Answers for industry.

Integrated technologies, vertical market expertise and services for greater productivity, energy efficiency, and flexibility.

Siemens is the world’s leading supplier of innovative and environmentally friendly products and solutions for industrial companies. End-to-end automation technology and industrial software, solid market expertise, and technology-based services are the levers we use to increase our customers’ productivity, efficiency and flexibility.

We consistently rely on integrated technologies and, thanks to our bundled portfolio, we can respond more quickly and flexibly to our customers’ wishes. With our globally unmatched range of automation technology, industrial control and drive technology as well as industrial software, we equip companies with exactly what they need over their entire value chain – from product design and development to production, sales and service. Our industrial customers benefit from our comprehensive portfolio, which is tailored to their market and their needs.

Market launch times can be reduced by up to 50% due to the combination of powerful automation technology and industrial software. At the same time, the costs for energy or waste water for a manufacturing company can be reduced significantly. In this way, we increase our customers’ competitive strength and make an important contribution to environmental protection with our energy-efficient products and solutions.
Efficient automation starts with efficient engineering.

Totally Integrated Automation: Efficiency driving productivity.

Efficient engineering is the first step toward better production that is faster, more flexible, and more intelligent. With all components interacting efficiently, Totally Integrated Automation (TIA) delivers enormous time savings right from the engineering phase. The result is lower costs, faster time-to-market, and greater flexibility.
Totally Integrated Automation
Efficient interoperability of all automation components

A unique complete approach for all industries

As one of the world’s leading automation suppliers, Siemens provides an integrated, comprehensive portfolio for all requirements in process and manufacturing industries. All components are mutually compatible and system-tested. This ensures that they reliably perform their tasks in industrial use and interact efficiently, and that each automation solution can be implemented with little time and effort based on standard products. The integration of many separate individual engineering tasks into a single engineering environment, for example, provides enormous time and cost savings.

With its comprehensive technology and industry-specific expertise, Siemens is continuously driving progress in manufacturing industries – and Totally Integrated Automation plays a key role.

Totally Integrated Automation creates real value added in all automation tasks, especially for:

- **Integrated engineering**  
  Consistent, comprehensive engineering throughout the entire product development and production process
- **Industrial data management**  
  Access to all important data occurring in productive operation – along the entire value chain and across all levels
- **Industrial communication**  
  Integrated communication based on international cross-vendor standards that are mutually compatible
- **Industrial security**  
  Systematic minimization of the risk of an internal or external attack on plants and networks
- **Safety Integrated**  
  Reliable protection of personnel, machinery, and the environment thanks to seamless integration of safety technologies into the standard automation

Making things right with Totally Integrated Automation

Totally Integrated Automation, industrial automation from Siemens, stands for the efficient interoperability of all automation components. The open system architecture covers the entire production process and is based on end-to-end shared characteristics: consistent data management, global standards, and uniform hardware and software interfaces.

Totally Integrated Automation lays the foundation for comprehensive optimization of the production process:

- Time and cost savings due to efficient engineering
- Minimized downtime due to integrated diagnostic functions
- Simplified implementation of automation solutions due to global standards
- Better performance due to interoperability of system-tested components
Totally Integrated Power
We bring power to the point – safely and reliably.

Efficient, reliable, safe: These are the demands placed on electrification and especially power distribution. And our answer – for all application areas of the energy system – is Totally Integrated Power (TIP). It’s based on our comprehensive range of products, systems, and solutions for low and medium voltage, rounded out by our support throughout the entire lifecycle – from planning with our own software tools to installation, operation, and services.

Smart interfaces allow linking to industrial or building automation, making it possible to fully exploit all the optimization potential of an integrated solution. This is how we provide our customers around the world with answers to their challenges. With highly efficient, reliable, and safe power distribution, we lay the foundation for sustainable infrastructure and cities, buildings, and industrial plants. We bring power to the point – wherever and whenever it is needed.

