

Depending upon the geographic location, type of fuel burned and plant size, any or all of the following parameters may be monitored: CO, O<sub>2</sub>, CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub>, THC, NH<sub>3</sub> and opacity.



### REFINING

Process heaters and FCC units often require enhanced sample handling features that are a Rosemount Analytical specialty.

### UTILITIES & MUNICIPALITIES

With emissions allowances being a potentially valuable commodity, accurate and reliable CEMS are a necessity.



### INDUSTRIAL BOILERS

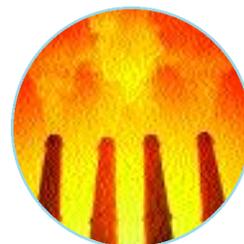
Depending upon the size and location of the plant, CEMS may be required.

### COMMERCIAL & INSTITUTIONAL BOILERS

Typical measurements include CO, CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub>, O<sub>2</sub> and opacity.

### CEMENT KILNS

Rosemount Analytical offers cost effective, pre-engineered systems for cement kiln applications.



### PULP & PAPER

Pulp and paper facilities may be required to measure SO<sub>2</sub>, O<sub>2</sub>, CO, NO<sub>x</sub> and opacity in a variety of emissions sources including power and recovery boilers.



### SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEMS

A NO<sub>x</sub> measurement is used upstream of the SCR to control the feedrate and downstream of the SCR for NO<sub>x</sub> emissions compliance.