

Gas Chromatography Analyser Shelter

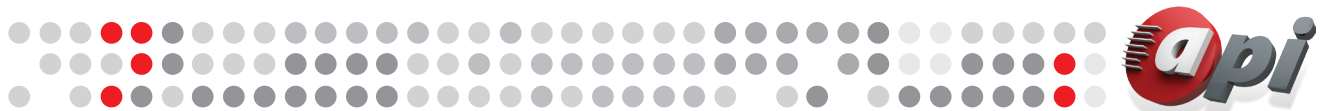


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process instrumentation

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About Us



Autocontrol Process Instrumentation (API) Originates from Autocontrol Technologies, a Company established in 1994 Italy.

Autocontrol Process Instrumentation (API) provide the complete Design, Engineering, Integration, fabrication, Technical support, Test, Commissioning and handover for all package system for Oil & Gas, Petrochemical, Chemical and Power industries as per the customer requirement. We also focused on Sensing Technologies, Measuring Instruments, Controlling Equipment, Automation Systems and all related Accessories. While API's activities cover a wider range of products, services and packages.

API's products are approved by International and National Oil and Gas Operators, Energy, Utilities and Industrial Companies.

We study and research on your requested systems and utilize best and competitive Technologies and instruments to meet your requirements.

For more information, please ask for a copy of our integrated company profile, or visit:

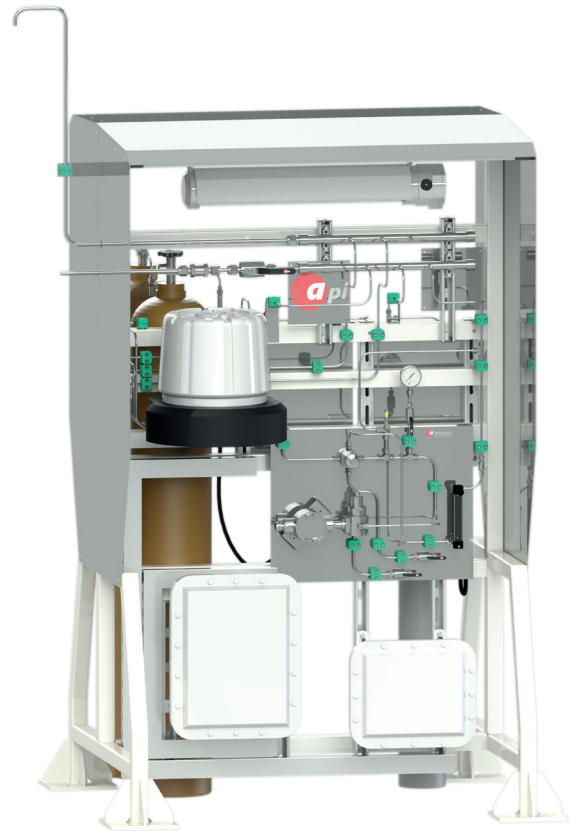
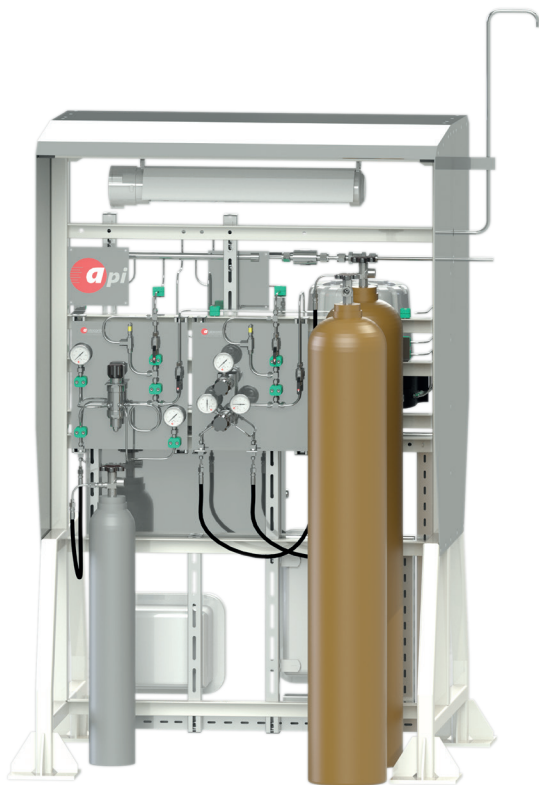
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Whatever you need, we can sense it...
Measure it... Control it and if necessary...
automate it....



