



GOYEN

PROCESS & EMISSIONS MONITORING SOLUTIONS

PENTAIR ENVIRONMENTAL SYSTEMS

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PROCESS ANALYTICAL AND CONTINUOUS EMISSIONS MONITORING SYSTEMS



Goyen is a division of Pentair, which services the worldwide gas, water, industrial process and infrastructure markets with the most comprehensive range of proprietary products and services available from a single source.

Goyen offers a complete range of Continuous Emission Monitoring, Particulate/Opacity Monitoring, Combustion Control and Process Analysis and Control that can be utilized across a multitude of industrial applications. With thousands of successful installations worldwide, Goyen understands the specific requirements of industry, and can tailor an effective solution for even the most challenging application.

To ensure that a plant or process is environmentally sustainable many companies (across numerous industries) utilize Goyen emission monitors, for both gas and particulate, to ensure plant optimization.

Goyen has extensive experience in the pollution control industry, and can offer several alternatives to maximize plant efficiency. Goyen's continuous monitoring systems take the guess work out of environmental management, providing accurate data for reporting purposes. Gas and particulate monitors also double as preventative maintenance tools, determining optimum efficiency levels in combustion processes and maximizing the life of baghouse filters.

INDUSTRIES

- Aluminium
- Automotive
- Biomass/Alt Energy
- Boiler MACT
- Cement
- Chemical
- Coal Fired
- Defense
- Food & Beverage
- Furnaces
- Gas Separation
- Glass
- HRSG
- Incinerators
- Iron & Steel
- Lead-Zinc
- Marine
- Mineral Processing
- Mining
- Nitric Acid
- Nuclear
- Oil & Gas
- Petrochemicals
- Pharmaceuticals
- Pipelines
- Plastics
- Power Generation
- Pulp & Paper
- Refinery
- SCR/SNCR
- Semiconductor
- Ship Loading
- Turbine Generator



UltraCEM

The UltraCEM system is a five (5) channel close coupled outdoor field mount continuous emissions monitoring system enclosed in a NEMA 4X environmentally controlled enclosure enabling it to handle the harshest of ambient conditions.

The UltraCEM uses proven extractive monitoring technology, is coupled with state of the art measurement detectors and utilizes an industry standard PC104 electronics platform for maximum measurement, communications and processing capabilities.

Designed for combustion type applications (O₂, CO, CO₂, NO_x, SO₂, NH₃ and THC), the monitoring system uses proven sample handling techniques for reliable gas monitoring to assure accurate readings.

The system provides the most proven technologies for gas monitoring by utilizing EPA approved Paramagnetic, NDIR, Chemiluminescent, UV and FID detector technologies which can measure from low ppm levels to percent levels.



UltraCEM-P or UltraCEM-PD

The UltraCEM-P or UltraCEM-PD systems are five (5) channel Indoor wall mount powerful but price effective Continuous Emission Monitoring Systems (CEMS) for applications where instrument shelters are required.

The system is simply installed on the wall of the room/shelter reducing shelter size and installation costs. It offers a very revolutionary approach to gas monitoring by fabricating all of the components into a seamless easy to reach panel mount package that is very simple to service and maintain.

UltraCEM-PD system utilizes 'Dilution' Technology and is ideal for coal fired applications requiring 'wet' basis measurements as required by EPA 40 CFR Part 75 regulations.

GVC v3000 and v4000 MultiGAS Series

The Goyen GVC v3000 and v4000 MultiGAS Continuous Emissions Monitoring System utilizes Thermal Extractive monitoring technology for a raw 'Hot/Wet Measurement' of up to 8 different gases (including moisture), plus Oxygen. The Sample System has only four parts that are in contact with the flue gas – Probe, Sample Line, Pump, and Sample Cell.

The Goyen MultiGAS Monitoring System uses state-of-the-art Infrared (IR) Gas Filter Correlation (GFC) and Single Beam Dual Wavelength (SBDW) Technology to measure gas concentrations on a real-time extremely accurate basis including but not limited to CO, CO₂, H₂O, NO, NO₂, N₂O, NO_x, SO₂, NH₃, HCL, CH₄. It extracts the gas sample, analyzes it for the desired constituents (including moisture and oxygen), and processes the emission data as stipulated in 40 CFR Part 60/63/64/75/96/97/503 regulations. In addition a Cold/Dry Sample Extractive System is available as an option for ultimate application flexibility.



