

Quality Monitoring and Control (QMAC[®]) Analytical Systems

For Ultra-High Purity Gases and Distribution System



Description

The Air Products Quality Monitoring and Control (QMAC) Analytical System is a proven solution to enable successful semiconductor manufacturing by monitoring bulk and specialty gases impurities. The QMAC system integrates ultra-high purity analyzers to effectively sample ultra-high purity gases, such as nitrogen, oxygen, argon, helium and hydrogen. It has the capacity to make the full use of

each analyzer's application. The QMAC Analytical System enhances established analyzers to suit specific customer purity requirements and manages data collection and alarm notification. As analyzers integrator, Air Products draws from years of experience in supplying ultra-high purity gases to the semiconductor industry.

Advantages and Benefits of Integration

- **Where Quality Matters** – the state-of-the-art QMAC Analytical System provides continuous quality control of all bulk gas systems in the semiconductor and electronics manufacturing.
- **Safe Handling** – the integration is hazard-reviewed to ensure safe-handling of hydrogen gas. Air Products has made safe and efficient production, storage and handling of hydrogen for more than 60 years. This experience is synthesized into the design of the QMAC Analytical System.
- **Data Acquisition and Analysis** – ability to collect data on the overall bulk gas distribution systems (tanks, purifiers, filter manifold) and to an alarm trigger for out-of-control conditions.
- **Technical Support** – the QMAC Analytical System is supported by Air Products experienced representatives to ensure technical concerns are addressed promptly. Air Products is recognized for offering complete monitoring systems with quality engineering and assembly.
- **Communication** – the QMAC Analytical System uses industry standard protocols for ease of integration to Facility Management Systems, such as Air Products Global Communications System or other OPC servers.
- **Piping Design** – the QMAC Analytical System provides best practices in piping design in sampling, vents, utilities and calibration. Piping design is critical, so that the quality of the gas purity is not incorrectly measured due to dead legs in sampling. This is important because moisture is the most difficult impurity to remove from the ultra-high purity distribution (due to its strong adsorption to the piping surface.)

Configuration

The QMAC Analytical System components are selected from our customers' gases system and impurity levels required for the manufacturing process. Moisture and oxygen detection limits down to the parts-per-trillion (ppt) are features of the stringent criteria necessary to obtain good yield. The select analyzers are housed in a multiple-bay enclosure, equipped with the piping, wiring and safety design to provide effective gas sampling. The system incorporates analyzers such as Ametek, Delta-F, Tiger Optics, Peak Laboratories, PMS and others to measure trace impurities. The versatile platform can be configured to quantify impurities at the parts-per-trillion trace level. The system is available in fixed-module or mobile cart.





For More Information

If you would like additional information or technical assistance, please feel free to contact:

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