

# NOVASTREAM 6000

## Gas Analyser



N<sub>2</sub>

### ppm and ppb analysis using Advanced Plasma Detector



The new NovaSTREAM 6000-N<sub>2</sub> Gas Analyser from AGC Instruments is based around the unrivalled Advanced Plasma Detector. This detector is both highly accurate and reliable for the continuous monitoring of N<sub>2</sub> in Ar or N<sub>2</sub> in He. Utilising the latest advanced technologies, this analyser provides customers with the precise results they require with little effort.

The Advanced Plasma Detector provides measurements to less than 250 ppb with speed. Using the large colour interactive touch screen, the NovaSTREAM 6000-N<sub>2</sub> analyser is straightforward to use and set-up with all functionality easily accessible and navigable with minimal training required.

With the integration of Flow Sensors, a Pressure Release Valve and 7 voltage free alarm relay contacts, including one for the sample flow, all critical monitoring is automated and provides peace of mind to the operator. Further verification is provided by voltage free contacts for switching in calibration gas inputs externally to support the auto-calibration routine. Both Calibration and Alarm records are maintained also with a fall-back option to restore factory settings. Therefore, the NovaSTREAM 6000-N<sub>2</sub> provides peace of mind and an exceptional performance at all times.

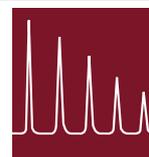
The precise results obtained from this analyser can be transmitted via an array of communication modules such as: 4-20mA (2 off), mV Signal, USB (2 off) and VGA outputs. Active 4-20mA, Ethernet, RS-232 and RS-485 outputs are also available as optional extras. This allows the analyser to be integrated seamlessly into all analytical infrastructures worldwide.

The modular design with a drop-down front panel for easy access to the electronics allows for trouble-free maintenance and servicing. It is both cost effective and reliable with a low cost of ownership due to the low gas and power consumption. The AGC Engineering Team will custom design and test an analytical solution to meet your application and all systems are designed with volume optimised pipe work using only 1/8" VCR face seal fittings. Therefore, this robust system ensures an excellent stability, sensitivity and a long working life.

### Features

- Advanced Plasma Detector (APD)
- Finely-tuned Detector with Minimal Drift & Noise
- Highly Sensitive to < 250 ppb
- Fast Detector Response: < 5 seconds (T<sub>90</sub>)
- Long Term Stability & Sensitivity
- Large Colour 6.5" LCD Touch Screen
- Fully Automated use with intuitive GUI
- Integrated Configurable Alarms System with Alarm Record
- Added Sample Flow Alarm
- Integrated Diagnostics System
- Flow Sensors and Pressure Release Valve
- Voltage free contacts for switching in calibration gas inputs externally
- Auto-Calibration Routine with Calibration Record
- Internal storage of results up to 24 months and data trending via PC
- 2 x 4-20mA, 1 x mV Signal
- VGA & 2 x USB Outputs
- Active 4-20 mA option
- Increased Connectivity with Ethernet, RS-232 and Modbus TCP/IP options
- Modular System Design & Drop-Down Front Panel for easy maintenance and servicing
- Cost Effective and Reliable
- Economical Power Usage (< 100 Watts) & Gas Consumption (minimum inlet pressure of only 10 kPa)
- Restore Factory Settings function for peace of mind.

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Gas Chromatography since 1965



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## Principle Of Operation

The NovaSTREAM 6000-N2 Analyser is designed for the continuous monitoring of N<sub>2</sub> in Ar or N<sub>2</sub> in He. It is a significant upgrade to its successful predecessor which has a large installation base in argon and helium specific applications throughout the world.

Based on the Advanced Plasma Detector technology, this N<sub>2</sub> specific detector uses a combination of unique focussing/stabilising and electron injection electrodes. This is complemented by a spectral compensation algorithm and a closed loop force-driven plasma generator.

The focussing/stabilising and electron injection electrodes control the energy in the plasma by improving the ionisation efficiency. Then, the spectral compensation algorithm eradicates the errors in measurements caused by the flow and ambient pressure variations which are inherent in traditional plasma emission technologies. This is due to a change in power distribution in the plasma and the embedded algorithm overcomes that issue by continuously adjusting the power distribution and consequently compensating for the plasma-based emission fluctuation.

As a result of these developments, and when combined with the use of a moisture trap, the detector is not affected by moisture or other impurities in the sample background. This is because it solves the problems of baseline fluctuation due to pressure variations, and the impacts of quenching molecules such as H<sub>2</sub>O in the measurement. Drift and Noise are reduced substantially as a result.

