



Natural Gas, Biomethane & H₂



µPGC 990 Certified Gas Chromatograph

**Certified solution
for transmission and
distribution networks**

Parts Certificate NMI TC12888

- OIML R140 Class A
- MID Ready
- WELMEC 7.2



1 Regulatory Context

The energy transition to biomethane and hydrogen blending requires certified instrumentation capable of ensuring accurate and compliant measurements for tax purposes.

The **µPGC 990** from **SRA Instruments** is a gas chromatograph certified **NMI** according to **OIML R140:2007 Class A**, ready for blends with up to 20% hydrogen in natural gas or biomethane.

Reference Standards

- EN 16726:2025
- Gas infrastructure
- Quality of gas
- Group H; EN 16723-1
- Specifications for biomethane for injection into the natural gas network.



2 NMI TC12888 Certification

Latest NMI certification (October 2025)

The **μPGC 990** (Type: PGC-990) has obtained the prestigious certification from NMI Certin B.V., an internationally recognized Dutch legal metrology institute, according to:

- **OIML R140 Edition 2007 (E)** - Measuring systems for gaseous fuel
- **WELMEC 7.2:2023** - Software Guide for MID 2014/32/EU
- **WELMEC 8.8:2017** - Modular evaluation of measuring instruments

Certified Parameters

Intended Use	Calorific Value and Composition of Natural Gas and Biomethane blended with H ₂
Accuracy Class	A (OIML R140) Maximum Metrological Class
Analysis Time	<180 seconds per complete cycle. Full Composition
Operating Range	32-50 MJ/m ³
Ambient Temperature	-40° to +60°C
Carrier Gas	Helium (He), purity 5.5 (99.9995%) at 550±30 kPa
Detector	Universal TCD (Thermal Conductivity Detector)
ATEX Certification	Zone 1 - ATEX II 2G Ex db IIB+H ₂ T5 Gb

3 Operational Efficiency and Maintainability

■ Modular Architecture with Maintainable Modules

The modular design of the **μPGC 990** allows selective maintenance of individual analytical channels without requiring extended downtime. Each GC module (column + TCD detector) is independent and replaceable, significantly reducing MTTR (Mean Time To Repair) and maximizing operational uptime.

Operating Parameter	Typical Value
Carrier Gas Consumption (He)	≈ 20-30 mL/min (total standard 4-channel configuration)
Power Consumption	< 300 W (standard operating mode)
Calibration Frequency	programmable from daily up to weekly intervals
Routine Maintenance	Semi-annually / Annually (TCD filament check, filter replacement)
MTBF (Mean Time Between Failures)	> 8760 hours (target design for continuous applications)
MTTR (Mean Time To Repair)	< 2 hours (single module replacement without complete recalibration)

■ Single Carrier Gas Advantage

Unlike architectures that require a dual carrier gas system (helium + argon), the **μPGC 990** uses **exclusively 5.5-purity (99.9995%) helium**. This approach dramatically simplifies supply logistics, reduces operating costs, eliminates potential cross-carrier interference, and ensures maximum repeatability in metrological measurements for custody transfer applications.

4 Applications

Transport and Distribution Networks

This product complies with and supports analysis in accordance with EN 16726:2025 (Quality of gas - Group H).

Biomethane Injection into the Network

Continuous analysis compliant with EN 16723-1:2016 for biomethane producers injecting into transport and distribution networks. Monitoring of H₂S, COS, sulfur compounds and verification of injection specifications.

H₂ Blending in the Natural Gas Network

Certified for blends up to 20% vol. H₂ blended with natural gas or biomethane. Ready for hydrogen blending pilot projects and future national directives on energy transition.

Custody Transfer and Invoicing

OIML R140 Class A for custody transfer measurements with ±0.5% accuracy. Automatic PCS/PCI calculation according to ISO 6976:2016 with programmable base conditions (1.01325 bar, 0/15/20°C combustion).

