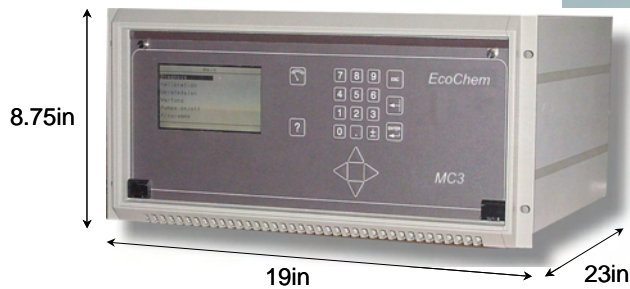


Cost-Effective Emission Monitoring



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 power plants, waste-to-energy, chemical facilities, pharmaceutical manufacture, cement kilns and hazardous waste incineration plants.

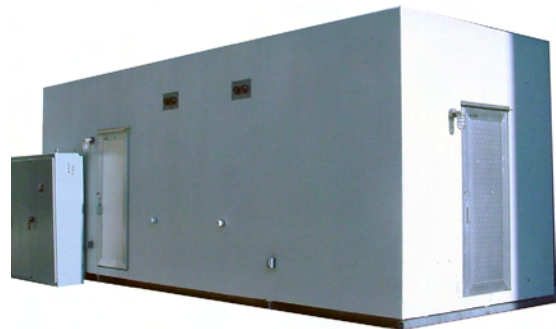
Depending upon your needs, EcoChem can deliver...



Multicomponent
MC3 analyzer



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



Turnkey project incorporating a building
enclosure with system cabinets

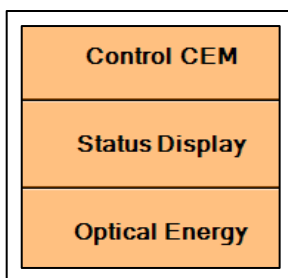
Technical Specifications -- MC3 Analyzer

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

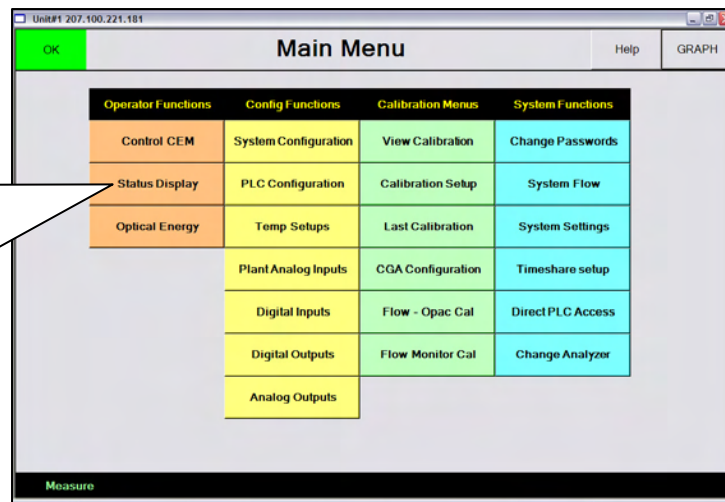
Gas	Typical Low Range*	Typical High Range *
SO ₂	0-50 PPM	0-1,000 PPM
NO	0-50 PPM	0-500 PPM
NO ₂	0-50 PPM	0-500 PPM
N ₂ O	0-100 PPM	0-1,500 PPM
CO	0-200 PPM	0-5,000 PPM
HCl	0-20 PPM	0-100 PPM
NH ₃	0-20 PPM	0-100 PPM
CH ₄	0-100 PPM	0-1,000 PPM
CO ₂	0-2%	0-20%
H ₂ O	0-2%	0-25%
O ₂	0-10 %	0-25%

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

Weight	56 lb (25 kg) - analyzer only
Dimensions (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 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.



