Solutions

Integrated Analyzer Systems & Services
Your Global Partner For Customized Analytical Solutions
Core Expertise

Measurementation has over 40 years of experience in providing proven customized analyzer packaged solutions to our customers in diverse industries: oil & gas, petrochemical, specialty chemical, power, water/waste and many others.

Providing a one-stop solution, Measurementation’s comprehensive services start from front-end engineering design, project management and execution, through life cycle services, including spare parts and site service support. As your dependable partner, we pride ourselves on our superior performance, quality solutions, and consistent on-time delivery, while providing competitive turnkey solutions and a lower cost of ownership to our customers.

Our highly experienced team comprised of project managers and engineers, process and analyzer specialists, production and service personnel, is committed to meet project and customer requirements. Through it all, we strive to establish long-term relationships and alliances with our customers.
Our Strengths:

- Highly experienced in providing Customized Solutions for any kind of Analyzer and Process anywhere in the world.
- Facilities for In-house design, engineering, fabrication, testing, etc.
- One-stop-total-solution for complete Life Cycle management.
- Track record that speaks volumes about our reliability as a partner.
- Capability to handle small to world-scale multi-EPC projects complete with project management.
**Products**

**Gas Chromatograph**
- Production facilities in Japan, Singapore, USA, and Europe
- Complete suite of analytical hardware available to tackle the wide range of applications seen in process industries
- Highly sensitive Thermal Conductivity Detector (TCD) capable of measuring down to 1 part-per-million, often replacing the need for Flame Ionization Detectors (FID)
- Multiple oven capability
- 12” color touchscreen human machine interface (HMI)
- High-speed Ethernet based analyzer bus with fully redundant network topology supporting protocols such as Modbus and TCP/IP
- Internal operational maintenance manual

**Gas Density Systems**
- Primarily used for fuel blending, product quality, and hydrogen purity applications
- Output available in a variety of parameters including density, specific gravity, BTU, calorific value, and molecular weight
- Multiple modes of cylinder oscillation dramatically increase resistance to error
- ±1% Full Scale (FS) accuracy and response time of less than 5 seconds (T90)

**Steam & Water Analysis System (SWAS)**
- Dependable, quality, measurements for steam, boiler water, condensate and blowdown applications
- Custom analysis solutions for pH, conductivity, sodium, silica, hydrazine, and others
- Touchscreen operation with menus available in eight languages
- Enhanced diagnostics as well as process trending graphics
- IP66/NEMA 4X enclosures with FM Class I, Div.2, Groups ABCD are available
### Tunable Diode Laser Spectrometer (TDLS)
- Direct light loss measurement with no process contact and no moving parts
- High Mean Time To Failure (MTTF) and low Long Term Cost of Ownership (LTCO)
- In-situ option capable of measuring in processes up to 1500°C and 20 bar
- 2-20 second in-situ response and a typical 5 second extractive response
- Extractive option avoids high maintenance and measurement errors of paramagnetic analyzers
- Variety of display options including a 6.5” LCD with stainless keypad and Remote Interface Units
- Historical data and spectra storage with advanced diagnostics
- Hazardous area certifications optional

### Infrared Gas Analyzer
- Capable of measuring NO\textsubscript{x}, SO\textsubscript{2}, CO\textsubscript{2}, CO, CH\textsubscript{4}, and O\textsubscript{2}, making a perfect solution for emissions monitoring applications (O\textsubscript{2} measurement made by a TDLS220 or ZR-series zirconia sensor)
- Measures five components simultaneously and continuously
- Highly sensitive and reliable mass-flow type twin detector gives accurate measurement, ensuring a stable operation
- Features include O\textsubscript{2} conversion, average value computation, automatic calibration, one touch calibration, upper/lower limit alarm, and remote measurement range changeover

### Important Applications:
- **Combustion Analysis** (CO, CO\textsubscript{2}, Oxygen, Methane, Moisture)
- **Oxygen concentration** (O\textsubscript{2}) in vapor recovery & process applications like ethylene furnaces/VCM/EDI
- **Ammonia slip** in DeNOx application
- Other gases, example H\textsubscript{2}S, ranges dependent upon application
- Flexible installation options available
Mandated Compliance Monitoring

Since the 1970’s, the Environmental Protection Agency (EPA) has been establishing and enforcing environmental protection standards in the United States. An important part of these standards is the mandated monitoring requirements to verify the standards are being met; especially for emissions into the atmosphere. So for many industrial plants, Continuous Emission Monitoring Systems (CEMS) are a key component of a plant’s compliance responsibilities.

In addition to federal mandates, state and local environmental regulations may exist that cover a number of emissions ranging from the measurement of Highly Reactive Volatile Organic Compounds (HRVOCs) to the monitoring of sulfur emissions. To assist plants in meeting these diverse mandated measurements, Yokogawa Corporation has the expertise to customize analytical measurement solutions for nearly any requirement.

Customized Solutions for Environmental Measurements

The Measurementation division of Yokogawa has been providing on-line analytical measurement solutions for over 40 years to the process industries. Decades of experience in complete system design make Measurementation the perfect one-stop solution provider for all of your on-line analytical measurement needs.

