



>>> Process Gas Analysis Solutions

Perfecting your process
for a better bottom line

"If you can not measure it,
you can not improve it."

Lord Kelvin

ROSEMOUNT[®]
Analytical


EMERSON[™]
Process Management

Unequaled accuracy and reliability > Increased productivity and profitability

Count on Emerson Process Management to put the power of analysis in *your* hands.

Every day, all around the world, Emerson Process Management helps companies achieve higher quality, greater reliability and faster time to market, while steadily advancing productivity and profitability. Emerson's Rosemount Analytical brand of instrumentation offers unmatched real-time measurement, resulting in a new level of plant optimization. We go way beyond simple data collection and offer proven analytical solutions, including systems expertise, analytical products and worldwide installation and service. Emerson can help you:

- > **Enhance** product quality and increase throughput
- > **Lower** process variability and improve process diagnostics and safety
- > **Reduce** energy, installation and maintenance costs
- > **Meet or exceed** regulatory requirements

A history of product performance and industry expertise

Emerson's Rosemount Analytical products and services reach back almost a century and include:

Hagan Controls

Westinghouse Combustion Controls

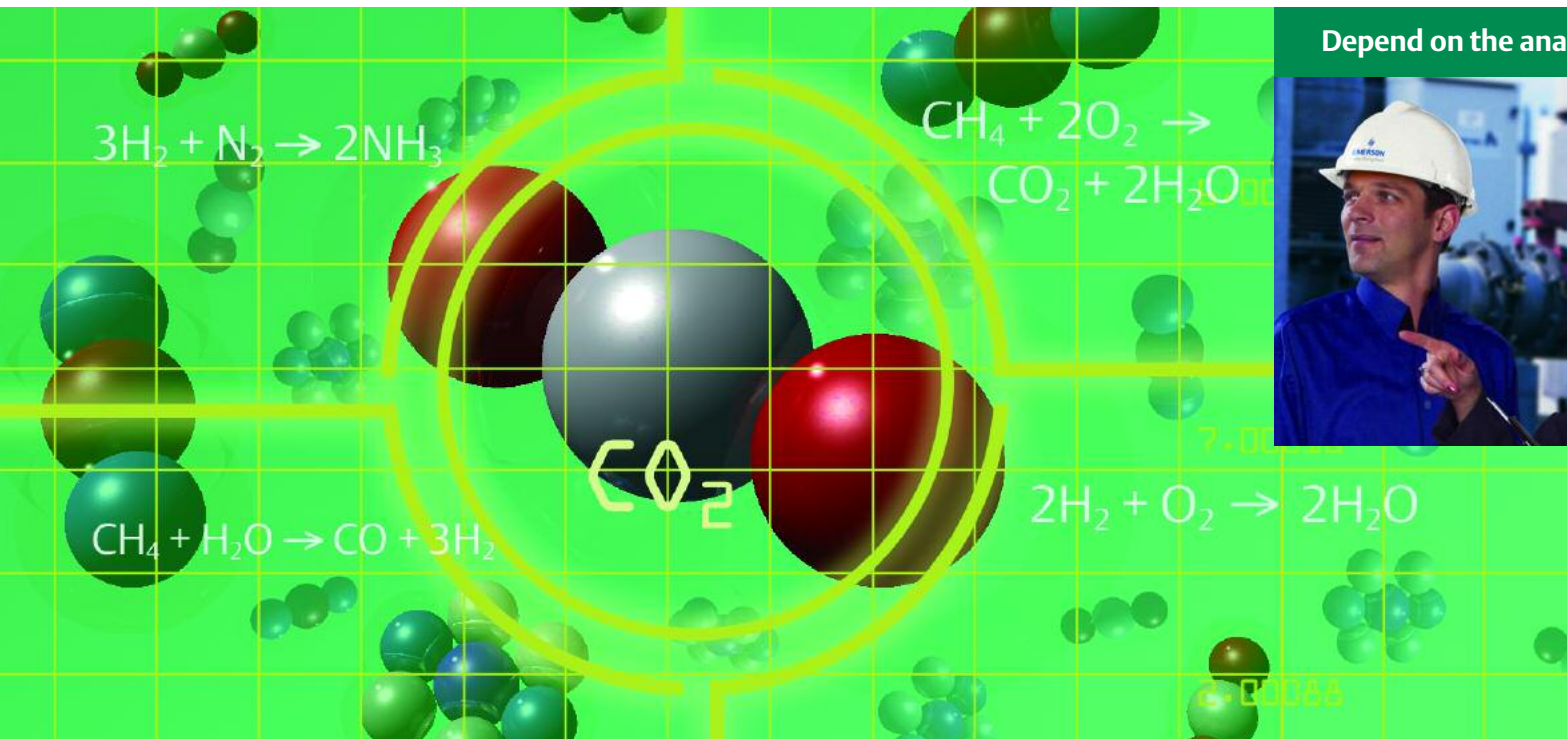
Beckman Instruments

Leybold AG

Daniel Measurement and Control

With each acquisition, the Rosemount Analytical product line has been strengthened in key ways to provide more comprehensive process solutions.

>>>>> Identify > Analyze > Improve



Depend on the analysis experts from Emerson



Introducing X-STREAM Analyzers > Optimal performance in demanding applications

To tightly control a process, its constituents must first be defined – precisely and consistently, every time. Only then can your process be fine-tuned to yield its optimal performance. That's where Emerson's new Rosemount Analytical X-STREAM series of gas analyzers come in. X-STREAM is available in three versions – general purpose, field housing and flame-proof – so there's one for *your* application.

X-STREAM gas analyzers offer single and dual channel analysis using infrared, ultraviolet and visible (NDIR/UV/VIS) photometry, paramagnetic and electrochemical oxygen, and thermal conductivity sensor technologies. They can measure up to 2 components in any measuring combination. Physical benches are installed in their own compartment, separated from the electronics. Optional thermostatic control enables measuring lower sample gas concentrations and