More information: www.siemens.com/tip
Totally Integrated Power offers more:

- **Consistency:** For simplified plant engineering and commissioning as well as smooth integration into automation solutions for building or production processes
- **One-stop-shop:** A reliable partner with a complete portfolio for the entire process and lifecycle – from the initial idea to after-sales service
- **Safety:** A comprehensive range of protection components for personnel safety and line and fire protection, safety by means of type testing
- **Reliability:** A reliable partner who works with customers to develop long-lasting solutions that meet the highest quality standards
- **Efficiency:** Bringing power to the point means greater plant availability and maximum energy efficiency in power distribution
- **Flexibility:** End-to-end consistency and modular design of Totally Integrated Power for any desired expansions and adaptation to future requirements
- **Advanced technology:** Reliable power distribution especially for applications in which supply is critical, continuous refinement of the technology

Challenges are our speciality
Industries

In the field of process instrumentation, process analytics and weighing technology, Siemens focuses on a number of key industries such as:

- Chemical
- Pharmaceutical
- Water/wastewater
- Mining, aggregates, cement
- Oil and gas/hydrocarbon processing
- Pulp and paper
- Food and beverage
- Marine
Process Analytics

Siemens is a leading provider of process gas analyzers and analysis systems. We provide our global users the best solutions for their applications based on innovative analysis technologies, customized system engineering, sound knowledge of process applications and strong professional support. And with Totally Integrated Automation, Siemens Analytical Products and Solutions is your qualified partner for efficient solutions that seamlessly integrates process gas analyzers into automation systems in the process industry.
Continuous Gas Analytics

From emission monitoring in waste incinerators and power plants, gas analysis in the chemical industry and rotary kiln monitoring in cement plants, the extremely accurate and reliable Siemens gas analyzers are the perfect solution for the job.

SITRANS SL
Continuous gas analyzer with benchmarksetting in-situ technology for process control even under extreme measuring conditions.
The technology used in process gas analyzers is determined by the requirements of the specific application. The analyzers must be cost-effective, functional, space- and energy-saving, and must provide just the right amount of power to meet all needs.

Siemens Analytical Products and Solutions offers a comprehensive analytical portfolio to meet all user requirements for complete measurement solutions.

We combine proven expertise in developing high-performance analytical devices with in-depth application knowledge from many process industry applications.

The analyzers operate using a menu structure and comply with the NAMUR recommendations. The analyzers can be easily integrated into the SIMATIC automation Totally Integrated Automation (TIA) concept and are programmed using SIMATIC PDM software and PROFIBUS DP/PA interfaces.

For service and maintenance tasks with our extractive process gas analyzers is the SIPROM GA software tool suitable. Integration into the Ethernet permits remote servicing and diagnostics over long distances.

PROCESS GAS ANALYSIS – EXTRACTIVE

■ ULTRAMAT 23 [1]

is an innovative multicomponent analyzer for the measurement of up to 3 infrared sensitive gases using the NDIR principle as well as measuring oxygen (O₂) using an electrochemical or paramagnetic oxygen measuring cell.

The ULTRAMAT 23 is suitable for a wide range of standard applications, such as emission monitoring, furnace optimization, room air monitoring and other applications. Calibration using ambient air eliminates the need for expensive calibration gases.

The ULTRAMAT 23 is also available with a build-in H₂S-sensor for biogas applications.

SERIES 6

The Series 6 gas analyzers are a family of gas analyzers that meet a complete range of measurement requirements:

■ CALOMAT 6 [2] [3]

is available in both 19” rack mount and field mount designs and uses the thermal conductivity measurement principle to accurately measure the composition and concentration of process gases. It is primarily designed for the measurement of hydrogen concentrations in inert gas such as blast furnace gases and carbon dioxide mixtures.

