



Agilent SI-02239

490 Micro GC Solution

Data Sheet

Introduction

When the composition of gas mixtures is critical, Agilent's 490 Micro GC delivers the information you need, time after time. Our 5th generation micro-gas chromatograph generates more data in less time for faster and better business decisions.



Figure 1. 490 Micro GC

Key Benefits

- **The Speed You Need.** Precise gas analysis in seconds rather than minutes brings improved product quality and more exact product valuation to industries such as oil and gas exploration, refining, natural gas production and distribution, fuel cell development, and speciality gas production.
- **Full Flexibility.** The 490 Micro GC is a rugged, compact analyzer for gas quality analysis in the laboratory, on-line and at-line. With advanced micro-machining and computing technologies, the 490 Micro GC offers between one and four analytical GC channels. Each channel is a separate GC with pneumatics, injector, column, and detector. User exchangeable GC channels or modules provide quick and easy reconfiguration for any application.
- **Increase Monitoring Frequency.** Micro-electronic gas control with time-programmable backflush lets you inject samples while eliminating components that could foul the column and reduce lifetime. Extremely fast analysis for continuous process monitoring and control using the 490 Micro GC ensures faster and better decisions that can lead to higher quality end-products.
- **Easy Start-Up.** On arrival, the 490 Micro GC provides the results and ruggedness you demand in the laboratory and in the field for the analysis of gaseous and vapor streams. Start-up is easy, quick and seamless with electronic data sheets (EDS), which store operational history and the last used method for each GC channel. The 490 Micro GC can be controlled from virtually anywhere in the world through a PC and the internet, using industry standard protocols such as TCP/IP.



Agilent Technologies

Product Features

Configuration

One to four analytical GC channels

Control

- Independent control of each analytical channel
- Pneumatics, including time-based column pressure programming
- Injector, column, and detector settings

Column Oven

Temperature range, up to 180 °C, isothermal

Detector

- Micro-machined Thermal Conductivity Detector (TCD)
- Dual-channel (sample and reference flow)
- Internal volume 200 nL per channel
- Filaments, 4

Injector

- Micro-machined injector with no moving parts
- Injection volume 1 µL to 10 µL, software-selectable
- Optional heated injector, up to 110 °C, including heated sample transfer line
- Optional backflush capability

Detection Limits, TCD

- WCOT (wall coated open tubular) columns, 1 ppm
- Micro-packed/PLOT columns, 10 ppm

Operating Range, TCD

- Concentration, 1 ppm to 100% level
- Linear dynamic range, 10⁶

Repeatability

< 0.5% RSD for propane at 1 mol % level for WCOT columns at constant temperature and pressure

Carrier Gas

- He, H₂, N₂, or Ar, 550 ± 10 kPa (80 ± 1.5 psi) input
- Up to two different types of carrier gases can be used in one instrument
- Inlet connection, 3.2 mm (1/8 in.) stainless steel compression fitting (Swagelok)

Sampling

- Sample inlet, 1.6 mm (1/16 in.) stainless steel Valco fitting with replaceable 5 µm stainless steel filter
- Sample conditions, non-condensing gas of 0 °C to 110 °C
- Maximum sample inlet pressure, 100 kPa (14.5 psi)
- Software selectable sample pump or continuous flow
- Optional sample inlet can be installed in front or back

Communication

- Analog input, 6 signals (0-10 V)
- LAN (TCP/IP)
- Serial (RS232) for control of a stream selection valve
- Webserver, display instrument status on standard Internet browser

Data Handling Software

Calculation and reporting packages

- Natural gas calculations, such as calorific value and relative density, meet ISO 6976, GPA 2171, and ASTM D 3588 standards
- Custom calculations and reporting
- I/O control, for control of analog output signals (4-20mA) and relays

19 in. Housing For a Dual Channel 490 Micro GC Configurable With a Wide Range of Accessories

- Stream selection valves

- Micro-Gasifier
- Genie Membrane Filters
- Sample pressure sensors

Environmental Requirements

- Humidity (relative), 0% to 95% non-condensing
- Temperature, 0 °C to 50 °C
- Certified up to 2000 m above sea level

Power Requirements

- Main power, 90-130 Vac or 180-260 Vac, 50-60 Hz
- Output, 12 VDC, maximum 130 W

Applications

The 490 Micro GC is ideal for applications such as (natural) gas analysis, mud logging, air monitoring, bio gas analysis, and stack gas analysis.

Dimensions and Weight

Table 1. Dimensions and weight

Dimensions and Weight				
System	Height	Width	Depth	Weight
Two-channel	28 cm	15 cm	30 cm	minimum of 5.2 kg (configuration dependent)
Four-channel	28 cm	15 cm	55 cm	minimum of 5.2 kg (configuration dependent)