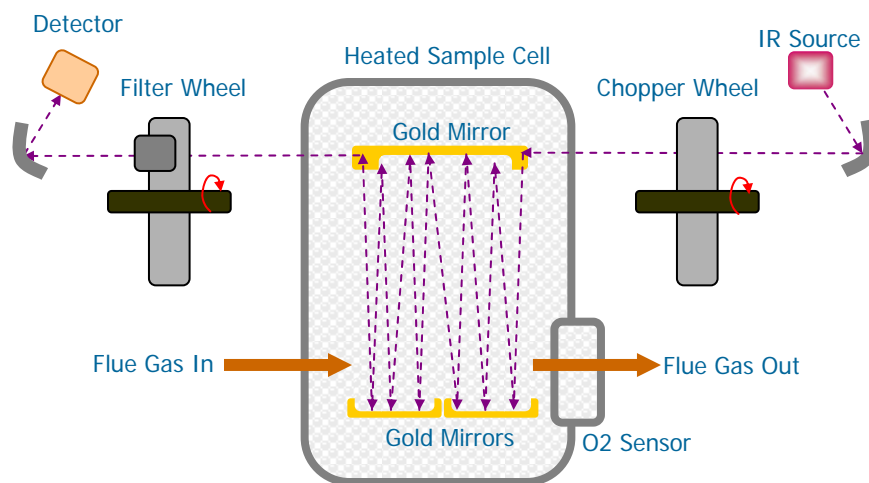
Primer on EcoChem Multicomponent Gas Analyzer Technology

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 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.

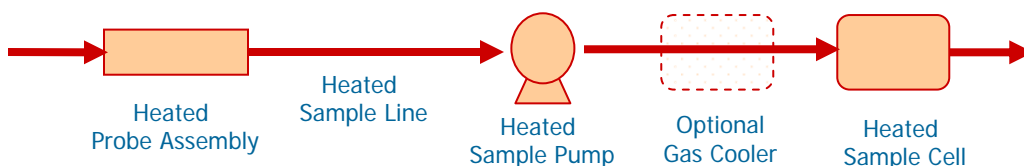


What about the Sampling System?

