

Intelligent and Active Gas Detection System for Semiconductor Manufacturing

2009-12-22

Location / Country :Taiwan

Product Solutions:

[ioLogik E2242](#)

Ethernet Micro RTU Controller with 4 analog inputs and 12 configurable DIOs

Introduction

Project Introduction

As one of the world's largest semiconductor manufacturers, our customer needs to continually refine and expand their manufacturing capabilities to meet the constant, ever-growing demand for electronics products. Semiconductor fabrication requires minute nanometer-scale operations using dangerous chemicals and gases. To continue growing their manufacturing capabilities while maintaining high levels of precision, the manufacturer expanded operations with a new plant which was to incorporate new gas detection alarm technology.

System Requirements

- Real-time alerts of abnormal gas levels on the supervisory control and data acquisition (SCADA) system
- Local alarms with local control logic to alert personnel of high gas levels
- Mixed analog and digital I/O solution for broader device compatibility
- High reliability

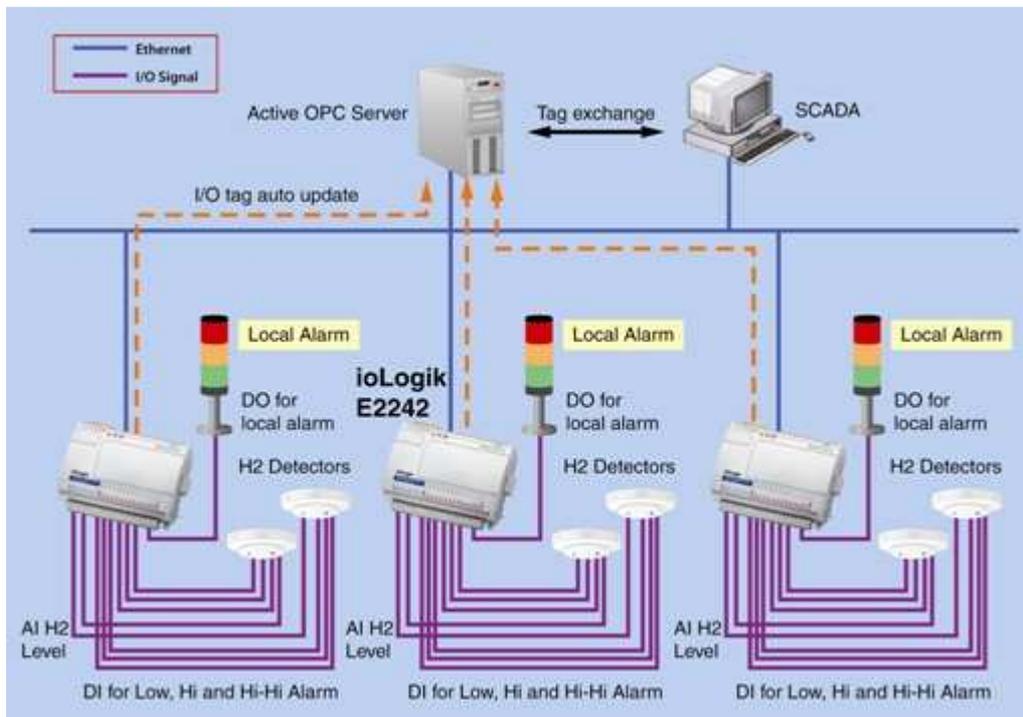
Moxa Solution

A semiconductor factory's gas detection alarms are the very definition of a mission critical system. Abnormal levels of the dangerous gases used in semiconductor manufacturing will not only cause expensive breakdowns but could even cost lives. Traditionally, semiconductor manufacturers have used programmable logic controllers (PLCs) to monitor their alarm systems. PLCs are well-suited for control applications, but the limitations of their passive communications architectures become clear when used as an alarm solution. In order to communicate with the PLC, the SCADA system has to repeatedly poll the device using older RS-485 communications.

Moxa made it possible for our customer to take advantage of modern industrial Ethernet networking technology and deploy an active "push"-based alarm system. The ioLogik E2242 intelligent Ethernet I/O device was selected for this system because it can take the initiative to "push" updates to the Active OPC Server. This powerful I/O device possesses the local intelligence and communications capabilities to actively update the SCADA system whenever

there is a change in analog gas readings. The resulting active architecture consumes fewer network resources than conventional polling systems while still ensuring that the latest gas readings are available on the SCADA. Moxa's exclusive auto-tag generation technology significantly simplifies the configuration of these potent features, so SCADA engineers can focus on other parts of the SCADA system instead of laboriously constructing tags one at a time at an OPC server.

With four analog inputs and 12 configurable digital input and output channels, the E2242 is a flexible and cost effective solution. Our customer uses the digital outputs to connect to a light tower and local buzzer to alert personnel when high gas levels are detected. Local alarms were configured with the menu-driven Click&Go™ interface, which is completely code-free and easy to set up.



Why Moxa

- Auto tag generation saves time compared to creating tags on the OPC Server
- Analog and digital signal collection in one module reduces expenses
- No programming required, conserving deployment and development time

Product

ioLogik E2242 Active Ethernet I/O with 4 analog inputs and 12 configurable DIOs

- Versatile 4 AI/12 DIO design is ideal for hybrid analog and digital applications
- Active OPC Server provides seamless SCADA integration
- Push-based architecture relieves network load and makes real-time SCADA updates possible
- Click&Go™ Logic is easy to configure and maintain