■ CALOMAT 62 [2] [3]

uses the thermal conductivity detection (TCD) principle and is specially designed for use in applications with corrosive gases such as chlorine. The CALOMAT 62 measures the concentration of gas components such as H₂, Cl₂, HCl or NH₃ in binary or quasi-binary gas mixtures.

■ FIDAMAT 6 [3]

measures the total hydrocarbon content in air or even in high-boiling gas mixtures. It is the ideal solution for nearly all measurement requirements, from emission monitoring as well as trace measurements of hydrocarbons in pure gas analysis and total measurement of high hydrocarbon concentrations, even in the presence of corrosive gases.
Continuous Gas Analytics

- **OXYMAT 6** [1] [2]
  is an oxygen analyzer available in either a 19" rack mount or in a robust field housing for installation in harsh environments. The OXYMAT 6 can be used for emission measurements in production process control and quality assurance. Due to its ultrafast response, the OXYMAT 6 is perfect for safety-related measurements.

- **OXYMAT 61** [1]
  is a low-cost oxygen analyzer for standard applications. It can use ambient air as a reference gas that is supplied to the analyzer section by the internal pump.

- **OXYMAT 64** [1]
  is a gas analyzer for the measurement of extremely low oxygen concentrations. Air separation plants and production of technical gases – are just a few examples where the OXYMAT 64 reliably detects traces of oxygen.

- **ULTRAMAT 6** [1] [2]
  is an analyzer available in both 19" rack mount or field housing. Measurement of up to four infrared active components is possible in a single unit. It can be used in all applications from emission monitoring to process control, even in the presence of highly corrosive gases.

- **Ex-proof designs** [2]
  are possible with an additional purge monitoring unit for the CALOMAT 6, OXYMAT 6 and ULTRAMAT 6 gas analyzers using the field housing for installation in hazardous areas. Measurements can include both non-flammable and flammable gases.

- **SIPROCESS UV600** [3]
  is an extractive UV gas analyzer for simultaneous measurement of up to 3 components. It is especially suitable to measuring very low concentrations of NO, NO₂, SO₂ or H₂S. Simultaneous measurement of NO and NO₂ offers total NOₓ determination without the need for additional devices like NO₂ converters or CLD analyzers.

- **ULTRAMAT/OXYMAT 6** [1]
  can be combined in a 19" rack to form multi-component devices with ULTRAMAT 6 and OXYMAT 6 benches. This provides, in the smallest possible footprint, an infrared channel for the measurement of up to two IR components and a channel for oxygen measurement.
PROCESS GAS ANALYSIS – IN-SITU (TDLS)

**LDS 6 [4]**

brings together the compact and service-friendly design, simple operation and network capability of the Series 6 analyzers with the well-known exceptional performance of in-situ gas analysis by using tunable diode laser spectroscopy (TDLS) and fiber optics. It can measure gases even under extreme conditions such as 1 200 °C (2 192 °F) or very high dust concentration with precise and reliable results. The LDS 6, for example, measures in-situ concentrations of O₂, NH₃, HCl, HF, H₂O, CO or CO₂ in flue gas before and after gas cleaning. Applications in the chemical and petrochemical industries, for steel and metal production, as well as in cement or paper plants are ideally suited for the LDS 6.

**SITRANS SL [5]**

combines the benefits of proven referencing technology with a direct operating mode as close as possible to the process. An integrated reference cell, filled with a non-interfering gas allows laser locking completely independent of process gas concentrations leading to extremely stable operation, negligible drift values and extended on-line availability. This patented feature guarantees reliable measurement of gas concentration even at values close to zero. SITRANS SL is housed with a compact design, including a local user interface (LUI), making it the perfect solution for single point measurement applications in rough environments.

SITRANS SL is used for process control in the chemical industry, even in hazardous areas due to its Ex d design. It is also suitable for installation in SIL applications.

