

NuVo 200™

Specification sheet

NuVo 200 is a method-compliant, inert system for automated canister and on-line sampling of ozone depleting substances and greenhouse gases

1. System features

- **Dual focusing traps** for the quantitative pre-concentration and analysis of NF_3 , CF_4 , and other VOC species.
- **Cryogen-free operation** with trapping at temperatures $< -100^\circ\text{C}$
- **High- and low- concentration samples**
 - Sample volumes: 5 mL upwards (using MFC).
 - Sample channels: 14.
 - Upgradeable to 27 channels with CIA Satellite-xr.
- **Compatible with gas-phase samples** ranging in pressure from below atmospheric to 50 psig.
- **Standalone automatic sampling and pre-concentration** that can be connected to any make of GC and GC-MS.
- **Multi-Gas enabled** – compatibility with helium, hydrogen and nitrogen carrier gas provides the flexibility to meet operational and analytical priorities.
- **Internal standard capability** allows either a precise aliquot (via a 1 mL loop) or a metered volume (5–500 mL) of gaseous standard to be added to the focusing trap prior to sampling.
- **Overlap mode** (desorption of a subsequent sample while a previous sample is still running) optimises productivity.
- **Electronic mass flow control** is used for sample and split flows. Set and actual sampling flows are displayed and continuously updated in the software.



- **Heated, inert internal sample flow paths** eliminate risk of condensation and carryover, allowing high and trace level samples to be analysed in the same sequence without the need for dilution.
- **Leak test:** automatic checks of the instrument without user intervention including both focusing traps and split flows to ensure sample integrity and provide data confidence.
- **In-line Nafion dryer** for monitoring non-polar compounds in humid atmospheres.
- **Overlap mode** desorption of a subsequent sample while a previous sample is still running optimises productivity.
- **Intelligent PC-based software** features continuous system-health monitoring and automated self-diagnostic, as well as preventative maintenance feedback which indicates when parts could be replaced to avoid instrument downtime.

2. Physical

- **Dimensions and weight**
 - Height: 55 cm (22")
 - Width: 71 cm (28")
 - Depth: 54 cm (21").
 - Weight: 65 kg (143 lb)

3. Gas selection

- **Carrier gas**
 - 0 to 60 psig of helium or hydrogen (at 2 to 500 mL/min), or nitrogen (at 2 to 250 mL/min. Grade 5.5 or higher.
- **Sample gas**
 - Air, helium, nitrogen, and hydrogen
- **Pneumatics gas**
 - Dry (dew point –50°C or below) air or nitrogen in the range 50 to 60 psig

4. Sampling Flows

- MFC and pump controlled
 - 2 to 500 mL/min*. Adjustable in 1 mL/min increments.

5. Operating Temperatures

- Valve and transfer line: 50°C to 150°C
- Trap low: -100°C (minimum) to 50°C
- Trap high: 35°C up to 350°C (maximum)
- Heat rate: Up to 100°C/s

6. Environmental operating conditions

- Temperature: 15°C to 30°C.
- Relative humidity: 5 to 80% RH (non-condensing).
- Altitude: Up to 2000 m (~6500 ft).

7. Operating requirements

- Power: 100–240 V, 50/60 Hz, 2200 W (NuVo 200 self-adjusts to local voltage input).

8. Minimum PC Specification

- For TD control:
 - CPU: 1 GHz 64-bit dual-core or better.
 - RAM: 4 GB.
 - Hard disk space: 2 GB.
 - Graphics card: DirectX® 9 or later.
 - Display: 1024 × 768 display.
 - Operating system: Windows® 10 or 11 64-bit, English.
 - Other requirements: Windows-compatible keyboard and mouse, one free USB.

9. Safety and regulatory certifications

- The instrument is designed and manufactured under a quality system registered to ISO 9001.
- The instrument complies with the essential requirements of the following applicable European and North American Directives, and carries the CE/UKCA marks accordingly:
 - Low Voltage Directive 2014/35/EU.
 - EMC Directive 2014/30/EU.
 - ROHS Directive 2015/863/EU.
- The instrument conforms to the following product safety standards:
 - IEC 61010-1:2010/EN 61010-1:2010.
- The instrument conforms to the following regulation on electromagnetic compatibility (EMC):
 - IEC/EN 61326-1:2021

10. System options

- **U-NUVO-200-6H-XR:** NuVo 200 bundle with dual focusing trap modules, CIA *Advantage*-xr HL Multi-Gas, and Nafion dryer.
- **U-NUVO-200-UPGD-XR:** NuVo 200 upgrade for CIA *Advantage*-xr HL. Includes dual focusing trap modules.

* Sampling flow rates ≥ 250 mL/min may not be attainable under all operational conditions. Factors affecting the maximum sampling flow rate will include the type of focusing trap and any sampling accessories connected to the sample inlet.

11. Accessory and upgrade options

Pump bundle

(U-NUVO-PUMP-1/U-NUVO-PUMP-2/U-NUVO-PUMP-3) to pull sample gas through the dual traps and operate vacuums (Required).

Heated sample lines (U-HTLNKT) extends the sample inlets by 2 m. Recommended for the analysis of compounds that can condense at room temperature.

CIA Satellite-xr (U-CIASAT-H-XR): The CIA Satellite-xr provides capacity for an additional 13 channels.

Humidifier (U-HUMID): Supplies humidified carrier gas to flush the flow path, thereby further reducing carryover.

Canister rack (U-RACK02): Markes' floor mounted Maxi Rack holds up to 15 canisters (14 samples and one internal standard) up to 6 L in size. See separate specification sheet for more details.

For more information about our products and services, please visit www.markes.com.

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