Gas Chromatography Analyzer Shelter

Gas chromatography is the process of separating compounds in a mixture by injecting a gaseous or liquid sample into a mobile phase, typically called the carrier gas, and passing the gas through a stationary phase. The mobile phase is usually an inert gas or a nonreactive gas such as helium, argon, nitrogen or hydrogen. The stationary phase is a microscopic layer of viscous liquid on a surface of solid particles on an inert solid support inside a piece of glass or metal tubing called a column. The surface of the solid particles may also act as the stationary phase in some columns. The glass or metal column through which the gas phase passes is located in an oven where the temperature of the gas can be controlled and the eluent coming off the column is monitored by a computerized detector



A gas chromatograph is made of a narrow tube, known as the column, through which the vaporized sample passes, carried along by a continuous flow of inert or nonreactive gas. Components of the sample pass through the column at different rates, depending on their chemical and physical properties and the resulting interactions with the column lining or filling, called the stationary phase. The column is typically enclosed within a temperature controlled oven. As the chemicals exit the end of the column, they are detected and identified electronically

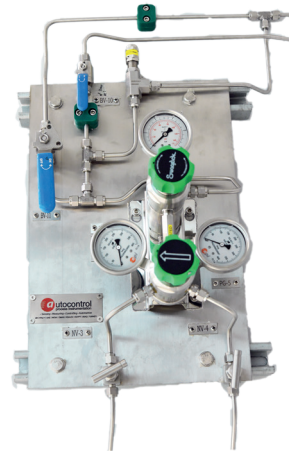
Gas Chromatography Analyzer Shelter

Physical Components in GC:

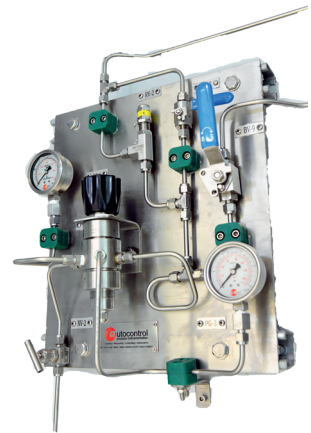
Calibration & Carrier Gas System:

The Gas Chromatography uses Helium as a carrier gas. To make sure that an uninterrupted supply of Helium is guaranteed, the use of a Helium switch-over system is recommended. This is a pressure regulator to which two gas cylinders can be connected. The pressure of both bottles is reduced to the required value with a small pressure difference between the two reduced pressures. The bottle with the higher pressure is depleted first and once the pressure of this bottle is lower than the pressure of the second bottle, the supply is taken over by the second bottle enabling the user to replace the first bottle. To protect the analyzer against failure of the pressure regulator, the use of a safety relief valve at the outlet of the pressure regulator is recommended. The calibration gas is a very important factor and determines the overall accuracy of the complete measurement system