higher dew points. Additionally, a purge can be added for handling corrosive and toxic gases to protect the electronics and to provide operator safety.

X-STREAM analyzers have an alphanumeric LCD. Easy to read text messages and front panel LEDs provide information about the measurement and analyzer status. X-STREAM analyzers are equipped with an internal wide-range power supply for all world areas.

X-STREAM Analyzers provide:

- User-friendly operator interface
- Support for multiple languages
- Easy access for maintenance and repair
- Extended ambient temperature range
- Global certifications

X-STREAM Analyzer features:

- Single or dual channels
- Solvent-resistant, corrosion-resistant and intrinsically safe measuring cells are available
- NDIR: Robust microflow and solid-state detectors
- NDUV/VIS: Vacuum diode detector for stability and long life
- O₂: Fast response paramagnetic and electrochemical O₂ sensor with long term stability
- TC: Aluminum and quartz-coated stainless steel thermal conductivity cells
- Analog and digital I/O, status signal relay outputs and serial interface with Modbus communication
- Autocalibration via internal or external valve block
- Barometric pressure compensation, internal sampling pump and flow sensor

X-STREAM Configurations

General Purpose X-STREAM

The general purpose X-STREAM analyzer is available in a rack mountable or tabletop version.



Field Housing X-STREAM

This version of the X-STREAM is provided in a wall mountable NEMA 4X/IP66 painted stainless steel housing. The NEMA 4X/IP66 design allows operation in harsh industrial environments. Upgraded with a CSA-C/US approved z-purge pressurization system, this X-STREAM analyzer can be installed in Zone 2 hazardous areas in North America. ATEX-approved pressurization systems are available for installation in European hazardous areas classified Zone 1 or 2.



Flameproof X-STREAM

The flameproof (explosion proof) X-STREAM analyzer is provided in a wall-mountable NEMA 4X/IP66 painted cast aluminum housing that can be field mounted in the harshest environmental conditions without the need of a purge. This X-STREAM analyzer can be installed in Class I, Zone 1, Group IIB + H2 hazardous areas.