Services available from Measurementation cover the entire spectrum of analytical system design, equipment selection, and system manufacture. And with extensive experience in the analytical products from other manufacturers, each system can be tailored with the optimum selection of equipment to provide the most cost-effective solution.

Products and services available from Measurementation include:
- Field audits of installation site
- Selection of analyzer types to perform the measurements
- Complete sample system and automated calibration design
- Packaging of the analyzer system in cabinets or shelters
- Data acquisition systems to automatically gather and report the data needed for both federal and state agencies
Experience With A Range Of Environmental Applications

Proper design of on-line analysis systems for environmental compliance is critical for providing the mandated data as well as minimizing long-term operational costs. With decades of experience in analytical systems design, Measurementation is the ideal partner for assisting your plant in meeting these requirements.

H₂S / Total Sulfur Analysis

With the recent passage of the 40 CFR 60 subpart Ja regulations, the need for monitoring for H₂S in flare gas has increased. This is in addition to past requirements for H₂S in other process streams such as refinery fuel gas. Furthermore, the need for measurement of Total Sulfur is also increasing for many sites. For these applications, Measurementation is well suited to provide complete measurement solutions that are both cost effective and designed with low long-term maintenance requirements.

Continuous Emissions Monitoring Systems (CEMS)

Reliable and cost effective CEM systems are available to measure a wide range of components. Depending on the site requirements, the CEM system can measure, NOₓ, SO₂, CO₂, CO, CH₄, HCl or O₂ in the sample gas. Whether the application is a basic stack gas analysis or a harsh application like industrial incinerators, designs are available to meet the mandated measurements.

Green House Gas (GHG) Monitoring

Recent federal regulations have increased the need to monitor and report the CO₂ equivalent for over 10,000 industrial sources in the United States. But whether the measurement is CO₂ itself or one of the other mandated compounds, analysis and reporting requirements are new to a number of locations. The expertise of Measurementation allows us to provide the solutions to assist your facility in meeting these new requirements.

The ultra-sensitive thermal conductivity detector used on the Yokogawa GC8000 provides the sensitivity needed for the H₂S measurement while avoiding the higher costs and higher maintenance associated with a flame photometric detector.

![Graph showing H₂S measurement](image.png)
Analyzer System Capabilities

Turnkey Analyzer System Solutions
- More than 40 years of experience and know-how in developing and executing customized analytical solutions
- Consultation and design for innovative packaged solutions to upgrade, modify or create new installations of analyzer systems

Process Analyzers & Applications
- Wide range of Yokogawa Liquid & Gas analyzers with extensive application experience in all process industries
- In-depth knowledge and experience on third party analyzers for cost effective solutions

Manufacturing/Production
- ISO 9000 certified with totally enclosed fabrication facilities in the U.S. and Singapore
- Project management, design, engineering and testing capabilities including fabrication and integration of sample probes & conditioning systems, analyzer racks & cabinets, shelters & houses, and communication networks

Project & Service Support
- As a division of Yokogawa, Measurementation is part of a vast network of local offices and service headquarters that provide seamless customer support such as site surveys, consultancy, factory and site acceptance tests, logistics & spares management support, site commissioning & maintenance support, in-house and field repairs, and customized customer training

Decades Of Experience

Decades of experience give us a track record that speaks volumes about our reliability as the partner of choice. We are well equipped to take on any project of any scale with full confidence – using any brand of analyzer – anywhere in the world.

Process & Application Know How

INDUSTRIES We Serve
- Oil and Gas
- Chemical Industry
- Energy
- Pulp and paper
- Potable / Waste water
- Cement

ANALYZERS We Know
- Gas Chromatography, Spectrometry, CEMS, SWAS, H₂S, Total Sulfur, Dew Point, Moisture, RVP, Density, Viscosity, Pour Point, Cloud Point, Distillation, Oxygen, pH, Conductivity, Dissolved Oxygen, Chlorine, Turbidity, TOC, & more...
Comprehensive Field Service Capabilities

The delivery of the analytical system is only the beginning of our commitment to you for the analytical products we offer. Professional installation, start-up and commissioning, as well as training on the proper operation and maintenance of the analyzers are available to ensure the long-term reliable performance of your analytical system. Yokogawa Corporation has the experience and resources to work with you during all phases of the field installation and commissioning. One important feature of the Yokogawa Analytical service team is we have the knowledge and expertise to provide service and maintenance on nearly any type of manufactured process analyzer on the market.

Examples of environmental analyzer support services available include:

- Field supervision of analyzer system installation
- Start-up and commissioning
- Coordination of the Relative Accuracy Test Audit certification
- Training on the complete system
- Priority on-call technical support service
- Customized service maintenance contracts

VigilantPlant is Yokogawa’s automation concept for safe, reliable, and profitable plant operations. VigilantPlant aims to enable an ongoing state of Operational Excellence where plant personnel are watchful and attentive, well-informed, and ready to take actions that optimize plant and business performance.

Represented by: