INFICON

MAXIMIZE YIELD AND MINIMIZE SCRAP IN REAL TIME

Transpector® XPR 3+

GAS ANALYZER

Innovation by Sensorization

The increasingly competitive semiconductor and display manufacturing landscape drives the constant need for maximizing throughput and yield. Higher performing semiconductors require increased manufacturing complexity, resulting in higher costs. Transpector® XPR 3+ optimizes throughput and yield by providing real-time wafer and panel protection for PVD and Sputtering processes.

MONITOR AND CONTROL RAPID PROCESS CHANGES

The new Transpector XPR 3+ provides industry-leading measurement speeds to monitor and control the rapid process changes required for modern semiconductor and display manufacturing. Transpector XPR 3+ is ideal for in-situ air leak, gas purity, hydrocarbon, and contamination monitoring. Real time measurement with the Transpector XPR 3+ provides far superior product protection compared to periodic rate of rise tests.

TRANSPECTOR XPR 3+ APPLICATIONS

- PVD process modules
- preclean modules
- non-cluster PVD tools
- clamped degas modules
- sputtering

DRIVNG PROFITABILITY BY MAXIMIZING TOOL UPTIME

- Field proven quadrupole and dual ion source sensor design
- No pressure conversion equipment, long lifetime components, and the ability to rapidly detect and diagnose problems combine to maximize tool availability, product throughput and yield
  - The sensor can be operated continuously from high vacuum to 20 mTorr, without the need for pumps
  - The Transpector XPR 3+ dual ion source's chambers are designed to limit coating to maintain ion source sensitivity and extend the sensor's mean time to maintenance
- Transpector XPR 3+ may be configured with Pirani interlock to automatically protect the filament from overpressures
- Transpector XPR 3+ makes tool preventative maintenance more effective and efficient by providing reliable chamber qualification

POWERFUL INTEGRATION

INFICON is the total solution gas analysis provider for semiconductor and display markets. Transpector XPR 3+ combined with INFICON FabGuard® software provides seamless fab integration and reliable interdiction through powerful data acquisition and synchronization.

INNOVATION BY SENSORIZATION

INFICON Transpector product portfolio offers a complete spectrum of gas analysis solutions to maximize equipment throughput and yield. From atmosphere to high vacuum, Transpector gas analyzers are configurable to optimize your unique business needs.

FABGUARD DATA COLLECTION AND ANALYSIS

When integrated with the INFICON FabGuard software suite, Transpector XPR 3+ becomes a powerful process monitoring and diagnostics tool which can be used for:

- Advanced process control
- Statistical process control (SPC)
- Run-by-run and real-time fault detection and classification

INDUSTRY-LEADING MEASUREMENT SPEED

Modern electronics with fast settling times enables measurement speeds as low as 1.8 ms per point

FIELD-PROVEN SENSOR DESIGN

Market leader for PVD in semi and display manufacturing, with thousands of installations worldwide

MAXIMIZE MEAN TIME BETWEEN MAINTENANCE. MINIMIZE TOTAL COST OF OWNERSHIP

Preserve the lifetime of the Transpector XPR 3+ ion source with the INFICON angle valve installation kit, which limits exposure to deposition material

Pirani Gauge Interlock provides automated filament protection from overpressures, extending the sensor ion source lifetime

DUAL ION SOURCE DESIGN

One filament for measuring total pressure and one filament for measuring ion currents

MINIATURE QUADRUPOLE

Combined with high pressure EM allows for operation up to 20 milliTorr

ADDITIONAL PROCESS CONTROL

Seamless integration capabilities with increased analog and digital inputs/outputs

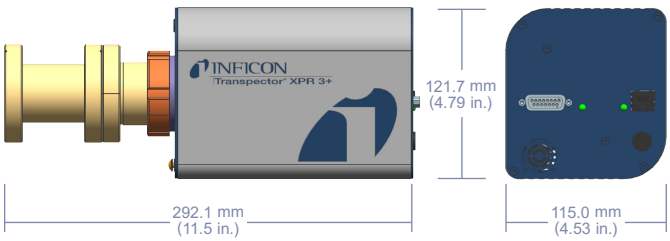
SPECIFICATIONS

Mass range	1 – 100 amu
Resolution (per 1993 AVS recommended practice)	<1 @ 10% measured at mass 4, 20, 28 and 40
Mass filter type	Quadrupole
Detector type	Off-axis FC and microchannel plate EM
Temperature coefficient (FC signal at 1E-4 Torr of Ar)	<1% of peak height per °C
Mass position stability	
(FC signal at 1E-4 Torr of Ar with constant STP)	<0.1 amu over 24 hours*
Peak ratio stability (2/40, 4/40, 20/40, 28/40)	<2% over 24 hours
Sensitivity (nominal)	
As FC at 40 eV/200 µA	≥4E-7 amps/Torr (3E-7 amps/mbar)
As EM at 40 eV/400 µA	≥8E-3 amps/Torr (3E-3 amps/mbar)
Minimum detectable partial pressure**	
As FC at 40 eV/200 µA	≤1E-9 Torr (1.3E-9 mbar)
As EM at 40 eV/400 µA	≤6E-12 Torr (8E-12 mbar)
Maximum operating pressure	
As FC or EM	20 mTorr (2.6E-2 mbar)
As FC or EM (linear operation)	10 mTorr (1.3E-2 mbar)
Maximum sensor operating temperature	150°C
Maximum bakeout temperature (electronics removed)	200°C
PPM detectable limit (at 1 – 5 mTorr process pressure)	10 ppm
Ambient operating temperature	5 – 50°C
Power input	20 – 30 V (dc), 30W max
Ethernet Communications Interface	Standard: CAT5e Ethernet cable connection
Standard I/O	One analog input, two digital inputs, one relay, 24 V at 0.5 A
Extended I/O (optional)	Four analog inputs, four analog outputs, four relays, 24 V at 0.5 A, 12 digital inputs or outputs

Notes: All specifications after a 30-minute warm-up.
* Peak Lock active for 24-hour mass position stability.
** MDPP is calculated as the standard deviation of the noise divided by the sensitivity of the sensor measured at a 4-second dwell time.

CE

DIMENSIONS



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