

UGAPM100, UGAPM200, UGAPM300

Технические характеристики

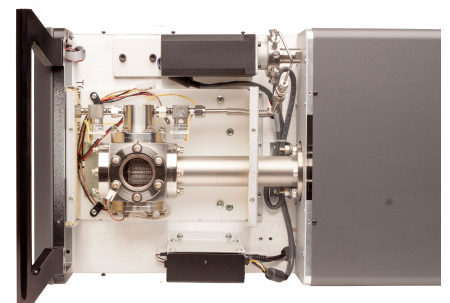
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Process Monitoring

UGAPM series — Up to 300 amu

- 1 mTorr to 20 Torr range
- 100, 200 and 300 amu systems
- <1.5 second response time
- Multi-point analysis
- Multi-range applications
- Almost zero dead volume
- System bakeout
- Sample line heating



UGAPM Series Process Monitoring Systems

The UGAPM Series Process Monitoring Systems are modern mass spectrometers designed for the analysis of process gases. They operate from 20 Torr to 1 mTorr. The inlet continuously samples gases at low flow rates (about 5×10^{-5} mbar L/sec) making the instrument ideal for on-line analysis.

UGAPM applications include CVD/PECVD/RIE/LPCVD/MOCVD, vacuum coating/ plasma etching, evaporation, sputter deposition, vacuum heat treatment, target burn-in, leak detection/ virtual leaks/ desorption, contamination studies, small volume analysis (0.1 mL range), etc.

These analyzers are also simple to operate and maintain. All the components can be controlled from the front-panel or a remote computer. In UGAPM systems, a SS capillary of 1/16" or 1/8" OD is used to accommodate mid-vacuum sampling. With this configuration, there is almost zero dead volume between the process chamber and the analyzer.

Principle of operation

The UGAPM system uses a single stage capillary pressure reducing inlet to sample gases from 1 mTorr to 20 Torr. After the pressure is reduced to around 10^{-6} Torr, the gas stream is sent to a mass spectrometer (residual gas analyzer—RGA) which measures the concentration of each mass of interest.

The UGAPM Windows software provides a graphical user interface for complex graphing

and data analysis. The software also allows remote control of the system's valves, heaters and pumps.

Multi-capillary inlet

An optional multiple inlet valve is available with two possible configurations. One is the multichannel configuration, which may be applied for one specific sample pressure at various places. The other is the multi-range configuration, which may be applied for various ranges of the sample pressure.

Using your UGAPM

The UGAPM system can be controlled from the front-panel or from a computer. A choice of manual or auto-control of all system components is provided.

Data is measured and displayed using the UGAPM software. The intuitive user interface allows measurements to be made quickly and easily. Data is captured and displayed in real-time, or scheduled for acquisition at a specified time.

Features include analog and histogram scan modes, pressure vs. time plots, leak detection, gas library, and on-line help.

RGA parameters can also be controlled and monitored through a high-level ASCII command et. Standard RS-232 and Ethernet interfaces are used as the data link to your PC.

Best value

The UGAPM Analyzers offer the best value of any system currently available. They provide more performance, better features, and are priced well below the competition.

UGAPM Specifications

Inlet

Type	Stainless steel capillary, two extra 2-3/4" CF ports
Flowrate	10^{-4} to 10^{-5} Torr-L/sec at application pressures
Pressure	selectable from 1×10^{-3} mbar to 15 mbar

Mass Spectrometer

Type	Quadrupole (RGA)
Detector	Faraday cup and electron multiplier
Range	100, 200 or 300 atomic mass units (amu)
Resolution	Better than 0.5 amu at 10 % of peak height
Detection limit	<10 ppm with Faraday cup detector, <1 ppm with electron multiplier

Operating pressure 10⁻⁴ mbar for FC, 10⁻⁶ mbar for CDEM

Connections

Sample Inlet 1/16" or 1/8" Swagelok fitting
Exhaust 1/4" Tygon tube adapter
Computer Ethernet or RS-232C, DB9 connector
Power 3 pin grounded cable

UGA software

Software Windows application. Controls UGAPM system including RGA.

System

Pumps Hybrid turbomolecular/drag pump, 81 liter/s. Ultimate pressure 2 x 10⁻⁹ mbar.
Diaphragm pump with ultimate pressure less than 7 mbar. Protection class IP44

Materials

Construction SS304 and SS316
Insulators Alumina, ceramic
Seals Viton[®], buna-N, and nitrile butyl rubber, copper gasket
Miscellaneous Aluminum, Tygon[®]

General

Startup time 8 minutes from full stop
Max. ambient temp. 35 °C
Power requirement <600 W, either 110 V / 60 Hz or 220 V / 50 Hz (not field selectable)
Dimensions 12 " × 11 " × 27 " (WHL)
Weight 75 lbs
Warranty One year parts and labor on defects in material or workmanship. Pump seals and diaphragm warranted for 90 days.

Ordering information:

UGAPM100 100 amu Process Monitor

UGAPM200 200 amu Process Monitor

UGAPM300 300 amu Process Monitor

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