Tailored Gas Monitoring Solution for Industrial Facilities

Single MC3 analyzer measures gases including SO_2 , NO , NO_2 , N_2O , CO, HCl, NH_3 , CH_4 , CO_2 , H_2O & O_2

Concerned about future Climate Change regulations & emission credit trading? The MC3 can effectively measure key Greenhouse gases including CO_2 , CH_4 and N_2O.

- ✓ Direct measurement (without converters) of up to 8 components
- ✓ Low maintenance system ideal for conditions encountered in the industrial facilities
- ✓ Sample system is optimized for your application - fully extractive "hot-wet", "cold-dry" or even dual
- ✓ Powerful software allows for remote diagnostics and trouble-shooting
- ✓ Cost-effective system, especially if more than three gases have to be measured
- ✓ Process Control and Regulatory applications - complies with state and Federal regulations (40 CFR Part 60 and 75)
- ✓ Two decades of design and application experience with installations including chemical and refining facilities, power plants, waste-to-energy, pharmaceutical manufacture, cement kilns and hazardous waste incineration plants.

Depending upon your needs, EcoChem can deliver…

Multicomponent MC3 analyzer

Field-mount version

Standalone system cabinet with MC3 analyzer, PLC and sample system components

Turnkey project incorporating a building enclosure with system cabinets

Technical Specifications -- MC3 Analyzer

The MC3 analyzer is based on infra-red technology. In addition to the standard measurements listed in the table on the right, contact EcoChem for other components and measurement ranges

Gas	Typical Low Range*	Typical High Range *
SO_2	0-50 PPM	0-1,000 PPM
NO	0-20 PPM	0-500 PPM
NO_2	0-20 PPM	0-500 PPM
N_2O	0-100 PPM	0-1,500 PPM
CO	0-20 PPM	0-5,000 PPM
HCl	0-20 PPM	0-100 PPM
NH_3	0-20 PPM	0-100 PPM
CH_4	0-100 PPM	0-1,000 PPM
CO_2	0-2%	0-20%
H_2O	0-2%	0-25%
O_2	0-10 %	0-25%

* Typical range for application -- user can select appropriate range; dual ranges possible

Weight	56 lb (25 kg) - analyzer only
Dimensions	Standard 19in rack mount
(W x H x D)	19 in x 8.75 in x 23 in (48 cm x 22 cm x 58 cm)
Flow Rate	2-7 liter per minute with ¼" Swagelok connectors
Display	Menu-driven LCD Panel can be field-customized
Power	115 volts AC / 60 Hz or 220 volts AC / 50 Hz
Accuracy	± 2 % of full-scale value
Lower Threshold	1 % of lowest range
Response Time	10 seconds
Output Signals	Analog: 8 signals of 0/4 – 20 mA;
	Digital: 2 ports RS 232-C, 1 port RS 422-A;
	Relays: Failure Indicator, Service and Maintenance
Operating Temperature	32 – 105°F (0 – 40°C)

Advanced software is provided with every MC3 based system for remote access, diagnostics and trouble-shooting.

Primer on EcoChem Multicomponent Gas Analyzer Technology

What is the MC3 Analyzer?

The MC3 is a gas analyzer manufactured by EcoChem that is used for simultaneously measuring concentrations of gases including but not limited to SO_2, NO, NO_2, N_2O, CO, HCl, NH_3, CH_4, CO_2, H_2O and O_2. A single MC3 analyzer can measure up to 8 components simultaneously.

How does the MC3 Analyzer work?

