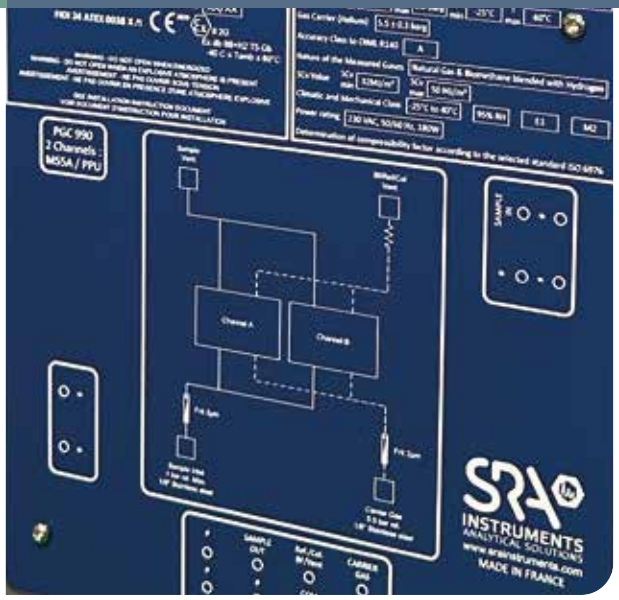
μPGC 990

MicroGC Power for Online Process Analysis

SRA INSTRUMENTS
ANALYTICAL SOLUTIONS



UNIFIED ARCHITECTURE, DIVERSE SOLUTIONS:

The Power of μPGC 990 Modularity.

The SRA μPGC 990 platform integrates Agilent MicroGC technology into an ATEX-certified system, engineered for online and continuous analysis of gas composition and energy value. Designed to operate in critical industrial environments and distribution networks, the system guarantees maximum metrological reliability and complete automation.

UNCOMPROMISING VERSATILITY

Trascending the concept of a static instrument, the **μPGC 990 is a modular and flexible platform** available in two main configurations:

- **Energy Meter:** metrological version for determining calorific value (fiscal and transactional uses) in compliance with tax regulations.
- **Custom Analytics:** customized configurations for specific chemical analyses monitoring impurities, sulfur compounds, VOCs, or complex mixtures.

All versions share the same hardware and software architecture and differ only in the configuration of the analytical channels. This ensures:

- **Consistent performance** across all configurations.
- **Simplified staff training** and maintenance procedures.
- **Full scalability:** from the lab to the plant.
- **Long-term** investment protection.

MODULARITY AND MULTI-CHANNEL CONFIGURATION

The modular architecture combines precision and industrial robustness.

Each channel is a complete and independent chromatographic unit, designed for parallel operation.

Configurations and Use Cases

The number of channels (from 1 to 4) is defined based on the complexity of the gas matrix and the analytical objectives.

Channel	Analytical Focus	Application Example
1	Targeted analysis of single parameters or families of compounds	Monitoring of VOCs or permanent gases in pilot tests
2	Simultaneous analysis of main components and impurities	Biomethane quality analysis (main components and contaminants)
3	Complex multi-stream and multi-reaction processes	Natural gas analysis
4	Advanced energy meters or custom multi-gas configuration	Natural gas analysis with odorants (THT/TBM) included

APPLICATION AREAS

Thanks to its scalable nature, the ***µ*PGC 990** is perfectly suited for both routine monitoring and advanced research.

Energy and Gas Networks

- Natural gas, refinery gas and biomethane
- Hydrogen and NG/H_2 blends
- Syngas and process gases
- Gas odorization (THT, TBM).

Processing & Petrochemicals

- Oil and gas upstream, midstream, downstream.
- Impurity, sulfur compounds, permanent gas and VOCs monitoring.
- Fuel cells, catalysis and energy conversion.

R&D and Innovation

- Laboratories, skids, and pilot plants.
- Chemical and catalytic reaction monitoring.
- Kinetic studies and industrial scale-up.
- Gas-based processes development and validation.

Special Applications

- Multi-stream control.
- Innovative fuels and energy transition customized process development.

Whether ensuring tax compliance in distribution networks or exploring new frontiers in the energy transition, the *µ*PGC 990 platform sets the standard for flexibility and performance.

THE CORE OF PRECISION:

Advanced MicroGC Components.

MICROGC TECHNOLOGY

The *µ*PGC 990 raises the bar for miniaturized gas chromatography thanks to aerospace-derived hardware components and cutting-edge electronic controls.

Advanced Electronic Gas Control

Engineered for **maximum analytical stability**, the system features constant pressure mode and supports a full range of carrier gases (He, Ar, N_2, H_2). With the ability to manage two gases simultaneously and significantly reduced consumption, it ensures both versatility and cost-efficiency.

State-of-the-Art MEMS Injector

The micro-machined MEMS injector has **no moving parts**, eliminating mechanical wear while delivering:

- **Precision:** Software-selectable volumes (1-10 µL) with repeatability ≤ 1% RSD.
- **Performance:** Heated up to 110°C with integrated programmable backflush to safeguard the columns.
- **Efficiency:** Minimal dead volume for rapid, ultra-precise sample introduction.

High-Integrity Sample Line

Designed for active compounds, the sample path is fully inert and heated up to 110°C. The system is flexible, supporting both internal and external sampling pumps to suit specific workflow.

