NovaCHROM 1000

Gas Chromatograph

ppm and ppb analysis using a Discharge Ionisation Detector

The new NovaCHROM 1000 GC contains the latest GC technology based around the unrivalled Discharge Ionisation Detector (DID) from AGC Instruments. The state of the art technology is a result of 50 years of experience which makes AGC Instruments a leading manufacturer in the industry. This detector is both highly accurate and reliable for the analysis of trace impurities in numerous applications. Utilising the latest advanced technologies, this GC provides customers with the precise results they require with the ease of use and support features expected.

The NovaCHROM 1000 GC uses the industry proven Discharge Ionisation Detector (DID) for the measurement of trace impurities in a various gas streams. This detector will allow measurements from ppm down to ultra low ppb levels with ease and with minimal training required. Using the new interactive touch screen, the NovaCHROM series is straightforward to use and set-up. The arrival of the new Electronic Pressure & Flow Management System has ensured all functionality is effortless and easily accessible. The constant monitoring of critical status information such as flows, pressures and temperatures is readily available to the operator and is backed up with the Alarm activation system which allows feedback locally to other locations such as the Control Room or DCS. This information allows all personnel to know that the GC is performing to specification with the peace of mind that goes with it. Therefore the NovaCHROM 1000 provides a top class performance to you at all times.

The AGC Engineering Team will custom design an analytical solution to meet your application. All systems are designed with volume optimised pipe work using only VCR compression stainless steel fittings and the flow paths are contamination free. This is coupled with the world famous precision made Vici Valco® Rotary Valves which are located in Helium purged enclosures to eliminate possible system contamination and enables the highest detector sensitivity. Therefore, this robust system ensures an excellent stability, sensitivity and a long working life.

Features

- Discharge Ionisation Detector (DID)
- Electronic Pressure & Flow Management System
- Highly Sensitive to 1 ppb [Application Dependent]
- Accuracy to ±1% of Scale
- Fast Detector Response: < 0.5 seconds (90%)
- Ideal for trace impurities in numerous applications
- Finely-tuned Detector design
- Cost Effective and Reliable
- Large Colour 6.5" LCD Touch Screen
- Long Term Stability & Sensitivity
- Fully Automated Use
- Electropolished Stainless Steel Tubing
- Integrated Configurable Alarms System
- Packed, Micro-Packed & Capillary Columns for Maximum Sensitivity
- Independent Column Ovens with individual Temperature Control
- Integrated Diagnostics System
- Full Control by TrendVision PLUS Software
- Increased Connectivity with both USB, RS-232 and RS-485
- Drop Down Front Panel for easy access during maintenance and servicing
- Low gas consumption - Economical Platform