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



Typical System Cabinet Configuration

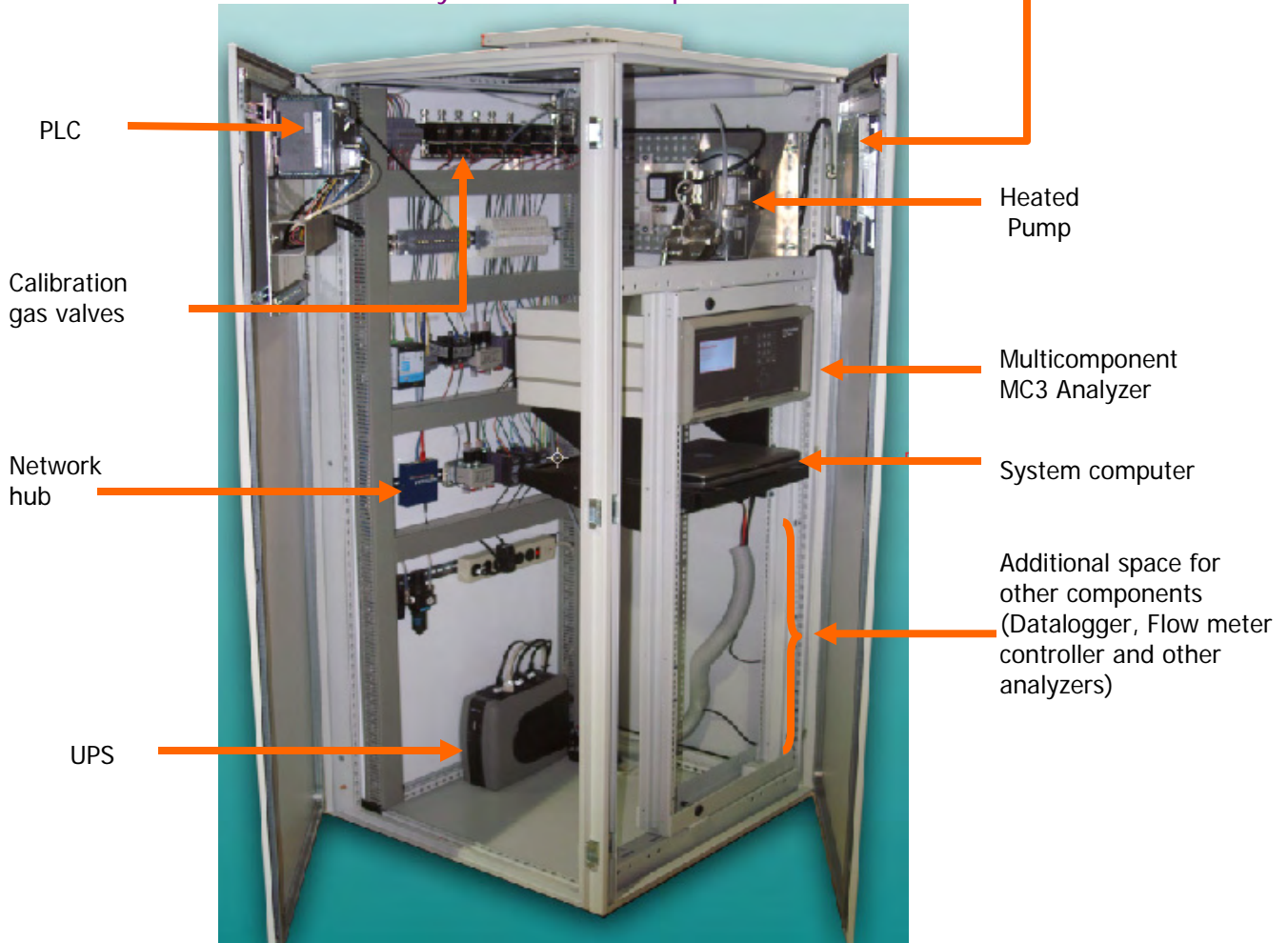
System cabinet - closed



Touch screen system interface



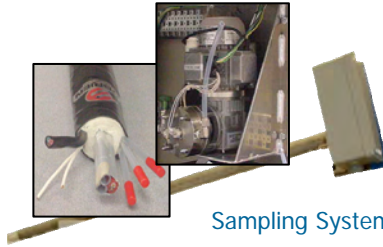
System cabinet - open



EcoChem Experience... Bringing It All Together Successfully



Multicomponent Gas Analyzer - MC3



Sampling System



Other measurements
Opacity & Flow



Programmable Logic Controller



Data Acquisition System



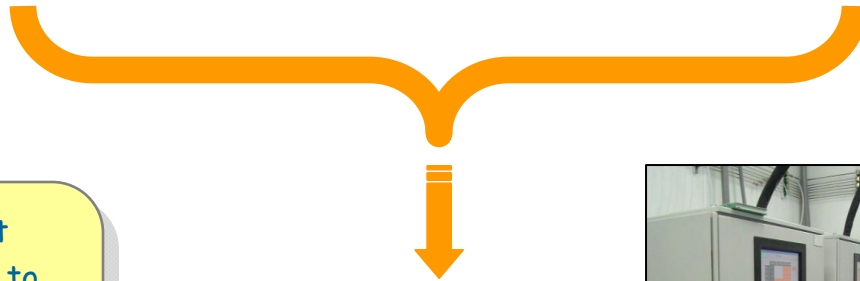
Building Enclosure



Project Management and
Regulatory Assistance



Service and
Remote Support



Contact EcoChem to discuss your needs and obtain a detailed site-specific cost proposal. Thank you!



Successful CEMS Installation

