

novAIR 4000

V2.2
24-02-2023

Complete GC System For Precise Gas Analysis



www.agc-instruments.com

Features

- Wall Mounted Single Channel
- Small Footprint - 600 mm x 600 mm x 350 mm
- Painted Mild Steel Enclosure with front lockable door
- Fast Analysis Time
- Capillary, Micro-packed or Packed Columns can be used
- Large 10" Capacitive Colour Touch Screen
- Digital Display of all Temperature, Pressure and Flow Measurements
- Modern Embedded Computer Control & Operating System included
- Proven TrendVision Software Platform
- Results automatically displayed as Digital Panel Meters (DPM) / TrendLines / Chromatogram
- 10 point multi-point calibration curve can be saved
- 1000 data points storage capability
- Outputs available include: 4-20mA, Profibus, Modbus and Ethernet
- Multiple Independent Temperature Controlled Ovens
- Column Regeneration In-Situ
- All Gas Lines have pressure/flow switches with particle filters
- Rotary or Diaphragm Valves depending on the application for extended life usage
- Swagelok® fittings throughout
- 1/8" Stainless Steel Tubing used
- Solenoid Switching Enabled
- Non-heated and Heated Versions available
- Analysis from % to ppm
- Easy to Use & Service
- Low Cost of Ownership
- Internal Cooling of Enclosure available if required
- Corrosion Resistant Materials used if required
- Seamless Integration onto a Distributed Control System (DCS)
- Easy Connection to Sample Conditioning System
- Power: 110/220V, 50/60Hz
- ATEX Versions available for Zone 1 and Zone 2
- Other detectors available to cover a wide range of applications.

Overview

The NovaAIR range of Gas Chromatographs were delivered to the market to meet our customers' requests for single detector applications which could be wall mounted in a Shelter or Analyser House where space was at a premium. These self-contained complete GC systems with rugged industrial hardware are ready to use with no support infrastructure required. These systems are also available as ATEX certified solutions for use in the hazardous areas of Zone 1 and Zone 2 classification.

The NovaAIR 4000 GC System is primarily used for the precise analysis of the components in multiple gas mixtures at percentage and ppm levels. Based on tried and tested technologies, in-depth reporting back to the Control Room or DCS is consistent and seamless.

The NovaAIR 4000 GC uses the Thermal Conductivity Detector (TCD) which has a wide range of applications, some of which are listed below:

- H₂ Analysis
- N₂ Pharmacopeia
- Hydrocarbon Processing
- Laser Gas Analysis
- Medical Gas Analysis
- Food Gas Analysis
- Percentage (%) analysis of gas mixtures
- Corrosive Gas Analysis
- Refrigerants Gas Analysis
- Rare Gas Recovery
- Syngas
- Biogas

GC-TCD Principle

The AGC Thermal Conductivity Detector (TCD) has four sensing elements which are connected to form an electrical Wheatstone bridge circuit. These elements are typically miniature rhenium-tungsten filaments which are mounted in a metallic cell block. A flow through type thermal conductivity cell is normally used in this analyser. This cell contains a sample and reference gas flow geometry and two elements are installed in each flow system. An electrical current from a regulated power source heats the elements. Changes in thermal conductivity of the sample gas result in an output voltage change which is measured on the AGC TrendVision Chromatography Software installed within the GC System.

Linearity	>10 ⁴
Sensitivity	<5ppm
Detector Response	<0.5 seconds (90%)
Accuracy	±0.5% full scale

Gases Required:

Sample Gas	10 - 500 mL/min
Carrier Gas	He , Ar , H ₂ or N ₂
Actuator Gas	Clean Dry Air @ 3 bar (300 kPa) pressure

TrendVision Software

TrendVision is the complete embedded chromatography software package which is used worldwide in AGC's industry-proven gas chromatographs. TrendVision 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 the NovaAIR GC 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.