Solutions for every application > Emerson has it covered

Optimizing your process means controlling product quality and production costs – the better your data, the better your control. Rosemount Analytical analyzers take the guesswork out of fine-tuning your process with proven technologies backed by more than 80 years of experience and know-how in these industries:

OIL AND GAS

Pipeline monitoring – monitor hydrocarbon vapor leaks at transfer sites and trace CO₂ contamination in natural gas

REFINING

Naphtha isomerization – measure H₂, CO and CO₂ to assist in overall process control

Catalytic reforming – monitor H₂ and hydrocarbons for process control

Hydrocracking – measure H₂ for process optimization

Fluidized catalytic cracking – monitor CO and O₂ to aid in regenerator control, safety, and to enable stable operation during a changing gas stream

Sulfur recovery – monitor total hydrocarbons to promote stable operation

Hydrocarbon compressor – measure O₂ for safety

Marine unloading and vapor recovery – monitor total hydrocarbons and O₂ for safety

Feed stock heaters – measure O₂ for efficient combustion control

CHEMICAL/PETROCHEMICAL

General – inert gas blanketing control to maintain low O₂ in vessels with combustible mixtures

Hydrogen plant – measure H₂, CO, CO₂ and methane for process optimization and product purity

Ammonia, urea and fertilizer production – measure H₂, CO, CO₂, methane and ammonia for process control and elimination of contaminants

Ethylene and propylene production – monitor ethylene, propylene and CO₂ to maximize product yield and minimize CO₂ contamination

Wide range of other processes such as acetone, alcohols, chlorine, nitric acid, phosgene, sulfuric acid and toluene

AIR SEPARATION/LIQUEFACTION

Nitrogen, Oxygen and Argon separation and bottling plants – monitor the gases for product purity and trace hydrocarbon, O₂, CO and CO₂ contamination

POWER

Hydrogen cooling of gas turbines – monitor H₂, O₂ and CO₂ to reduce costs and for safe operation

METALLURGICAL

Furnaces – measure CO, CO₂, O₂ and H₂ for efficient combustion, atmospheric control and safety

Heat treating – monitor CO, CO₂, O₂, H₂ and ammonia to control metal properties

CEMENT/CERAMICS

Kilns – measure CO, CO₂, NO and O₂ to optimize kiln controls

ENVIRONMENTAL

Biogas – measure methane, CO₂ and O₂ for off gas quality and safety

Carbon bed scrubbers – monitor hydrocarbons and CO for efficiency and fire protection