**Analyzer System Manager (ASM)**

is a PC-based HMI system for monitoring, testing and administration of gas analyzers in subsystems or in an entire plant. Key performance information of the analyzers is collected over a variety of common communication interfaces and is saved in a central database. By means of the PC’s user-friendly operator interface, it is possible to access measured-value trends, device statuses and statistical evaluations, among others, or to start test routines for validation of the results. A comprehensive reporting module is available to document the evaluations. The ASM is ideal for all analytical systems where high reliability of the measured values and documentation of the analyzer performances is required. Using the communications network, remote analyzers can also be monitored from a central workstation. The ASM can be applied in new plants or also in existing plants to optimize the analyzer landscape.
Siemens application experience and innovative technology in the field of process gas chromatography enables us provide the perfect measurement solutions for our customers. With our analyzers, we solve a wide range of measurement challenges in almost any industry – combining exceptional performance with the lowest cost-of-ownership.
MicroSAM [1] is a small flexible explosion-proof on-line process gas chromatograph made by Siemens. State-of-the-art silicon-based micromechanical components allow miniaturization as well as increased performance at the same time. MicroSAM’s ease of use and rugged small design that makes it ideal for mounting right at the sampling point. Its features include:

- Leading edge technology drastically reduces analysis times, providing better information about the process
- Valveless live sample injection and column switching dramatically reduces hardware complexity and maintenance
- Multiple detection for verification of the results
- Synchronization of multiple analyzers that are connected in parallel for several sample streams, results in more information per time unit, a high degree of reliability should one of the systems fail, and easy implementation of redundant systems
- Cost-effective and compact design saves installation, maintenance, and service costs

SITRANS CV [1] is a gas chromatograph for reliable, exact and fast analysis of natural gas and biogas. The rugged and compact design makes the SITRANS CV suitable for extreme locations, e.g. off-shore platforms or direct mounting on a pipeline. Operation of SITRANS CV using CV Control software is simple and fast. The Software “CV Control” has been specially developed for the requirements of the natural gas market, e.g. custody transfer.


- A variety of oven options including temperature programmable and energy saving single or dual airless ovens
- Wide selection of valve types for sample injection and column switching including live valveless switching for almost no dead volume
- Parallel chromatography simplifies even the most complex analysis systems as well as dramatically reducing measurement cycle times
- New guiding technology with modular design for fast maintenance and higher availability for measurement and for customers process optimisation
- Open network with TCP/IP and Ethernet for communication with PC workstations, other chromatographs or a DCS
Our customers’ requirements drive the solution. We offer comprehensive designs covering the sampling point and sample preparation up to complete analyzer cabinets whether used for portable applications or for installation in a larger analyzer shelter. Signal processing and communications to the control room and process control system is also part of the total system solution.

Our solutions for your application needs are based on decades of global experience in process automation and engineering as well as specialized knowledge in key industries and industrial sectors.

This guarantees you get Siemens quality from a single source with performance across the entire system. Our portfolio of products and services include:

- Customized services and solutions from front-end engineering and design (FEED) up to fully air-conditioned analyzer shelters
- Support during the approval phase
- Preliminary and detailed planning with state-of-the-art tools and complete documentation
- System assembly and testing available in Siemens facilities in the USA, Germany and Singapore
- Experience with all relevant national and international standards
- Field commissioning and start-up by specialists all over the world
- Remote maintenance, on-site servicing, spare parts supplies and customized training

**Analytical Application Sets**

are standardized system solutions for a number of specific applications. Siemens offers ready-to-use developed solution sets for various industries like e.g. energy and natural gas. Standardized packages include the Set CEM 1 and Set CEM CERT for the emission monitoring market. Specifically designed for the natural gas market is the Set CV (calorific value). The Set CV includes a variety of modules, which can be individually combined. For the monitoring of hydrogen-cooled turbo generators the Set GGA is the state-of-the-art solution. The Set BGA offers a modular a standardized solution for the biogas market.

We would be pleased to demonstrate our expertise as our references speak for themselves!