

Tailored Gas Monitoring Solution for Industrial Facilities



Concerned about future Climate Change regulations & emission credit trading? The MC3 can effectively measure key Greenhouse gases including CO₂, CH₄ and N₂O.

Single MC3 analyzer measures gases including SO₂, NO, NO₂, N₂O, CO, HCl, NH₃, CH₄, CO₂, H₂O & O₂

- ✓ 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...



MC3 analyzer
(Rackmount)



MC3 analyzer
(Panel-mount)



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



Turnkey project
incorporating a building
enclosure with system
cabinets

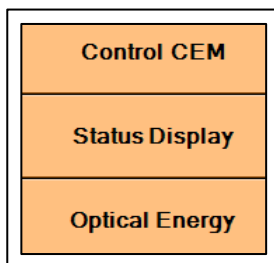
Technical Specifications -- MC3 Analyzer

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

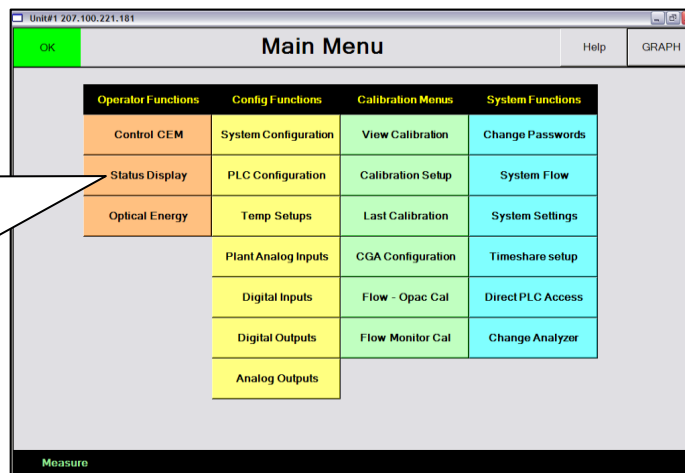
Gas	Typical Low Range*	Typical High Range*
SO ₂	0-25 PPM	0-1,000 PPM
NO	0-20 PPM	0-500 PPM
NO ₂	0-20 PPM	0-500 PPM
N ₂ O	0-20 PPM	0-1,500 PPM
CO	0-20 PPM	0-5,000 PPM
HCl	0-20 PPM	0-100 PPM
HF	0-25 PPM	0-100 PPM
NH ₃	0-20 PPM	0-100 PPM
CH ₄	0-25 PPM	0-1,000 PPM
CO ₂	0-2%	0-20%
H ₂ O	0-2%	0-25%
O ₂	0-10 %	0-25%

- Dual ranges possible for all measurements
- Above ranges are typical values. By modifying the path length and choosing appropriate measurement location in the optical spectra, EcoChem can provide custom measurement ranges
- The above list includes the most common gas measurements with the MC3. If you have a need to measure a gas not in the above list, please contact EcoChem and we will assist..

Weight	56 lb (25 kg) - analyzer only
Dimensions (W x H x D)	Standard 19in rack mount 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 1/4" 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.



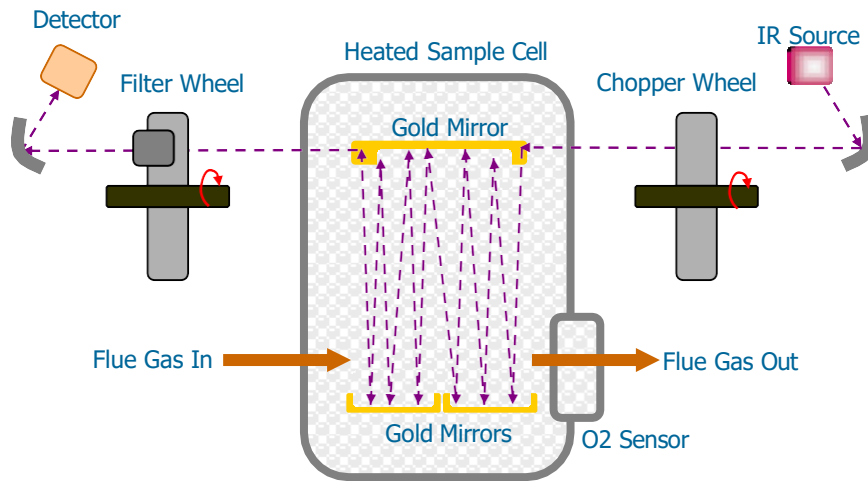
Primer on EcoChem Multicomponent Gas Analyzer Technology

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 SO₂, NO, NO₂, N₂O, CO, HCl, NH₃, CH₄, CO₂, H₂O and O₂. 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.

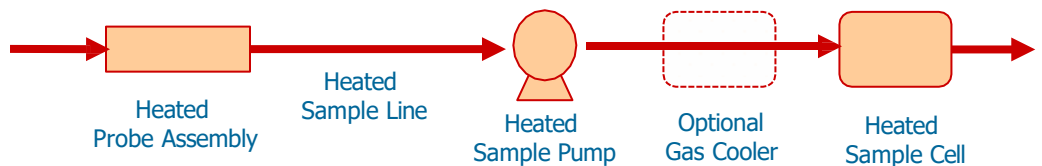


What about the Sampling System?

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 NH₃ and HCl are not monitored and/or b) low levels of NO_x 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. International partners provide local support in your country.
3. **Dedicated to Customer Service** – 75% 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 various industrial 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, hazardous waste incinerators, chemical industry, power plants and industrial 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** - A nalyzer 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** – Start simple and add measurements like CO₂, CH₄ and N₂O which may be required by Greenhouse Gas regulations. Measure the NH₃ 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