Carrier Gas System

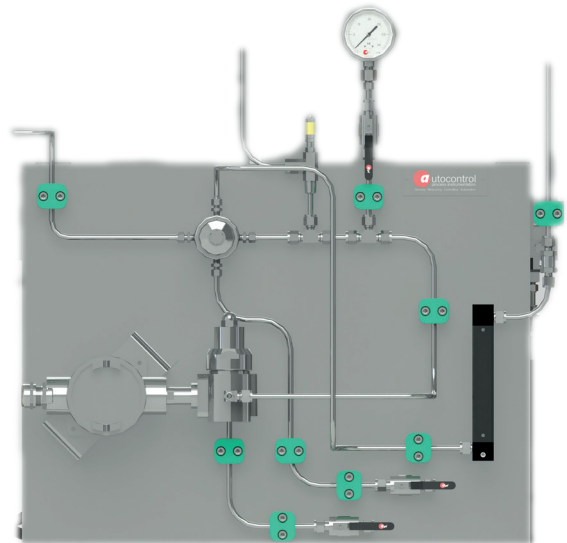


Calibration System



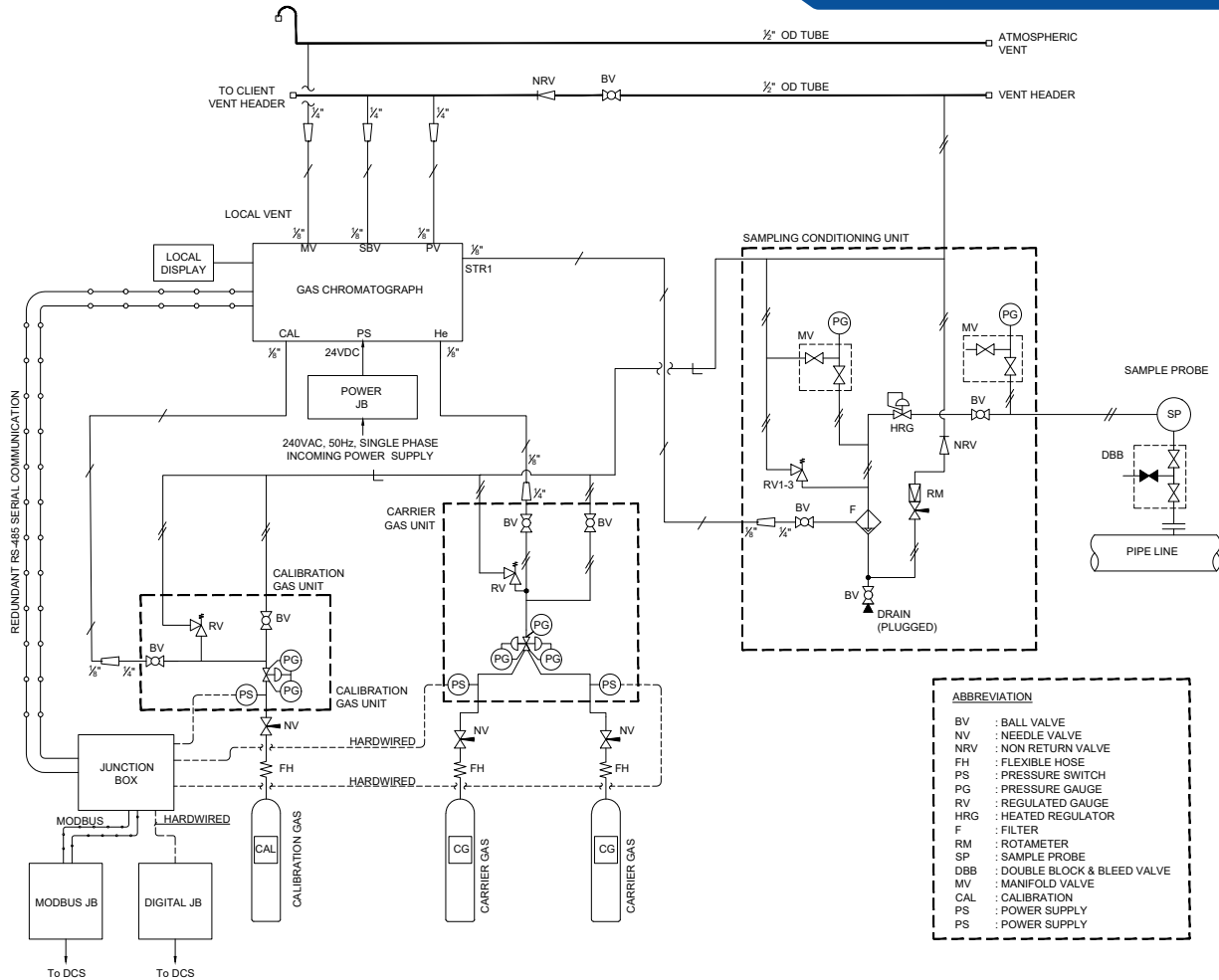
Sample Conditioning System:

An important part of the entire measurement system is the sample retraction and sample transport. The gas that is retracted from the pipe-line must be a representative sample, condensation must be prevented and the pressure must, in most cases, be reduced from very high pressures down to 30 - 60psig. Depending on company or country regulations several systems can be used. The most economic system is a (retractable) sample probe with integrated pressure reduction. The main advantage of these sample probes is that the pressure reduction is done inside the pipeline and the heat capacity of the gas in the pipe-line prevents the gas from condensation. The sample probe contains an integrated membrane, which separates any free liquids that might be present in the pipeline from the gas before it can enter the tubing leading to the GC analyzer.