AGC INSTRUMENTS
Gas Chromatography since 1965

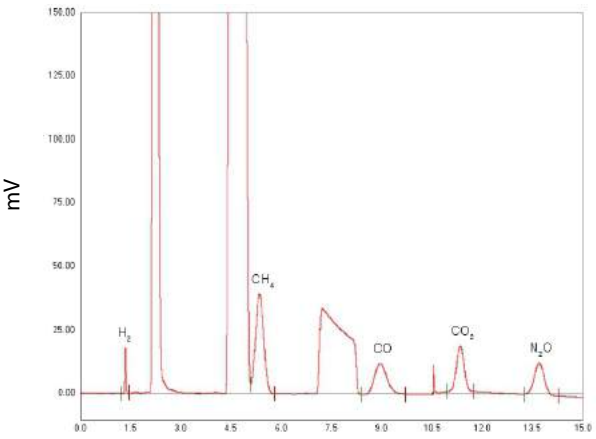
www.agc-instruments.com

Principle Of Operation

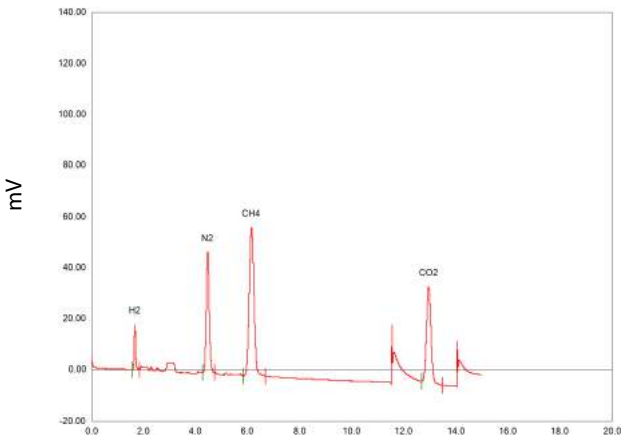
The AGC NovaCHROM 1000, using the Discharge Ionisation Detector (DID), is used to measure trace impurities within a sampled gas. Based on using a non radioactive, universal and concentration dependent design, this detector generates high energy photons through an electrical discharge in High Purity Helium. The metastable Helium then ionises all components except Helium. The level of ionisation can be measured on a data capture system, such as the AGC TrendVision PLUS Chromatography Software.

The GC design is totally application dependent comprising of a unique number of gas sampling and column switching valves typically linked to two or more column oven modules. If required, specialised gas matrix scrubbers are fitted into the chromatography path such as the AGC Hydrogen Removal Module or De-Ox Trap. Moreover, the packed columns with their independent column ovens and individual temperature controllers also maintain exceptional stability, accuracy and repeatability. The drop-down front panel for easy access to this unique column infrastructure, which can regenerate in-situ, and the electronic components provide seamless operations.

Sample Chromatogram - ppb Impurities in H_2 N6.0



Sample Chromatogram - 2ppm + O_2 Gas Mixture



Markets & Typical Applications:

- Air Separation Units
  - ppb N_2O in O_2
  - ppb impurities in O_2 / N_2 / Ar (DeOx/Auto-switch of De-Ox with parallel regeneration)
  - Hydrocarbons in O_2
  - ppb impurities in Ne / Kr / Xe
- N5, N6 & N7 Grade Gas Production & Specialty Gas Analysis
  - Certification of Calibration Gases for trace analysis
  - ppm/ppb impurities in H_2 / He / N_2 / Ar (by a single NovaCHROM unit)
  - Impurities in O_2 (N4.0 to N5.5)
- ppb impurities including Ne in He N6.0
- Cylinder & Truck Filling Locations
  - ppm / ppb impurities in H_2 / O_2 / N_2 / Ar / He
- Aerospace and Aviation Industry
- Corrosive Gas Analysis
  - ppb impurities in: SF_6 / B_2H_6 / $SiCl_4$ / AsH_3 / PH_3 / GeH_4 / SiH_4 / NH_3 / HBr / Cl_4 / BF_3 / BCl_3 /
  - Impurities in NH_3
  - Impurities in Cl_2 or HCl
- Food & Beverage
  - ppm H_2 / O_2 / N_2 / CH_4 / CO in CO_2 (ISBT and CGA specifications)
- Halocarbon Gas Analysis
  - Impurities in C_3F_8 / C_4F_8 / SF_6 / NF_3 / CF_4 / C_2F_6
- Rare Gas & Lighting Gas Analysis
  - Impurities in Ne , Kr , Xe
- Coal to Gas Processes
- Semiconductor Industry

TrendVision PLUS Software

TrendVision PLUS is the latest release of the well recognised Chromatography Data Capture Software from AGC Instruments. Rugged industrial level modular and scalable hardware is used with an Embedded Windows Operating System. TrendVision PLUS provides a unified chromatography method whereby all settings are contained in a single method, including event tables, calibration tables and integration settings. In addition, this software enables AGC GC systems to run in a fully unattended mode. It can also take control of GC systems and automatically perform the required analysis using the pre-programmed methods. This is coupled with the ability to send results back to a DCS or control room using fieldbus protocols or traditional 4-20 mA signalling. If On-Line operation is not required then the software runs equally well in its Stand-Alone mode with the same functionality and ease of use. Please consult with our specific brochure for this Software.