Options Listing

Table 2. 490 Micro GC options

Product number	Product description
For part number information please contact your local sales office	<p>Gas injection by syringe</p> <ul style="list-style-type: none"> - Front sample inlet - Septum cap or Luer-lock connection - Selection valve for syringe or standard pump injection
For part number information please contact your local sales office	<p>Field/Portable Case</p> <ul style="list-style-type: none"> - Refillable gas containers, one or two 300 mL gas containers with maximum pressure of 12,000 kPa (1740 psi). Easy refill with certified adapter, safety relief valve to avoid over-pressurization, and pressure read-out per gas container - Up to two different types of carrier gases can be used. Choice of carrier gases: <ul style="list-style-type: none"> - Helium - Argon - Nitrogen - Rechargeable battery packs, with an optional second battery pack for up to 8 hours continuous operation - Two-channel system, 37 cm (h) x 29 cm (w) x 41 cm (d) - Four-channel system, 37 cm (h) x 29 cm (w) x 72 cm (d) - Weight with the 490 Micro GC, minimum of 10 kg (configuration dependent)
CP740431 (100 - 120 V) CP740432 (230 V) CP740433 (240 V)	<p>Micro-Gasifier, heated pressure-reducing</p> <ul style="list-style-type: none"> - Controlled evaporation of LPG or LNG samples - Controlled reduction of high pressure gas samples - Operating temperature 100-150 °C, default set at 100 °C - Sample inlet pressure: 1000 psi/7000 kPa maximum - Sample carry-over: <1% RSD, as measured with hexane - Sample outlet pressure 7.5 psi +/- 2.5 psi
392590006 (Genie 170 - max 300 cc/min) 392590001 (Genie 101 - max 1440 cc/min)	<p>Genie Membrane filter</p> <ul style="list-style-type: none"> - Fully inert membrane technology - Compliant for BTU calorific value applications - Removes particles from gas samples - Removes liquids from gas samples
For part number information please contact your local sales office	<p>Stream Selection Valve, up to 16 sample streams for multi-stream analysis, with two main valve types</p> <ul style="list-style-type: none"> - SD (dead-end) valves select one of 4 to 16 dead-end streams - SF (flow-through) valves select a stream and send it to the outlet
For part number information please contact your local sales office	<p>On-board universal accessory bracket (occupies one channel position in the 490 Micro GC)</p> <ul style="list-style-type: none"> - Stream selection valves - Micro-Gasifier - Genie Membrane Filters - Pressure regulator - Sample pressure sensors - Sample relief valves

Related Agilent Literature

Table 3. Related 490 Micro GC literature

Publication title	Pub number
Analysis of Dichloromethane from Waste Water Using the 490 Micro GC, Application Note	SI-02642
Fast Refinery Gas Analysis Using the 490 Micro GC QUAD, Application Note	SI-02233
Mine Gas Analysis Using the 490 Micro GC, Application Note	SI-02235
Analysis of Biogas with the 490 Micro GC Gas Chromatograph, Application Note	SI-02215
Agilent 490-PRO Micro GC for Process Monitoring, Data Sheet	SI-02240
Agilent Natural Gas Analyzers, Data Sheet	SI-02251
Agilent Refinery Gas Analyzers, Data Sheet	SI-02252
Fast Analysis of Low Level BTEX using a 490 Micro GC with Sample Concentrator, Technical Overview	SI-0802
Fast and Accurate Analysis of Natural Gas using a New Portable Gas Chromatograph based on Miniaturized Injection and Detection Technologies, Scientific Poster	SI-02587
490 Micro GC - The "Measure Anywhere" Micro GC, Brochure	SI-02226

Accessories

Customers who purchase Agilent 490 Micro GC analyzers are frequently interested in the following accessories and options:

Table 4. Accessories

Part number	Description
CP17970	Gas Clean Oxygen Filter
CP17971	Gas Clean Moisture Filter
CP17971P	Gas Clean Process Moisture Filter
CP7988	Connecting unit for one filter (1/8 in. tube)
CP738407	Connecting unit for two filters (1/8 in. tube)



Agilent Email Updates

www.agilent.com/find/emailupdates

Get the latest information on the products and applications you select.



www.lxistandard.org

LXI is the LAN-based successor to GPIB, providing faster, more efficient connectivity. Agilent is a founding member of the LXI consortium.

Agilent Channel Partners

www.agilent.com/find/channelpartners

Get the best of both worlds: Agilent's measurement expertise and product breadth, combined with channel partner convenience.

Remove all doubt

Our repair and calibration services will get your equipment back to you, performing like new, when promised. You will get full value out of your Agilent equipment throughout its lifetime. Your equipment will be serviced by Agilent-trained technicians using the latest factory calibration procedures, automated repair diagnostics and genuine parts. You will always have the utmost confidence in your measurements. For information regarding self maintenance of this product, please contact your Agilent office.

Agilent offers a wide range of additional expert test and measurement services for your equipment, including initial start-up assistance, onsite education and training, as well as design, system integration, and project management.

For more information on repair and calibration services, go to:

[www.agilent.com/find/
removealldoubt](http://www.agilent.com/find/removealldoubt)

For more information on Agilent Technologies' products, applications or services, please contact your local Agilent office. The complete list is available at:

www.agilent.com/find/contactus

Americas

Canada	(877) 894 4414
Latin America	305 269 7500
United States	(800) 829 4444

Asia Pacific

Australia	1 800 629 485
China	800 810 0189
Hong Kong	800 938 693
India	1 800 112 929
Japan	0120 (421) 345
Korea	080 769 0800
Malaysia	1 800 888 848
Singapore	1 800 375 8100
Taiwan	0800 047 866
Thailand	1 800 226 008

Europe & Middle East

Austria	43 (0) 1 360 277 1571
Belgium	32 (0) 2 404 93 40
Denmark	45 70 13 15 15
Finland	358 (0) 10 855 2100
France	0825 010 700*
	*0.125 €/minute
Germany	49 (0) 7031 464 6333
Ireland	1890 924 204
Israel	972-3-9288-504/544
Italy	39 02 92 60 8484
Netherlands	31 (0) 20 547 2111
Spain	34 (91) 631 3300
Sweden	0200-88 22 55
Switzerland	0800 80 53 53
United Kingdom	44 (0) 118 9276201

Other European Countries:

www.agilent.com/find/contactus

Revised: October 1, 2009

This information is subject to change without notice.

© Agilent Technologies, Inc. 2010

Published in UK, October 11, 2010

SI-02239



Agilent Technologies