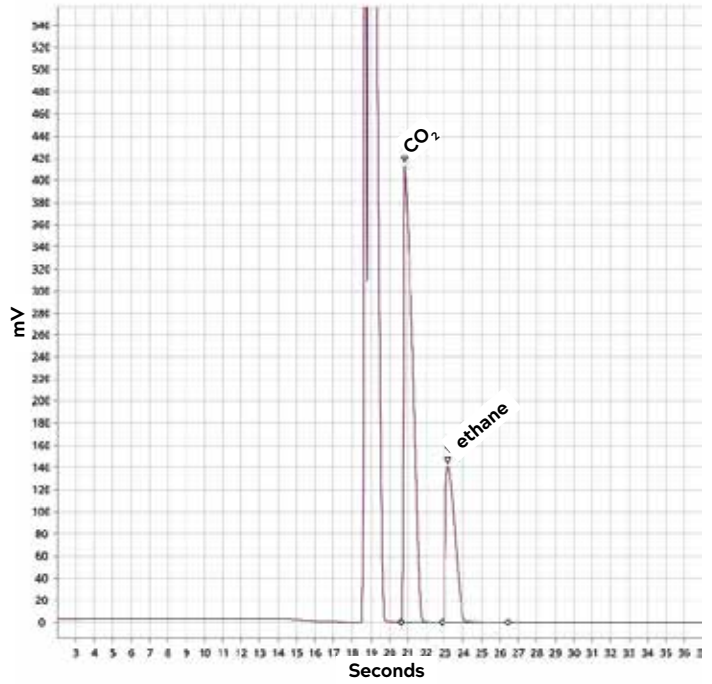


5 Certified Analytical Ranges

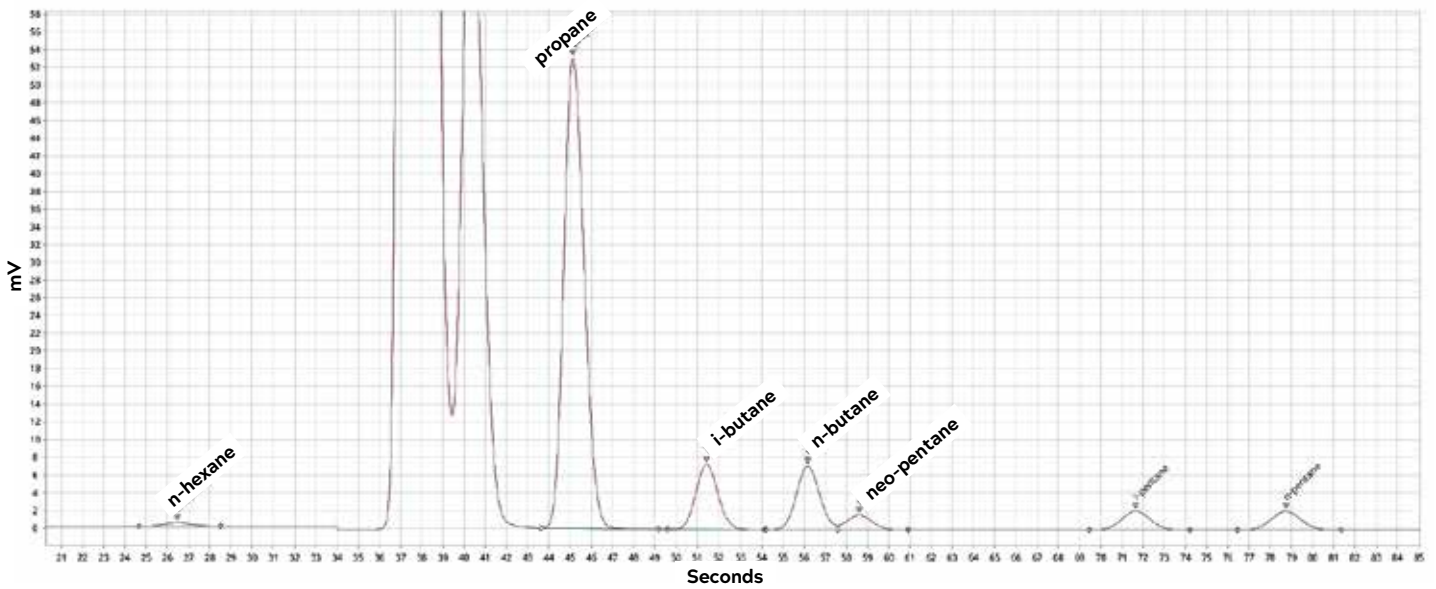
Certified working range according to OIML R140 for Natural Gas with PCS from 32 to 50 MJ/m³ (base conditions: 1.01325 bar, 0°C base, 0°C combustion):

Component	Range (mol%)
Methane (CH ₄)	60 - 100
Ethane (C ₂ H ₆)	0.05 - 20
Propane (C ₃ H ₈)	0.01 - 8
Butanes (n/i-C ₄ H ₁₀)	0.01 - 1
Pentanes (n/i-C ₅ H ₁₂)	0.005 - 0.6
n-Hexane (C ₆ H ₁₄)	0.003 - 0.5
Hydrogen (H ₂)	0.01 - 20
Nitrogen (N ₂)	0.05 - 20
Oxygen (O ₂)	0.02 - 0.4
Carbon Dioxide (CO ₂)	0.05 - 15