## Typical Applications

- Argon or Helium Purification Plants
- Steel Industry
- Air Separation Units
- Welding Gas Manufacturing
- Specialty Gas Manufacturing Plants
- Doping Gas Manufacturing
- Filling Stations for Cylinder & Trucks
- Semiconductor Industry
- Chemical Plants
- Wafer Fabs in Electronic Industry



## Sample Handling

The NovaSTREAM 6000-N2 Analyser requires a Moisture Trap on the Sample Inlet connection which can be supplied by AGC Instruments. This will protect against the detrimental effect of H<sub>2</sub>O on the measurement in terms of quenching, and subsequently reduces the drift and noise.

A Zero Calibration Gas is also essential and use of the AGC NovaPURIFIER Zero Gas Purifier is recommended. This 19" Rack (3U) Purifier links seamlessly with the NovaSTREAM 6000-N2 analyser and guarantees a stable supply of zero calibration gas (purified to Grade N6.5 or better) with low ppb impurity levels. This ensures that consistent and highly accurate readings are achieved which, in turn, leads to a longer instrument life span. Furthermore, better sensitivities are achieved which is essential for the successful operation of the NovaSTREAM 6000-N2 analyser.

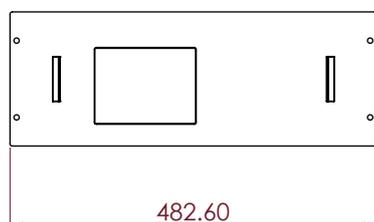
Please consult with the specific brochure for the AGC NovaPURIFIER. AGC Instruments can also discuss any other sample handling issues you may have.



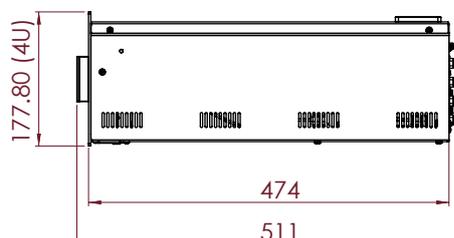
| Specification                      |   |
|------------------------------------|---|
| Detector                           | Advanced Plasma Detector (with Spectral Compensation)   |
| Range for N <sub>2</sub>           | 0 - 100 ppm   |
| Limit of Detection (LOD)           | < 250 ppb   |
| Precision                          | ± 1% of Range   |
| Repeatability                      | ± 1% of Range   |
| Response Time                      | < 5 seconds for 90% step change @ 75 mL/min   |
| Interface                          | 6.5" Industrial Grade Colour Touch Screen Control   |
| Outputs /<br>Communication Modules | 2 x 4-20mA outputs (Isolated)<br>1 x mV Signal output<br>1 x RS-232<br>2 x USB<br>VGA<br>RS-485 (Modbus/Profibus)* (option)<br>Ethernet* (option)<br>1 x 4-20mA output (Active)* (option) |
| Alarms                             | 7 x Voltage Free Alarm Relay Contacts (including one for sample flow)<br>Alarm Record   |
| Calibration                        | Auto-Calibration Routine* (option)<br>Voltage Free contacts for switching in the calibration gas inputs externally<br>Calibration Record  |
| Data / Results                     | Data Trending via PC connection and 24 months internal storage  |
| Gas Connections                    | 1/8" VCR Face Seal Fittings   |
| Sample Flow                        | 5 mL/min to 200 mL/min<br>Flow Sensors installed  |
| Inlet Pressure Range               | 10 kPa to 50 kPa  |
| Operating Temperature              | 5° to 45° Celsius   |
| Power Supply                       | 100 - 120 VAC / 220 - 240 VAC, 50/60 Hz   |
| Power Consumption                  | ≤ 100 Watts   |
| Weight                             | 9 Kg  |
| Dimensions                         | 482 (W) x 511 (D) x 177 (H) - 4U 19" Rack   |

\* Optional Extras - Subject to system design/configuration

**FRONT VIEW**



**SIDE VIEW**



## Company Profile

### AGC Instruments Ltd.

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 59 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.

Proven Technology

Precision

Guaranteed Applications

Flexible & Versatile Solutions

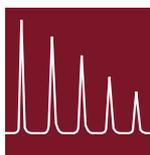
High Sensitivity Analysis

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## 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.

## NovaSTREAM 6000 Applications

Total Hydrocarbons Analysis

% Ar in O<sub>2</sub> Analysis

Trace N<sub>2</sub> in Ar/He Analysis

% O<sub>2</sub> Analysis

ppm H<sub>2</sub>O Analysis

ppm O<sub>2</sub> Analysis

ppm CO<sub>2</sub> & N<sub>2</sub>O Analysis



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