INFICON

Powerful Data Management
For Enhanced Productivity

FabGuard®

Integrated Process Monitor

Making Your Fab's Data Work For You

The shift to smaller geometries and more complex film stacks makes precise process control more vital to profitability than ever before. These cost pressures make it critical to maximize fab productivity, both by reducing the number of scrapped wafers and by maximizing equipment utilization and throughput.

FabGuard Integrated Process Monitor (IPM) helps semiconductor, display and solar manufacturers meet these challenges by enhancing tool productivity, providing process control, and reducing losses from process drift, contamination, tool malfunction, or unnecessary test wafers. FabGuard accomplishes this by tapping into a rich, underutilized resource—the vast amount of data generated by tools and in-situ sensors—and using that data in more innovative and comprehensive ways than previously possible.

Fabguard's sophisticated data analyses yield new inisghts into tool and process performance.

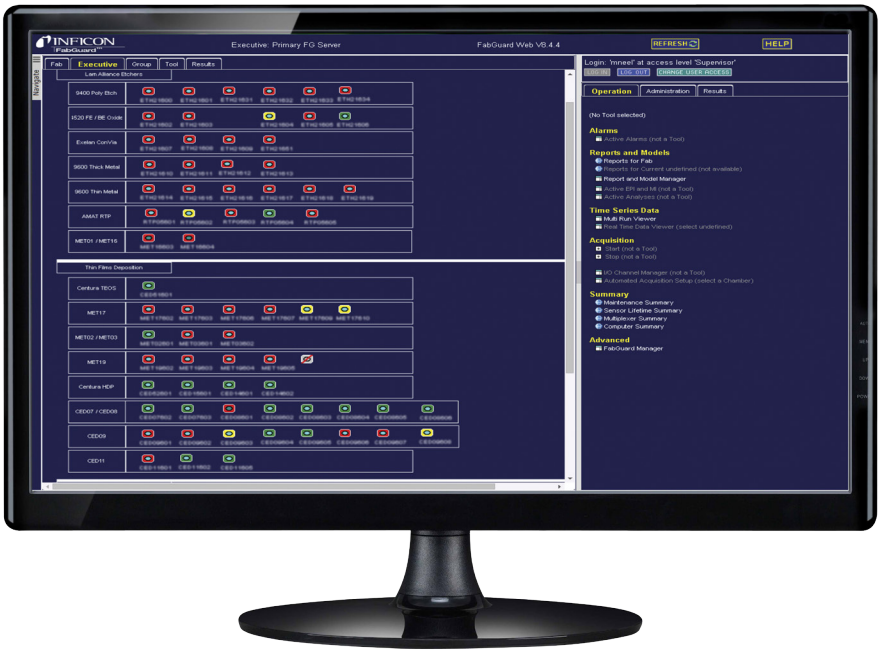
FEATURES AT A GLANCE

- Run-by-run and real-time analysis for fault detection to increase process yield and optimize throughput
- Automated and event-based data collection to optimize data collection based on the tool state
- Data combined from multiple sensors reduces hardware redundancy while allowing all data from an entire tool, process or fab to be integrated for convenient access and analysis
- Single user interface for all tool data reduces learning curve
- Classification of faults for quicker response to problems, minimizing downtime
- Overall status of tool/process health to aid preventive maintenance personnel

FABGUARD CONTINUOUSLY MONITORS AND CONTROLS YOUR PROCESS

FabGuard begins by automatically collecting all available and relevant data, from INFICON sensors, third party sensors and the built-in tool sensors used for real-time control of the process. Data is analyzed in real-time and stored in an SQL-searchable database such as Microsoft SQL Server, Oracle or PostGreSQL. Engineers can view all information through a single, easy-to-use interface which is consistent throughout the application. Presenting data from all types of sensors in a consistent format improves the learning curve, while reducing hardware redundancy by doing the work of multiple equipment from multiple vendors.

FabGuard analyzes the data using sophisticated physical models and statistical techniques. Techniques include: Real-Time Expert System, Statistical Process Control, and Multivariate Analyses. These robust techniques allow FabGuard to reliably detect process excursions that can then be used for process control.



PINPOINTING PROBLEMS TO MINIMIZE WAFER SCRAP AND DOWNTIME

If a process excursion does occur or is impending, FabGuard can immediately activate an alarm or alert the appropriate person, then shut down the tool when the excursion event is detected. FabGuard also classifies the fault by labeling the analysis, thereby creating a tool-specific or process-specific library of faults which can be linked to factory Out-of-Control Action Plans. This minimizes downtime by helping maintenance personnel locate and correct the problem faster. FabGuard's comprehensive database also provides an overview of the health of the tool and the process, keeping maintenance personnel in tune with tool performance and reducing unscheduled tool downtime.

MANAGE A PROCESS, A TOOL, OR YOUR ENTIRE FAB

FabGuard IPM's advanced data analysis creates reliable information that can be used for: advanced process control (e.g., endpoint detection), statistical process control (SPC) techniques for run-by-run fault detection and even real-time fault detection. As a result, processes become more stable and problems are detected sooner.

By having access to all the data, FabGuard is able to provide new insights into the processes and equipment not otherwise available to engineers. The information and integration capabilities of FabGuard can also be extended to the entire fab. More sophisticated applications include comparing tools to assist in tool matching and promoting consistent processing, and tracking process performance across multiple tools.

UNMATCHED EXPERIENCE AND SUPPORT MAKE INFICON THE RIGHT CHOICE

INFICON residual gas analyzers, optical sensors, thin film monitors/controllers, vacuum gauges, helium leak detectors, and software are used in fabs throughout the world to make processes more precise, productive and reliable. Our experience in developing both leading-edge sensors and software puts us in a strong position to integrate various data sources and use the data in much more powerful ways than can be achieved by handling the data from each source separately.

The highly trained people in our global network of sales and service offices will be with you at each step, from helping you determine how FabGuard can best meet your needs, through installation, to providing responsive, ongoing support.

FabGuard Suite™

FabGuard IPM is part of the FabGuard Suite of products, designed to work with you as your data gathering, sensor integration, and analysis system.

INFICON Instruments for Intelligent Control®

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Due to our continuing program of product improvements, specifications are subject to change without notice.

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