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Sample Schematic drawing:



Sample Chemical Composition of Natural Gas:

Compound	Symbol	% In Natural Gas
Methane	CH ₄	60 - 90
Ethane	C ₂ H ₆	0 - 20
Propane	C ₃ H ₈	0 - 20
Butane	C ₄ H ₁₀	0 - 20
Carbon Dioxide	CO ₂	0 - 8
Oxygen	O ₂	0 - 0.2
Nitrogen	N ₂	0 - 5
Hydrogen Sulfide	H ₂ S	0 - 5
Rare Gases	A, He	0 - 2



Gas Chromatography Analyzer Shelter

Range of Process Gas Chromatography

Natural Gas:

Natural gas analysis of the industrial processes designed to purify raw natural gas by removing impurities, contaminants and higher molecular mass hydrocarbons to produce what is known as pipeline quality dry natural gas. Natural gas has to be processed in order to prepare it for final use and ensure that elimination of contaminants.

Total Sulfur, H₂S & COS:

Hydrogen sulfide (H₂S) and other sulfur compounds exist naturally in natural gas fields. It is necessary to remove these sulfur compounds from the gas in order to preserve public safety, reduce corrosion in pipelines, meet contractual agreements and to control odor in the gas. Thus, the analysis of hydrogen sulfide and total sulfur in natural gas by PGCs is critical to the natural gas industry.

Catalytic reforming:

Catalytic reforming is a major conversion process in petroleum refinery and petrochemical industries. The process converts low octane naphtha into higher octane reformat products for gasoline blending and aromatic rich reformat for aromatic production. Hydro treating is an important step to remove unwanted sulfur from streams that are used as feeds to some refinery units.

ASTM D3710 Gasoline:

Standard method for boiling range distribution of gasoline and gasoline fractions by process gas chromatography. This test method covers the determination of the boiling range distribution of gasoline and gasoline components. This test method is applicable to petroleum products and fractions with a final boiling point of 500°F (260°C) or lower as measured by this test method.

Flare Gas Monitoring:

Gas flaring is a source of emission that pollute the environment. Flaring releases greenhouse gases into the environment and further contributes to the problem of climate change. Hence, national and local government bodies are increasingly requiring process plants to monitor, report, and reduce emissions from their stacks and flares.

Custody Transfer:

Process Gas Chromatograph (PGCs) are used in natural gas custody transfer applications. They provide information on the gas quality and composition with components such as methane, ethane and heavier hydrocarbons, water vapor, carbon dioxide, nitrogen and hydrogen sulfide. These gas chromatograph are normally located on large gas stations with dedicated buyer use.

Special & Industrial Gases:

The field of analytical application is extremely diverse. Whether they are used to monitor the quality of foodstuffs, test engines in the automotive industry, control processes in the chemical or pharmaceutical industries, or in medicine, metallurgy or environmental monitoring; analytical methods ensure process control, quality assurance and even compliance with statutory regulations everywhere.

ASTM D2887 Diesel:

Standard method for boiling range distribution of petroleum fractions by process gas chromatography. Standard method for boiling range distribution of gasoline and gasoline fractions by process gas chromatography. This test method covers the determination of the boiling range distribution of petroleum products. The test method is applicable to petroleum products and fractions having a final boiling point of 538 °C (1000 °F) or lower at atmospheric pressure as measured by this test method.

Gas Chromatography Analyzer Shelter

Autocontrol Process Instrumentation (API) offering Gas Chromatograph analyzer shelter specially designed for Natural Gas Energy Measurements. The compact, explosion proof design includes the analytical hardware, stream selection and all required electronics for standalone operation. API is an expert can Design, Engineering, Fabrication, Integration, Test, Commissioning and handover of Gas Chromatography Analyzer shelter in process instrumentation industries. Our design of the GC shelter is such that the unit can be placed outdoors close to the sample point without the need of an expensive temperature-controlled environment. **We are also doing customized models as per customer requirements.**

Our Few Samples:



Installation, Commissioning & Service

Installation & Commissioning:

Many of our clients have engaged us in the installation and commissioning of the equipment we supply and can therefore be fully confident in site system performance, safety and reliability as was engineered.