Using state-of-the-art infrared detection technology, the MC3 measures concentrations on a real-time basis. Each component in the gas mixture is measured directly with a long path heated sample cell along with gas-filled cells and interference filters with a single optical bench. Subsequently, software algorithms eliminate cross-interference between the components. Oxygen is measured using a fully integrated Zirconium Oxide sensor.
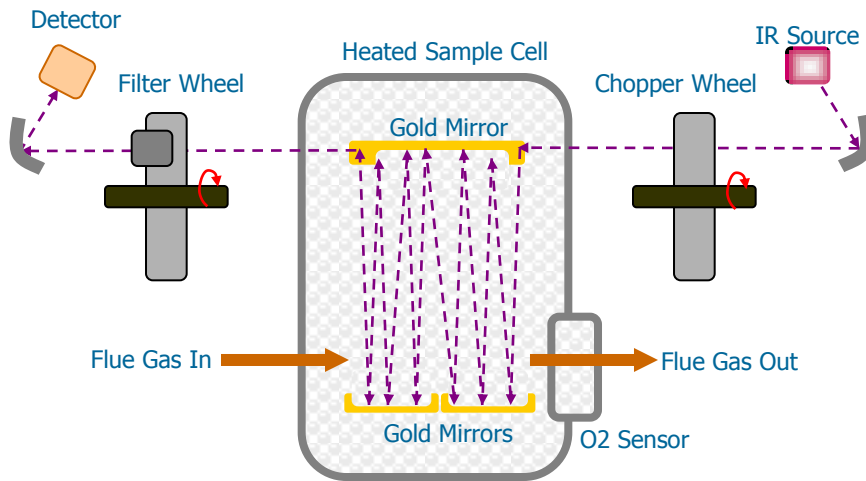

What about the Sampling System?

Hot-Wet Sampling: All components (probe, sample line, pump and analyzer sample cell) in contact with the gas stream are maintained above the dew point of the flue gas to prevent condensation of reactive vapors. This approach does not incorporate a gas cooler. The Hot-Wet sampling approach results in a simple and reliable sampling system with high availability.

Cold-Dry Sampling: For special applications where a) reactive gases such as NH_3 and HCl are not monitored and/or b) low levels of NOx are involved, the sample system may include a gas cooler to remove water from the flue gas stream.

EcoChem will work with you to select the appropriate sampling system for your application
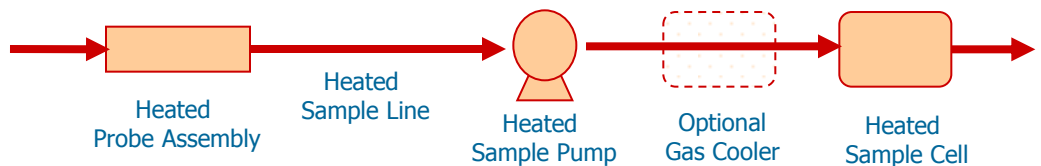
Top Ten Reasons to Work with EcoChem

1. **Lowest Routine Maintenance** system on the market

2. **Central Location and Regional Service**– Strategically located in Houston, TX – within hours of a large segment of US chemical and refining industry. Rapid response and regular quarterly or semi-annual service contracts

3. **Dedicated to Customer Service** – 65% of EcoChem's business is repeat business from long-standing customers. Prompt attention to all inquiries – quick proposal turnaround and option for expedited system delivery

4. **Understanding of Application** – We have installations at chemical facilities and we build each system specific to your process. Our regulatory systems satisfy both state and federal regulations

5. **Certified Installation Client List** – Waste-to-Energy facilities (multiple Wheelabrator locations, Veolia, Wasatch), chemical industry (PCS Lima, PCS Geismar, CF Industries, Rentech Midwest, Agrifos, Albemarle), power plants and installations throughout US and international locations

6. **Robust Operator Interface with Remote Diagnostics Software** – solid PLC control, color graphics touchscreen and remote trouble-shooting capability result in quick resolution of issues

7. **Multicomponent Analyzer** – the MC3 is a smart blend of advanced technology and durability. 8 components from one analyzer and moisture measurement is included.

8. **Comprehensive Documentation** – Detailed drawings, operations manuals and training guides

9. **Ability to Offer Broad Scope** - analyzer only, all the way to turn-key system with Data Acquisition System as well as assistance with state and federal regulatory requirements

10. **In-built Capability to Address Future Needs** – measure CO_2, CH_4 and N_2O which may be required by Greenhouse Gas regulations. Measure the NH_3 slip for the SCR process at your facility. Enhance the standard system at minimal cost.

Clear Choice …

Single MC3 multicomponent analyzer or heaps of discrete analyzers from different vendors