



Vision 1000-B™

VACUUM BASELINE MONITOR FOR PROCESSTOOLS

The Vision 1000-B is designed to track levels of potentially damaging residual gases that can negatively impact the quality of product – for example, aluminum deposition can be negatively impacted by the presence of O₂ and H₂O, which can lead to poor bulk film characteristics and surface roughness. The Vision 1000-B features “smart head” technology - the electronics unit mounts directly onto the analyzer head, and connects to the system PC via an RS232C interface. The open ion source analyzer incorporates twin filaments, where the second "back-up" filament enables continued operation in the event of a filament failure. The user serviceable analyzer design allows the ion source to be removed and dismantled for cleaning. The standard system includes a double-filter analyzer for increased sensitivity of higher mass species, contamination resistance and enhanced long term stability. In addition, standard systems are equipped with a heater jacket and pneumatic isolation valve. Options include a 3-way pneumatic valve for manual control of isolation inlet valve, providing Vision 1000-B systems with the flexibility to fully satisfy the application requirements of any vacuum baseline RGA process.

Features & Benefits

- 100 amu standard mass range, 200 amu and 300 amu optional mass ranges
- Standard housings and heater jacket to meet needs of any process tool and vacuum baseline application
- Available with Process Eye Professional™ software for
 - Automated, recipe based operation
 - User configurable, intelligent alarms
 - High level tool integration
 - Advanced data presentation (i.e. simultaneous bar chart/trends screen displays)
- Simultaneous multiple-sensor operation capability

Applications

- The Vision 1000-B™ is an application-specific instrument designed to monitor vacuum pumpdown, baseline, and leakback conditions on semiconductor and thin film process tools, and to alert of conditions that can negatively impact product yield. In addition, the Vision 1000-B provides the information required to optimize vacuum quality with
- Residual gas monitoring, including air and water
 - Contaminant monitoring, including hydrocarbons



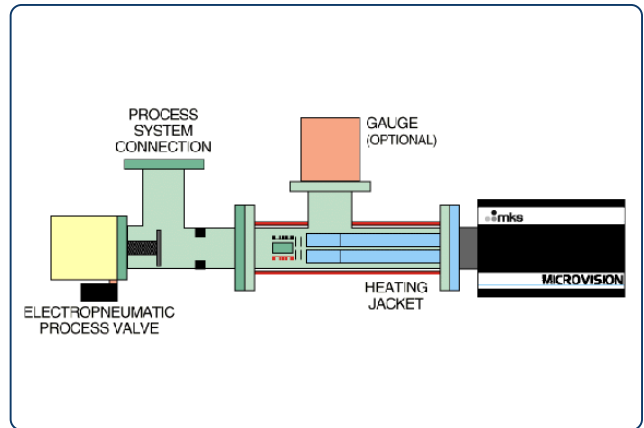
Process Eye Professional™ Control Platform

The Vision 1000-B analyzer uses Process Eye Professional, a highly flexible, 32-bit modular application operating under Windows NT® 4.0, 98, Millennium, 2000 or XP. Designed with a “client/ server” structure, Process Eye Professional incorporates TCP/IP protocol for full network compatibility.

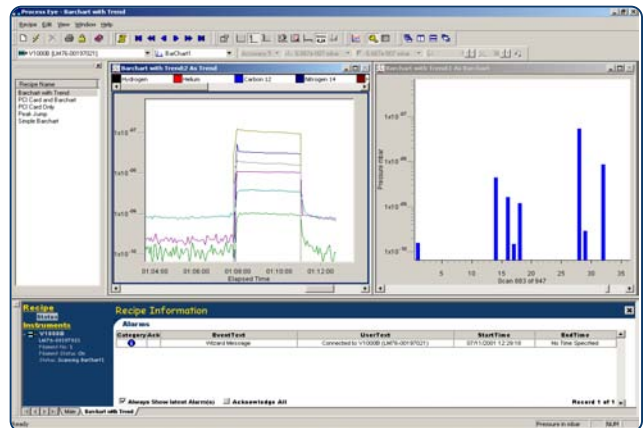
Process Eye Professional uses recipes to specify the way in which the instrument scans, displays data, and responds to the data acquired. Recipes are user configurable using the “Recipe Wizard” and are ideal for monitoring the various phases of repetitive recipes. Recipes can be linked together to address different monitoring conditions or to facilitate automatic calibration (using pre-defined calibration recipes). The single button push (or external signal) initiation of a Process Eye Professional recipe eliminates the need for highly skilled, full time operators. The flexibility of Process Eye Professional allows recipes to be configured that will

- Define data acquisition and data display parameters
- Display data in simultaneous “bar chart” and “data trend” formats, allowing the comprehensive and clear investigation of significant trend events
- Incorporate custom warnings and alarms, triggered or terminated when data highlights that process conditions have deviated from normal conditions or when specific events occur (e.g. valves opening/closing)
- Monitor and display other parameters as trends, in relevant units (temperature, gas flow rate, power, pressure, etc.) which are linked into the Vision 1000-B analyzer through its flexible analog and digital I/O

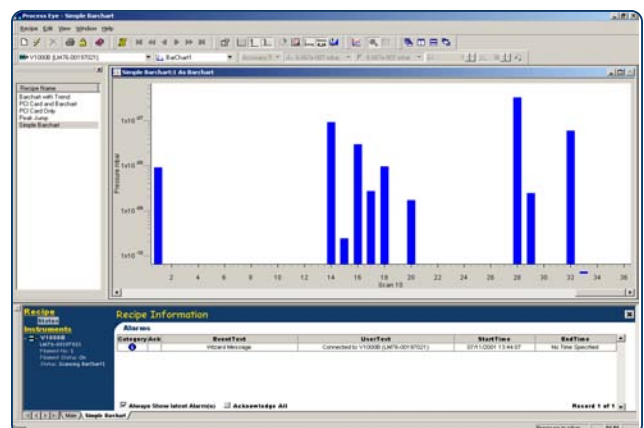
In addition, Process Eye Professional provides “live history” for quick on-line review of data trend events. Recently captured bar chart spectra are stored in a data buffer and can be reviewed by moving a cursor over the associated trend plot.



Vision 1000-B Vacuum Baseline Monitor System Schematic



Simultaneous log bar chart/trend analysis display, illustrating wide dynamic range scanning



Standard bar chart mode with log pressure axis



Specifications

Performance

Mass Range Options	1-100 amu standard; 1-200 amu, 1-300 amu optional
Detector System	Dual (Faraday and Secondary Electron Multiplier)
Maximum Operating Pressure	1×10^{-4} Torr
Minimum Detectable Partial Pressure	Faraday: 2×10^{-11} Torr (2.7×10^{-11} mbar) Secondary Electron Multiplier: 5×10^{-14} Torr (6.7×10^{-14} mbar)
Mass Stability	Better than ± 0.1 amu over 8 hours at stable ambient temperature
Resolution	Better than 10% valley between peaks of equal height throughout the mass range

Analyzer & Housing

Bakeout Temperature & Bakeout Jacket	Included for 200°C bakeout. 175w at 100-120Vac or 200-240 Vac.
Mounting Flange	DN35CF (70mm/2.75" OD) Conflat® flange
Ion Source	Open ion source
Filaments	Replaceable twin Tungsten or Thoria filaments
Vacuum Hardware	Analyzer housing plus pneumatic isolation valve. Optional independent total pressure gauge and/or valve and filament trip-box assemblies available for interlocked protection of the RGA.
Mass Filter	Double filter (1" RF only pre-filter with 4" main filter)
Pneumatics	60-80 psig CDA