Benefits:

- Turn-key, fully seamless integrated solution, one stop shop with added advantages of foresight.
- Single point of contact and accountability
- Installation and commissioning by engineers experienced and cognizant with the platform and design and who can deliver Innovative Solutions to unexpected site issues as are often encountered.
- Bespoke arrangements
- Immediate and full access to the project engineering team responsible for the application design to advise in any unforeseen site Implementation problems at no additional cost.

Key Business Benefits Derived:

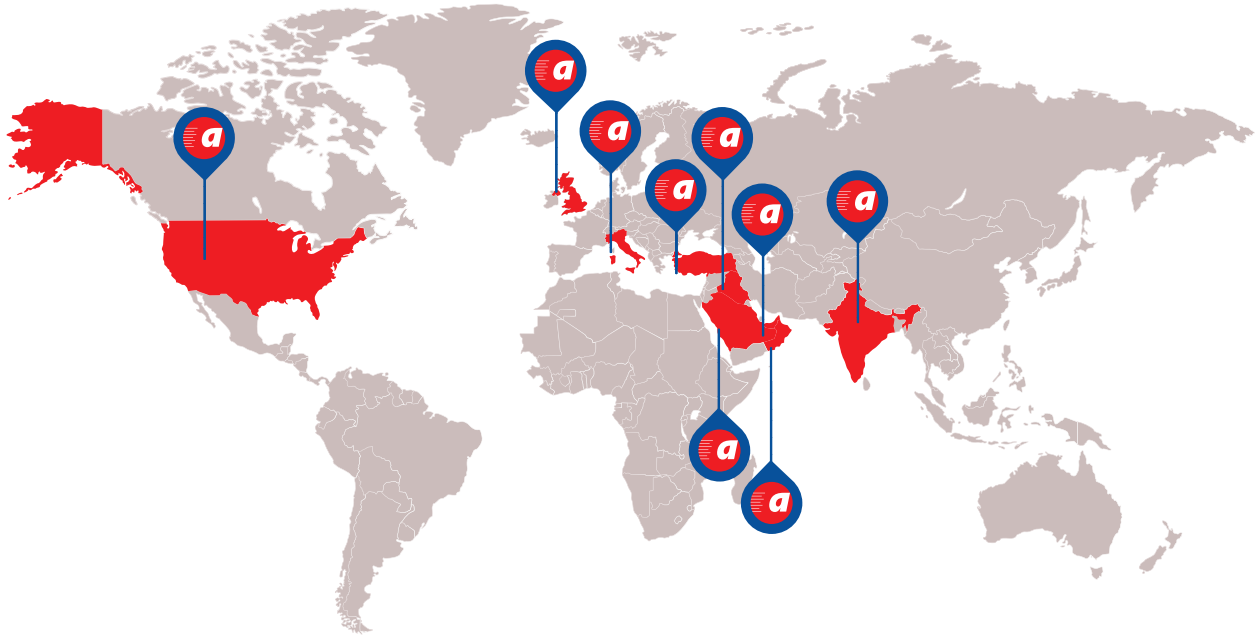
- Confidence in effective and competent installation and commissioning with easy access to engineering base support
- Contributes to lifetime performance, functional efficacy and safety.
- Cost effective, simplifies management overhead with reduced contractual risk.
- Ensures against third party systematic errors with immediate and/or potential later incurred costs.

Our Service offering:

The system you have purchased has been engineered, manufactured and tested to the highest standard. However, we recognize that The system will serve its purpose to the maximum efficacy where competent engineering is engaged throughout its entire life cycle and not just up to point of delivery and later application of highly competent operations and maintenance. An engineering solution that is well designed, built and tested can easily be compromised by insufficiently enlightened installation or Commissioning that can act in detriment to the longer term system performance, safety, reliability and application. It is more often So, as an imperative, that installation and commissioning requires extensive knowledge of the platform, application and site Integration.



Our Global Presence



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Notes

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