Optimized Column Oven

Operating from 30°C to 180°C, the isothermal oven supports PLOT, WCOT, and micro-packed capillary columns. Delivers comprehensive results in under 600 seconds, even for your most demanding applications.

High-Sensitivity µTCD Detector

The universal µTCD detector offers an ultra-low internal volume (200 nL) and exceptional linearity (up to 10^6). Featuring fast auto-ranging and filament protection, it reaches a **Limit of Quantitation (L.O.Q.) as low as 0.5 ppm**.

ANALYTICAL PERFORMANCE

The ***µ*PGC 990 platform** is designed for continuous 24/7 operation, ensuring metrological precision and minimal maintenance.

Parameter	Technical Specification
Analysis Speed	<60 sec. to 600 sec. (simultaneous multichannel)
Repeatability (Accuracy)	<1% RSD
Limit of Detection (LOD)	Up to 0.5 ppm (sub-ppm levels)
Dynamic Range	6 orders of magnitude (ppm to 100%)
Linearity	Up to 10^6 (ppm to 100%)
Operational Continuity	24/7 operation with minimal maintenance

AUTOMATION AND SOFTWARE

The ***µ*PGC 990 platform** offers two distinct software packages to meet the different needs of laboratories and plants.

- **Soprane CDS (R&D, online, and laboratory):**

  Proprietary SRA software designed for advanced analytical control. Ideal for laboratories and pilot plants that need to run experiments requiring maximum flexibility [RC1.1][RF1.2] in method definition, management of complex and multi-flow sequences, valve and pump control, detailed diagnostics, and alarms.

- **PROstation Web Server (Industrial Process):**

  Web-based software resident on the motherboard. It allows IP access from any device (PC, tablet, smartphone) without dedicated software. Perfect for 24/7 monitoring of industrial processes and SCADA/PLC integration, the software enables full instrument control (start/stop), sequence programming, real-time data viewing, remote diagnostics, and alarm management.

COMMUNICATION AND INDUSTRIAL INTEGRATION

The system is Industry 4.0-ready, ensuring seamless, bidirectional data flow:

- **Connectivity:** Ethernet LAN (primary).
- **Protocols:** Modbus TCP/IP and Modbus RTU.
- **Analog/Digital I/O**: 4-20 mA inputs and outputs and digital I/Os for alarms, status, and control.
- **Industrial Integration:** SCADA, PLC, DCS, and FTP Automatic Data Transfer.

ENGINEERING TRUST:

Safety, Standards, and Global Compliance.

SAFETY AND REGULATORY COMPLIANCE

Designed to operate in the most demanding environments, the **μPGC 990** meets the most stringent international standards.

- **ATEX Certification:** Approved for Zone 1
  II 2G Ex db IIB+H2 T5 Gb, compliant with
  ATEX Directive 2014/34/EU.
- **Electromagnetic Compatibility:**
  EN 61000 - General EMC Standard and
  EN 61326-1 - EMC for Measuring/Control Equipment.
- **Italian Regulation (UNI)**.

GAS ANALYSIS STANDARDS AND REGULATORY COMPLIANCE

ITALIAN REGULATION (UNI)

Specific	Application Standards
UNI ISO 11885	Natural gas analysis
UNI/TS 11537	Biomethane quality
UNI 7133-2	Gas odorization (THT, TBM)
UNI EN ISO 2614	Terpene analysis

INTERNATIONAL STANDARDS

Specific	Application Standards
ISO 6976:2016	Calorific value calculation
OIML R140	Metrological requirements for energy meters
MID 2014/32/EU	Measuring instruments directive
EN 16726:2025	Gas quality - group H
EN 16723-1	Biomethane injection into the gas network

Safety Note: All **μPGC 990** configurations are designed and certified for operation in hazardous environments. Installation must be performed only by qualified personnel in compliance with ATEX regulations and local regulations.

PERFORMANCE WITHOUT COMPROMISE

MAIN TECHNICAL SPECIFICATIONS

Chassis Type	Channels	Dimensions (W × D × H)	Weight	Power
Single-Channel	1	42.5 × 25.5 × 22.3 cm	~20 kg	36-46 W
Multi-Channel Compact	2	48.5 × 30.5 × 24.9 cm	~27 kg	36-46 W
Multi-Channel Industrial	3-4	47.5 × 54.4 × 27.2 cm	~55-60 kg	~56 W

OPERATING CONDITIONS

Parameter	Requirements
Ambient Temperature	-40°C to +60°C
Relative Humidity	0-95% (non-condensing)
Installation	Indoor or Outdoor
Maximum Altitude	Up to 2000 m above sea level

POWER SUPPLY

Voltage	100-240 VAC
Frequency	50/60 Hz

CONCLUSIONS

The *μ*PGC 990 platform represents the perfect combination of modularity, speed, and analytical precision. Thanks to its industrial robustness, ATEX certification, and scalable architecture, it is the ultimate solution for those seeking reliability in process gas monitoring and flexibility in advanced research for the energy transition.

Contact us for a demonstration or a personalized quote!

INSTRUMENTS
ANALYTICAL SOLUTIONS

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*This information is subject to change without notice.

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