Specification

Detector	Discharge Ionisation Detector (DID)
Sensitivity	< 1ppb of CH_4
Linearity	10^6
Accuracy	±1% of scale
Temperature Range	Operating: 30-45°C Ambient: +10°C to +30°C
Range	< 10 ppb to 100% [Application Dependent]
Detector Response Time	< 0.5 seconds (90%)
Warm up Time	1 Hour (Typical)
Power	230 V AC / 50 Hz or 115V AC / 60Hz, 300W
Configurations	19" Rack, Bench Top or Wall Mount
Dimensions	Rack/Bench: 19" (483mm) (W) x 5U (219mm) (H) x 22" (564mm) (D)
Weight	25 kg
Interface	6.5" LCD Colour Display with LED backlight and resistive touch screen
Carrier Gas	Ultra Pure Helium (He) N6.0 : 20-60mL/min
Discharge Gas	Ultra Pure Helium (He) N6.0 : 20-50mL/min
Sample Gas	10 - 500 mL/min flow (200ml/min flow recommended)
Actuator Gas	Clean Dry Air @ 3 Bar (300 KPa) pressure
Electronic Gas Management*	5-10 Bar input: Controls Carrier Gas Output from 0-5 bar
Valves	Vici Valco® high purity rotary valves in Helium purged enclosure
Standard Fittings	1/8" Stainless Steel with Swagelok® & VCR fittings
Output Signal**	0 - 1 V
Columns	Packed, Micro-Packed and Capillary columns available
Ovens	Independent Column Ovens with individual temperature control (Regeneration in-situ)
Alarms	Detector, System, Flow, Maintenance, Temperature, Pressure
Outputs	TrendVision PLUS provides mA or Profibus/Modbus and RS - 485 connectivity

* Subject to system design/configuration

** Can be adjusted to the input specification of the customer's recorder/integrator/data handling system.
For Automatic operation, AGC Instruments recommends the TrendVision PLUS Chromatography Software System.

Sensitivity Examples

H_2	Ar	O_2	N_2	CH_4	CO	CO_2	N_2O
<15 ppb	<10 ppb	<10 ppb	<10 ppb	<1 ppb	<20 ppb	<10 ppb	<10 ppb
Ne	Kr	Xe	SF_6	CF_4	C_2F_6	C_2H_2	C_2H_4
<20 ppb	<10 ppb	<10 ppb	<10 ppb	<20 ppb	<20 ppb	<20 ppb	<20 ppb

AGC Carrier Gas Purifier

The AGC Carrier Gas Purifier (Model 75-804) is recommended for use with the NovaCHROM 1000. This 19" Rack Purifier guarantees a stable supply of carrier and detector gases with low ppb impurity levels. This ensures a longer instrument life span and better sensitivities are achieved which is essential for the operation of the NovaCHROM 1000. Please consult with the specific brochure for this instrument.

Company Profile

AGC Instruments

AGC Instruments is a leading manufacturer of Gas Analysis Solutions to all users requiring a Quality Control or identification of their gas stream. We have over 50 years experience in providing our customers with their "Total Gas Analysis Solutions". We work closely with all customers to ensure they obtain the analytical solution that meets their needs and a system that is easy to use and understand. All AGC distributors are extremely experienced and factory trained to the highest standards, offering you a complete after sales support service.

The wide range of Detectors available can be customised to measure unique gas streams and we place an emphasis on the continuous development of our analytical solutions. Our worldwide reach with strategic partners ensures that you have peace of mind and after sales care that are important to your operations.

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Gas Chromatography since 1965

nqa ISO 9001 Registered Quality Management
UKAS MANAGEMENT SYSTEMS 015

Aftersales Care

AGC Instruments are committed to providing and maintaining quality systems from customer liaison to technical knowledge through to System Design and Delivery. We believe that our After Sales Support to the customer is one of the most important services we can offer. Each Distributor has been carefully selected and trained to ensure our customers receive the best possible service. Furthermore, online customer support and direct support are available to deliver a comprehensive support package.

Range of Detectors

Discharge Ionisation Detector	DID	1000
Argon Discharge Detector	ADD	2000
Flame Ionisation Detector	FID	3000
Thermal Conductivity Detector	TCD	4000
Flame Photometric Detector	FPD	5000
Photometric Ionisation Detector	PID	6000
Electron Capture Detector	ECD	7000

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