Specification



Measuring Range	<ul style="list-style-type: none"> ■ % or ppm (selectable)
Operating Temperatures	<ul style="list-style-type: none"> ■ -10° to +50° Celsius
Enclosure	<ul style="list-style-type: none"> ■ Mild Steel Painted, with front secured door (all-round foamed-in PU seal) ■ Dipcoat primed, powder-coated on the outside, textured paint
Mounting	<ul style="list-style-type: none"> ■ Wall Mount (mounting bracket & bolts kits included)
Dimensions	<ul style="list-style-type: none"> ■ W = 600mm, H = 600mm, D = 350mm
Weight	<ul style="list-style-type: none"> ■ 49 Kg
Power Supply	<ul style="list-style-type: none"> ■ Voltage: 110V/220V, 50/60Hz Wattage: 1440 W
Detector	<ul style="list-style-type: none"> ■ Thermal Conductivity Detector (Others also available; please contact us)
Gas Lines	<ul style="list-style-type: none"> ■ 1/8" Stainless Steel tubing throughout ■ Other Corrosion Resistant Materials also available
Fittings	<ul style="list-style-type: none"> ■ 1/8" Swagelok®
Valves	<ul style="list-style-type: none"> ■ Stainless Steel / Hastelloy Rotary or Diaphragm Valves ■ 10 Port / 8 Port / 6 Port / 4 Port available depending on the application ■ Air Actuated and Controlled via TrendVision Software ■ Long Lifespan
Columns	<ul style="list-style-type: none"> ■ Capillary / Micro-Packed / Packed Columns ■ Independent Temperature Controlled Column Ovens ■ Regeneration of Columns without removing from Column Oven
Sample Flow	<ul style="list-style-type: none"> ■ 10 - 500 mL/min (200 mL/min flow recommended)
Sensitivity	<ul style="list-style-type: none"> ■ < 5 ppm
Zero Drift	<ul style="list-style-type: none"> ■ Auto-zero for each cycle
Span Drift	<ul style="list-style-type: none"> ■ 1 ppm over 48 hours (ppm application)
Repeatability	<ul style="list-style-type: none"> ■ Excellent Repeatability with Auto-Calibration function in TrendVision
Linearity	<ul style="list-style-type: none"> ■ >10⁴
Alarms	<ul style="list-style-type: none"> ■ High and Low Alarm Outputs (Optional) ■ Common Fault Alarm available ■ Sample & Carrier Gas alarms ■ Temperature Zone Alarms ■ Maintenance Mode Status Alarm
Computer Software/Hardware	<ul style="list-style-type: none"> ■ Embedded Industrial Computer - 24 bit ADC and associated hardware ■ Intel® Celeron® (quad core, 2.0 GHz), 4GB DDR3L SDRAM, 128Gb SSD storage ■ Large Industrial Grade Colour 10" Capacitive Touch LCD ■ Embedded Windows Operating System in English ■ AGC TrendVision Chromatography Software ■ Other Languages Available
Input Options	<ul style="list-style-type: none"> ■ 0-10V Analog Inputs (8) ■ 4-20mA Analog Inputs (8) ■ Digital Inputs (4)
Output Options	<ul style="list-style-type: none"> ■ 4-20mA Analog Outputs ■ Profibus / Modbus Interface ■ RS232 / RS485 ■ TCIP/IP (Ethernet) ■ Status Relays ■ Power Failure Indication
Testing	<ul style="list-style-type: none"> ■ Burn-In Test on Electronic Parts & Assemblies under Simulated Conditions ■ System Performance monitored before, during and after the testing ■ Insulation Test / Voltage Proof Test & Voltage Variation Test
Certifications	<ul style="list-style-type: none"> ■ CE Certified ■ ATEX Certified ■ Manufactured under the auspices of ISO 9001:2015



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.

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.



Hazardous Zones

Zone 1 ATEX Certification

Certificate Numbers: CSANe 20ATEX1111X

Certifying Body: CSA Group Netherlands

Equipment Marking:

II 2G Ex pxb IIB+H2 T3 Gb
 2813



Zone 2 ATEX Certification

Certificate Number: CSANe 20 ATEX M803

Certifying Body: CSA Group Netherlands

Equipment Marking:

II 3G Ex pzc IIB+H2 T3 Gc



Zone 1 & 2 IECEx Certification

Certificate Number: IECEx SIR 20.0039X

Equipment Marking Zone 1: Ex pxb IIB+H2 T3 Gb

Equipment Marking Zone 2: Ex pzc IIB+H2 T3 Gc



AGC Headquarters

Unit 2, Shannon Free Zone West, Shannon,
Co. Clare, V14 PX03, Ireland

T: +353 61 471632 F: +353 61 471042

E: sales@agc-instruments.com

www.agc-instruments.com

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