

Manufacturer Implements Facility Monitoring and Control System (FMCS) for Its 200mm Wafer Fabrication Facility

This leader in wafer technology and innovation needed a cost-effective FMCS to address issues of compliance, safety, constructability, system uptime, operability and maintenance.

Main Objective

The customer required the design and installation of an FMCS to provide continuous monitoring and control of the cleanroom environment, utilities plant and support areas for its 200mm-wafer fabrication facility.

Customer Results

The FMCS was designed and installed using proven, reliable technology and practices for the semiconductor manufacturing industry. The FMCS design addresses the specific requirements of a wafer fabrication facility. Using cost-effective solutions, the design specifically takes into account issues such as applicable code compliance, human safety, constructability, system uptime, equipment safety, operability and maintainability.

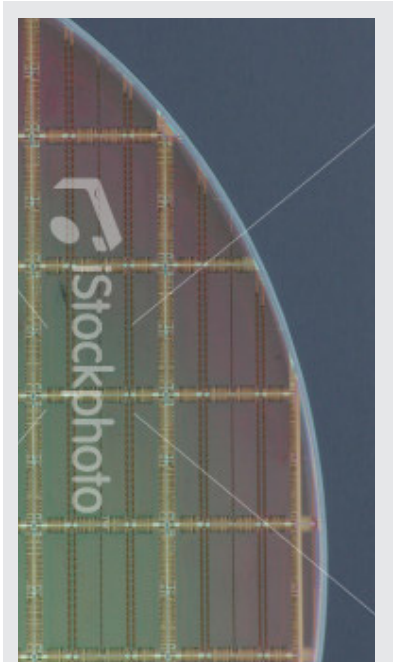
The control system is a Siemens PLC system consisting of 23 PLCs. Additionally, there are 88 small S7 PLCs distributed among the air handlers.

Application Description

■ **Applications include:** Temperature, humidity, pressure. Chilled water system, hot water system, steam control, process cooling water, exhaust and scrubber control, electrical system monitoring, historical data archival and retrieval, report generation alarming

■ Processes Monitored and Controlled by the FMCS

- Makeup Air Units
- Fab Air Handling Units
- Support Air Handling Units
- Chilled Water System
- Heating and Hot Water
- Steam Boiler System
- Instrument Air System
- Cooling Tower System
- Blended Chilled Water System
- Process Cooling Water System
- Crystal Pulling Cool Water System
- Waste Collection System
- Waste Water System
- Ammonia Scrubber
- General Exhaust
- City Water System
- Fuel Oil System
- Flushing Water System
- House Vacuum System
- Process Vacuum System
- Electrostatic Precipitators
- Blended Chilled Water System
- EPI Reactors Cooling Water
- EPI Reactors Pressure Control
- Acid Etcher Flush Water
- TCS Concentration Analyzer
- Acid Scrubbers
- Nitrogen Oxide Scrubbers
- Plant TV Alarms
- CUB Audible Alarm



System Configuration

- **HMI:**
 - Intellution FIX — 5 Nodes
 - **NETWORK:**
 - Siemens H1 CP-1434
 - Siemens H1 CP-1413
 - **PLC:**
 - 8 Siemens TI545 PLC
 - 15 Siemens TI555 PLC
 - 88 Siemens S7-214 PLC
 - **I/O Count**
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| DI | 1370 | DO | 472 |

MAVERICK Technologies, LLC

265 Admiral Trost Road | P.O. Box 470 | Columbia, IL 62236 USA
 +1.618.281.9100 | Fax +1.618.281.9191
 www.mavtechglobal.com

