

Wafer Fabricator Achieves Continuous Monitoring and Control of Cleanroom Environment

The facility needed a system to monitor and control all the processes and systems in its cleanroom, utilities plant and support areas.

Main Objective

The customer wanted a solution to continuously monitor and control the cleanroom environment, utilities plant and support areas.

Customer Results

MAVERICK implemented a facility monitoring and control system (FMCS) to achieve the customer's objective. The system provides continuous fail-safe, gas detection level monitoring, gas delivery system shutdown control, chemical leak monitoring, LSS evacuation control and egress control. The FMCS was designed and installed using proven technology and best practices from the semiconductor industry, and 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.

Application Description

The system was configured using Wonderware InTouch, Siemens TIWAY and Siemens 555 PLCs. The Application includes serial communications with Trane Chiller LCPs, fail-safe circuitry, gas monitoring and shutdown, interface with Simplex Safety System, redundant remote I/O communications and redundant HMI with automatic rollover. The FMCS monitors and controls the followings processes / systems:

- Makeup Air Units
- Fab Air Handling Units
- Support Air Handling Units
- Chilled Water System
- Cooling Tower System
- Condenser Pumps
- Chillers
- Chilled Water Supply Pumps
- Heating and Hot Water
- Hot Water Boiler System
- Steam Generators
- Blended Chilled Water System
- Process Cooling Water System
- Waste Collection System
- City Water Systems
- House Vacuum System
- Process Vacuum System
- Acid Scrubbers
- Acid Exhaust
- Caustic Scrubbers
- Caustic Exhaust
- General Exhaust
- Toxic Exhaust
- VOC Exhaust
- Vertical Laminar Flow Units
- Filter Fans
- Power Up Reset
- Life Safety
- Various Manufacturing Tools (Gas Monitoring and Shutdowns)

I/O Count

AI 553, AO 137, DI 1012, DO 459