Direct Mount Gas Analyzer System

The Direct Mount Gas Analyzer System is an accurate and reliable in situ process gas analyzer that is ideal for your SCR, Scrubber, Gas Turbine, Boiler, Incinerator and Furnace monitoring applications. It's perfect for Control of BioMass Gasification or Waste to Energy processes as well as applications requiring a CEM to meet EPA regulations.

The product utilizes state of the art and proven measurement technologies including paramagnetic, NDIR, chemiluminescence, thermal conductivity and TDLS and is capable of measuring from 1 to 5 gases simultaneously including O₂, CO, CO₂, NO_x, N₂O, CH₄, SO₂, H₂, NH₃, HCl and H₂O.

- Simple to install with no additional requirements other than a mounting flange and signal cable.
- With standard features such as TCP/IP Ethernet and an embedded web browser the product is user/network friendly. That means simple to use and easy maintain.
- Class I, Div II rated options are also available for hazardous area applications
- Meets US EPA 40 CFR 60 and 75



BIOCEM



The BioCEM is an accurate and reliable extractive continuous process gas analyzer that is ideal for your SCR, Scrubber, Gas Turbine, Boiler, Incinerator and Furnace monitoring applications. It's perfect for Control of BioMass Gasification or Waste to Energy processes as well as applications requiring a CEM to meet EPA regulations.

The product utilizes state of the art and proven measurement technologies including paramagnetic, NDIR, chemiluminescence, thermal conductivity and TDLS and is capable of measuring from 1 to 5 gases simultaneously including O₂, CO, CO₂, NO_x, N₂O, CH₄, SO₂, H₂, NH₃, HCl and H₂O.

- Simple to install with many flexible equipment installation configurations available.
- The multi gas capability means only one instrument to install. Avoids multiple stack/duct penetrations.
- Sampling technologies include both Hot Wet and Cold Dry versions.
- Built in Data Acquisition
- With standard features such as TCP/IP Ethernet and an embedded web browser the product is user/network friendly. That means simple to use and easy to maintain.
- Class I, Div II rated options are also available for hazardous area applications
- Meets EPA 40 CFR 60 and 75



CUSTOM SYSTEM INTEGRATION SOLUTION



Goyen utilizes a variety of available analyzer technologies, suppliers, features and options to meet every application requirement that the industry may require.

Designs range from Dry Extractive, In-situ, Hot/Wet and Dilution technology sampling techniques to Mercury Monitoring. Many probe, sample handling, analyzer and electronic designs, are available to provide the optimum measurement technique for each specific application. Whatever the application; 40 CFR 60 or Part 75 or the Clean Air Mercury Rule (CAMR) we offer a custom supplied solution to serve the need of the user and the regulatory requirements.

PORTABLE ANALYZERS



The portable gas analyser is a lightweight (6kg) portable emission monitor with diverse capabilities. A single unit can offer rapid on site measurements of up to 9 gases including O₂, CO, CO₂, H₂S, NO_x, SO_x and hydrocarbons. The unit can calculate combustion efficiency, and can compute environmental calculations as well as flow rates and is perfect for new Boiler MACT GACT regulations. This highly portable unit is designed for maximum up time and ease of use.

OPACITY MONITORS

Optical Density, is the calculated measure of the rate at which light energy is lost as it passes through the flue gas stream. This value is directly proportional to the mass concentration of particulate and can be calibrated for the quantitative measurement of flue gas emissions.

Opal 100 and 200 Series Opacity and Dust monitoring systems provide continuous measurement signal outputs for both opacity and optical density for use by industrial sites for improved process control and EPA site license requirements.

Opal 200S and 200X



The 200 series dual channel opacity and dust monitoring systems are designed, tested and certified to the USEPA Performance Specification #1 (opacity) and are also compliant for use in USEPA PS-11 (quantitative dust) monitoring applications. They can be supplied as either standard application systems or EXp certified systems for use in hazardous areas.