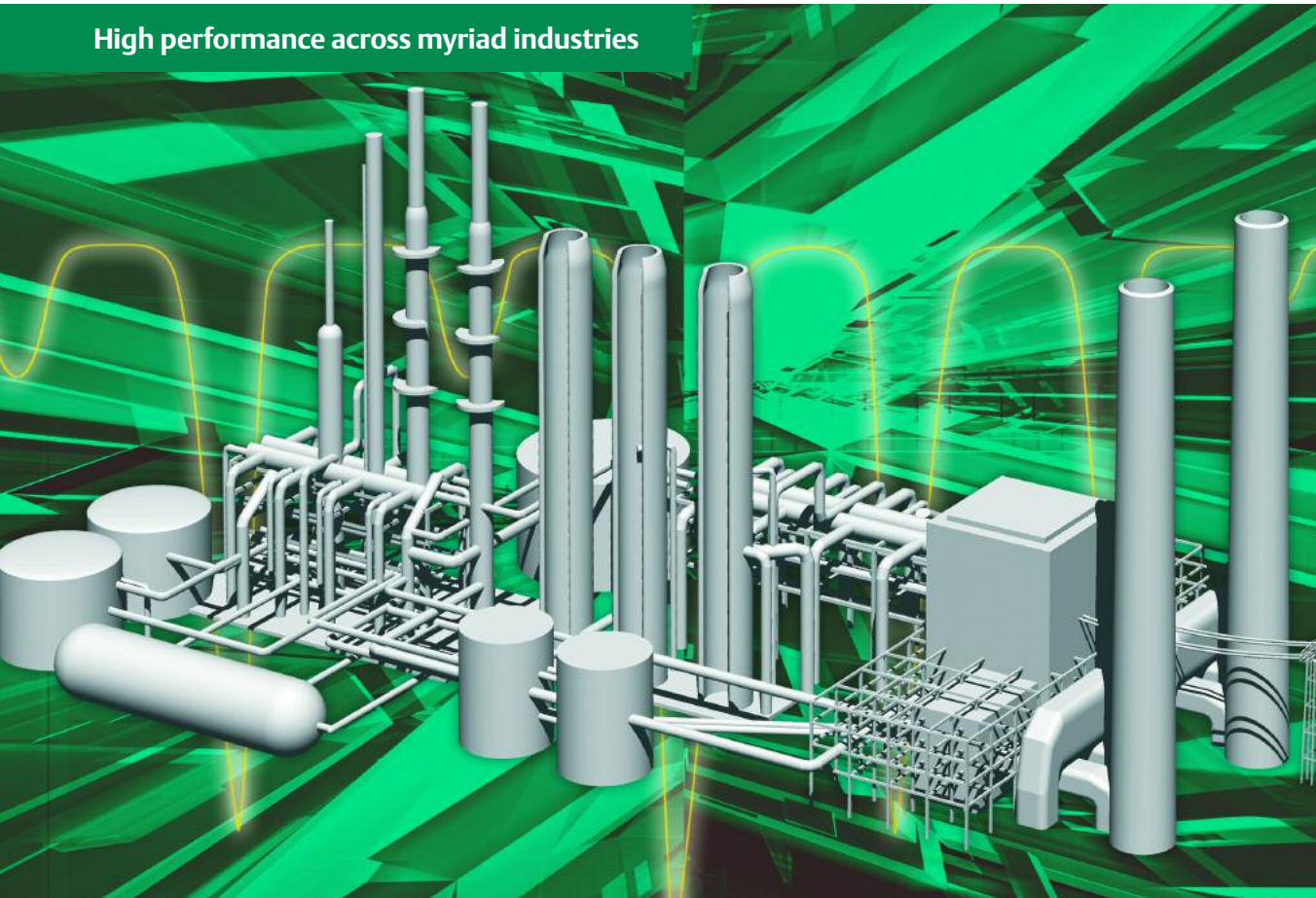
CEMS

Continuous emissions monitoring – measure hydrocarbons, O₂, CO, CO₂, NO_x and SO₂ to meet or exceed regulatory requirements

ICEE

Engine testing and development – measure hydrocarbons, CO, CO₂, NO_x and O₂ for emission control and performance optimization

High performance across myriad industries



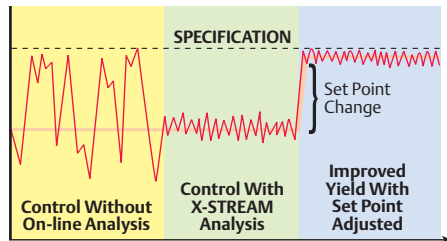
Analyze the Value

Check out this comparison of key factors between a process utilizing Rosemount Analytical X-STREAM Analyzers and one without. See for yourself why X-STREAM makes sense.

	With X-STREAM	Without X-STREAM
Real-time control	+	-
Immediate, continuous feedback	+	-
Labor efficient	+	-
Lower process variability	+	-
Measure contaminants	+	-
Enhance product quality	+	-
Increase throughput	+	-
Reduce energy consumption	+	-
Increase safety	+	-

Perfect your Process

X-STREAM enables you to fine-tune your process for maximum yield and cost efficiency.