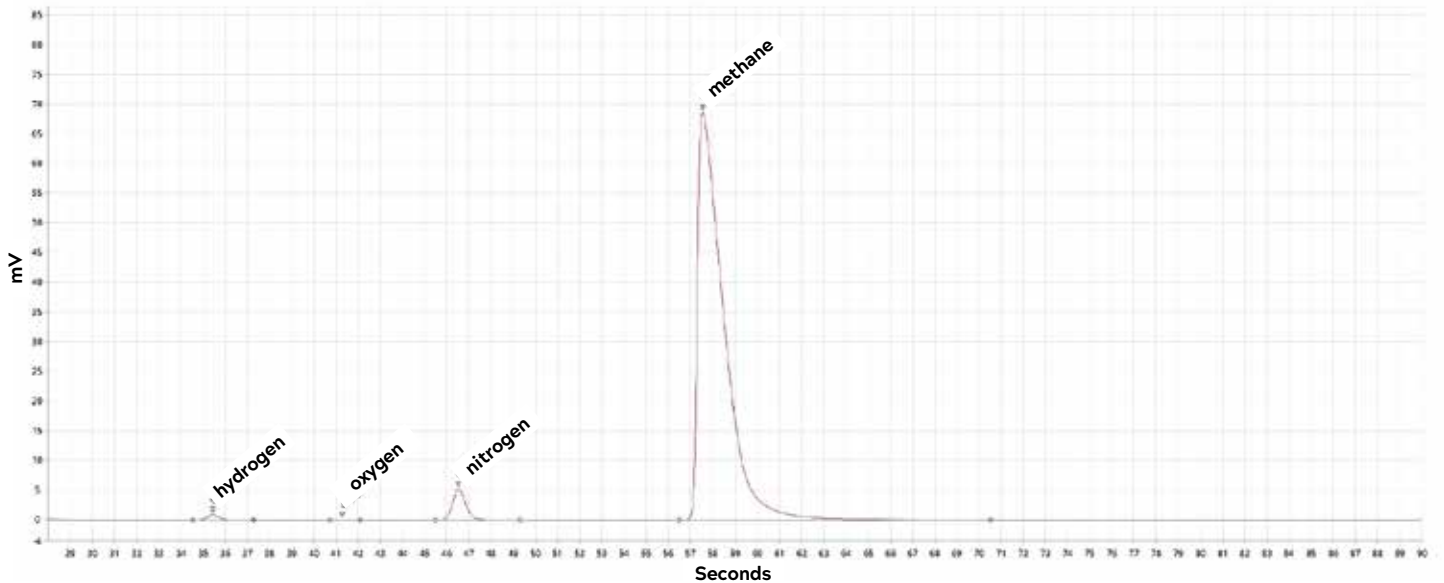
Carbon Dioxide, Light Hydrocarbons (Ethane, Propane)



Butanes (C4), Pentanes (C5), and Hexanes (C6+)



Permanent Gases (Hydrogen, Oxygen, Nitrogen, Methane)





6 Conclusions

In an increasingly stringent regulatory landscape where the transition to biomethane and hydrogen blending requires certified and compliant instrumentation, the μ PGC 990 is a fully NMI-certified solution for blends up to 20% H₂.

Competitive Advantages

NMI-Certified GC for H₂-Blending

Parts Certificate TC12888 (October 2025) for blends up to 20% H₂ in Natural Gas/Biomethane. Ready for future European directives on hydrogen blending.

Full Regulatory Compliance

The product complies with and supports analyses according to EN 16726:2025 (Quality of gas - Group H) and EN 16723-1 (Biomethane for injection into the natural gas network). WELMEC 7.2 software compliant.

Rapid Analysis: Less than 180 Seconds Full Composition

Complete analytical cycle in less than 180 seconds for all certified components (C1-C6+, N₂, O₂, CO₂, H₂). Real-time gas quality monitoring with rapid response for process control and safety.

Helium as the Sole Carrier Gas

Unlike architectures that require helium + argon, the μ PGC 990 uses only helium (99.9995%). It simplifies logistics, reduces operating costs, and eliminates interference. Maximum repeatability for custody transfer measurements.

Modular Architecture with Maintainable Modules

Selective maintenance of individual independent analytical channels without prolonged plant downtime. Replaceable modules reduce MTTR to < 2 hours. Robust design for MTBF > 8760 hours in continuous applications.

Programmable Automatic Calibration

Automatic calibration at variable intervals (max. 1 week) with certified, traceable gases. Accountable alarms for response factor deviations, temperatures, and pressures outside limits. Compliant with NMI procedures.

Full integration with DCS/SCADA

Modbus RS232/RS485 communication, Ethernet TCP/IP. Web interface for remote control. Alarms can be logged on Modbus registers. Legally relevant data protected with password and hardware jumper.

- Parts Certificate NMI TC12888
- OIML R140 Class A