200 Series system outputs and control features are extremely versatile and offer many unique features not available in competitor systems. This allows the Opal 200 to be the ideal replacement system in the event of urgent site breakdowns.



Opal 100S and 100T

The OPAL 100 Series transmissometer systems are non-compliance monitoring systems that can provide continuous in-situ measurement of both visible (opacity %) and quantitative (mg/m^3) emissions. They are ideal for use as opacity monitors in package boiler, incinerator, and combustion process applications where EPA emission limits are applicable and precise combustion control is desired.

They are also an invaluable tool for measurement of quantitative emissions, especially in applications where other technologies have limitations from electrostatic precipitators, variable air velocities and/or large duct spans.



Opal 400 In-Situ Analyzer



The Opal 400 oxygen analyser systems are used to provide continuous drift free measurement of flue gas oxygen levels in industrial applications using highly reliable zirconia sensor in-situ measurement technology.

The rugged sensor probes incorporate a thermocouple sensor for probe heater control and gas temperature measurement.

Opal 300



The Opal 300 stack flow and temperature monitoring systems are used to provide continuous drift free measurement of airflow conditions in industrial applications using highly reliable solid state differential pressure sensor measurement technology coupled with rugged RTD and thermocouple sensors.



DUST MONITORS

Several particulate emission monitors, including the advanced EMP6, BBD6 and EMP7 are available.

All products are simple, self contained 4-20mA output devices for measuring particulate flow from stacks and will meet the EPA MACT broken bag detector regulations

The EMP6 and BBD6 utilise AC Coupled Triboelectric technology. As particles travel through the process they develop a charge. This charge is transferred as the particle passes or impacts the sensing element. The resulting current is amplified, filtered, rectified and further filtered looking only at the AC component, to give a linear representation of the concentration or mass flow rate of the particles in the gas stream.

The EMP7 utilises ISE technology. Each particle travelling through the process develops an electrical charge. As the particle passes or impacts with the sensing element, a current is induced which is processed in EMP7 by a method called Impulse Signature Extraction ("Ise").

ISE technology extracts the basic characteristics (the 'signature') of the impulsive signals induced by individual particles in the gas stream. Since these characteristics are related to such things as the particle velocity, EMP7 is able to compute velocity as a parameter, and therefore to calculate the emission level as either mass flow rate or mass density as required.

In addition, although ISE technology processes the entire signal from the sensing element, its algorithm effectively negates the potentially erroneous effects of the DC component of the signal, so ISE technology shares all the advantages of existing AC Triboelectric technology.

Made a reality by recent advances in low power digital signal processing, ISE technology is as significant a step forward now as the introduction of AC Triboelectric technology was in 1992.





DATA ACQUISITION SYSTEM

The CEMS is equipped with an optional Data Acquisition System made by Goyen for facilities that need data logging for Process Performance Monitoring or Regulatory requirements like 40CFR Part 60. The system interfaces to the CEMS and Plant Parameters through Programmable Logic Controllers (PLC) using the industry standard MODBUS communications protocol. Utilizing the power of a PLC it is possible to control the analyzers and also have a local repository of data. This eliminates the use of proprietary dataloggers leading to very cost-effective, reliable and flexible system architecture.

- Regulatory requirements 40 CFR Part 60, Part 75, NOx Budget and state regulations
- Data Acquisition Loggers, Windows/ Unix PLC, and interface to plant process controllers
- Integrate into existing DAS software – Goyen has experience working with leading DAS vendors and integrating our MultiGAS into most DAS suppliers.

CUSTOM DAS DEVELOPMENT FOR CLIENT APPLICATIONS

- Experience with implementing the latest reporting rules
- Custom Reporting Software
- Specialized techniques for N₂O (greenhouse gas) and HBr monitoring
- QA/QC plans for meeting all state regulations

CUSTOMER SERVICE

Goyen's "Emissions Monitoring Specialists" provide complete service and support to ensure your System Availability is as high as possible.

Goyen services include:

- Installation supervision and turn-key installation contracts.
- System start-up services
- Training programs (Plant site or Factory)
- Certification testing and QA audits
- Emergency Service and Spare Parts
- Service and Maintenance Agreements



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