Additional Process Analytical Solutions



Process Analysis

In addition to X-STREAM, Emerson also offers the MLT Series of analyzers. These instruments have the capability of measuring up to 5 gas components in a single analyzer using a combination of NDIR/UV/VIS photometry, paramagnetic and electrochemical O₂ and thermal conductivity detectors. Additionally, the MLT series is designed for high sensitivity and interference rejection in order to measure concentrations as low as 0 to 10 ppm CO and 0 to 5 ppm CO₂.

Emerson also provides analyzers with flame ionization detectors (FIDs) for measuring hydrocarbons in a wide variety of applications; and analyzers with chemiluminescence detectors (CLDs), the highly sensitive and reliable industry standard technology for measuring NO_x.



Process Gas Chromatography

Emerson's Process Gas Chromatographs set a new standard for reliability and low cost of ownership for process monitoring and control. Micro-packed columns are used for fast separations and low carrier gas consumption. The thermistor-type thermal conductivity detectors (TCDs) are the most sensitive available for rugged reliable measurements at ppm levels. Our chromatographs are intended for installation outdoors without expensive temperature-controlled shelters; this dramatically lowers the total installed cost.



Combustion Analysis

Emerson invented the first zirconium oxide oxygen analyzer and remains the industry leader in combustion flue gas analysis. In addition, we provide solutions for oxygen/combustibles, carbon monoxide, opacity and fan damper control. Emerson makes combustion analyzers that will give your operators the confidence to run your combustion process at the most efficient fuel/air ratio.

Analyze > Prove



With PlantWeb® digital plant architecture, Emerson delivers what everyone else has missed: proof. Across all industries, we're proving that PlantWeb can increase overall plant efficiency by 2% or more. So you operate more cost-effectively, even as its network of predictive intelligence lets you work more safely by detecting problems before they happen.

PlantWeb can help:

- > reduce installation, energy and maintenance costs.
- > lower process variability and improve process diagnostics and safety.
- > enhance product quality and increase throughput.
- > meet or exceed regulatory requirements.

Talk to your Emerson representative to find out how PlantWeb can improve your bottom line.

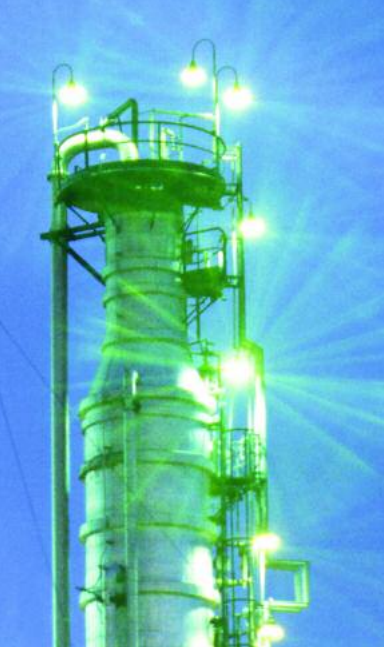


Liquid Analysis

Emerson is the world's premier provider of liquid analysis solutions featuring products with unmatched accuracy, superior performance and worry-free dependability. Our leading-edge instruments and applications expertise, along with unbeatable customer service and support worldwide help our customers maximize process performance, productivity, and profitability. Our solutions provide reduced installation and maintenance costs while improving process quality. We offer a complete range of analyzers, transmitters and sensors for the continuous online measurement of pH, ORP, conductivity, dissolved oxygen, ozone, chlorine, turbidity and total suspended solids.

Call your Emerson Process Management representative for more information on all our process solutions.





>>> Contact Us Worldwide

Emerson Process Management's field offices are your source for more information on the full line of Rosemount Analytical products. Field sales personnel will work closely with you to supply technical data and application information.

For more information on Rosemount Analytical products and their applications, please contact your nearest Emerson field office. To request copies of our literature, call 800.433.6076 or visit our website.

www.raihome.com

>>> Analyze Us

Emerson Process Management the worldwide industry leaders in:

- > **Combustion Analysis and Optimization**
- > **Process Analysis**
- > **Environmental Analysis & Systems**

>>> Identify > Analyze > Improve

Let us prove what Emerson Process Management can do for you. Call your Emerson representative today.

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