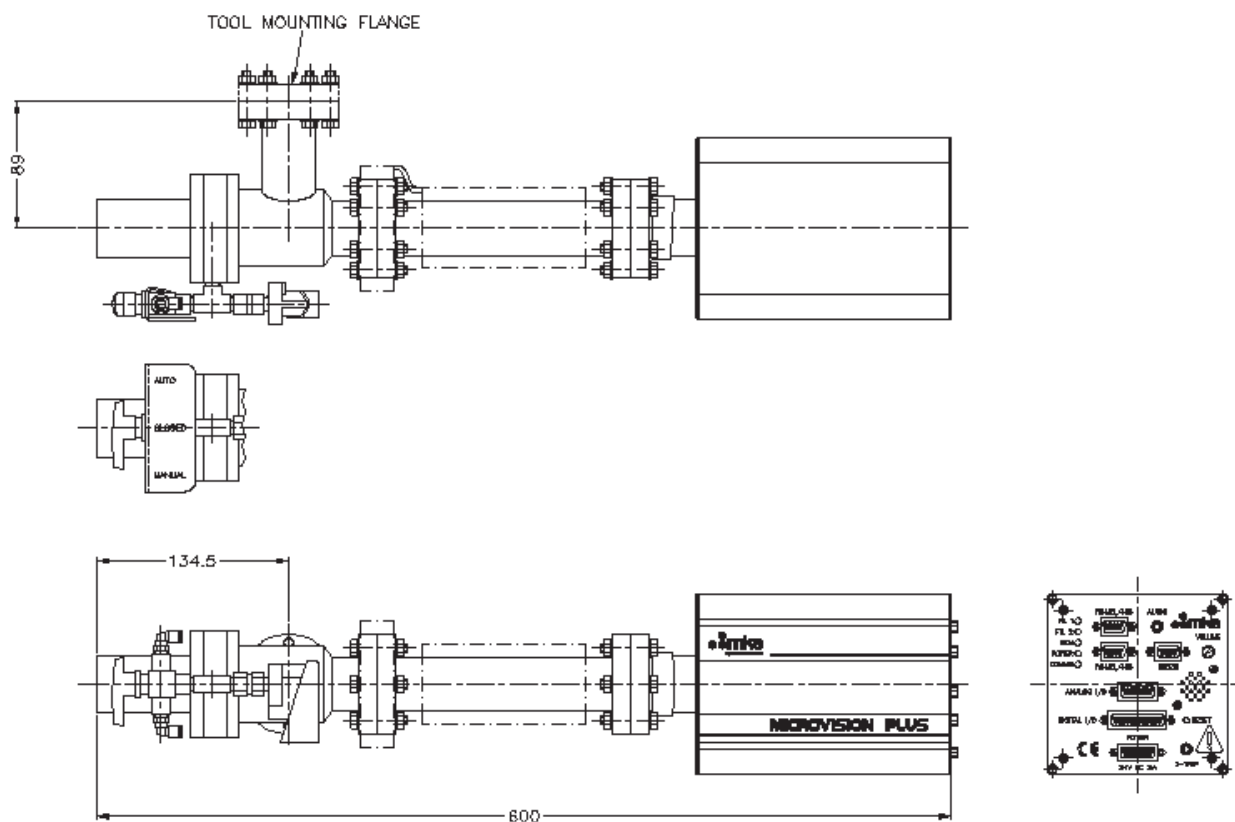
Control Unit

Control Module Weight	2.1 kg
Power	24 VDC, 3.4A, external supply (included), 100-120V/200-240V, 2.1 Amp, 47-63 Hz
Maximum Ambient Operating Temperature	35°C, 80% RH (non-condensing)
LED Status Indication	Filament 1, filament 2, SEM, power and communications
I/O Capability	4 analog inputs (0-10V, 16 bit), 1 analog output (0-10V, 16 bit), 16 digital TTL I/O, 1 opto-isolated filament control input
I/O Capability (optional PC based)	Generic I/O card support for ISA slots, DTS300 I/O card support for PCI slots. Modbus/GEM SECS support for some product configurations.
Other Facilities	Leak check headset socket with audio adjustment, external filament trip, speaker and socket, instrument reset
Software	Process Eye Professional fully network compatible control platform generating under Microsoft® Windows® NT® 4.0, 98, Me, 2000* or XP* (*recommended)
Communications (baud rate & max. distance)	RS232C [9600 baud, 15m (50 ft.)], RS422 [115,000 baud, 1.2 km (4000 ft.)]
Minimum PC Specification Required	Intel® Pentium III® 450-800 MHz, 64-256 MB RAM, 6-12 GB disk free space drive. Multi-sensor installation may require higher specifications.
RS232 Cable to PC	10 meter (30 ft) cable included, optional lengths available
Simultaneous Multi-Sensor	Process Eye Professional client/server configuration offers flexible multi-sensor operation where each server module can accommodate "intelligent com cards" with up to 32 serial ports
Total Shipping Weight	25 lbs (11.4 Kg)



Ordering Information

Please contact your local MKS office for price and availability information.



Dimensional Drawing —

Note: Dimensions are nominal values in millimeters.



Global Headquarters

2 Tech Drive, Suite 201
Andover, MA 01810
Tel: 978.645.5500
Tel: 800.227.8766 (in U.S.A.)
Web: www.mksinst.com

MKS Gas Analysis

70 Rio Robles
San Jose, CA 95134
Tel: 408.750.0300

Spectra™ Products, UK
Cowley Way
Crewe, Cheshire CW1 6AG
Tel: +44.1270.250150