IC foundry chooses Moxa solutions for safety monitoring
2008-03-28

Location / Country :A Leading Semiconductor Corporation /Taiwan

Product Solutions:
EDS-505A/508A Series

5 and 8-port managed Ethernet switches

Introduction
Project Introduction

A Taiwan-based global semiconductor corporation has a large specialty IC foundry that offers a range of process technologies. The products produced by the corporation include a wide range of ICs, such as 0.18 mm logic, mixed-signal, analog, high voltage, low power, CMOS RF, Flash, embedded memory, and bipolar CMOS DMOS (BCD) ICs. One of the plants produces approximately 55,000 8-inch wafers per month.

The semiconductor manufacturing process uses many chemicals and gases, some of which are extremely toxic. The gases must be carefully monitored and controlled to ensure the safety of plant workers and the people living in the vicinity of the plant. The data collected during monitoring is also used to prepare environmental reports for both local and government monitoring agencies. The corporation needed an extremely reliable network to collect and transmit all monitoring data to the plant's monitoring and control center. The communication network for the gas monitoring system must be extremely reliable, with non-stop operation and quick recovery after failures.

Moxa Solution

The semiconductor plant uses a combination of continuous monitoring gas monitors to detect toxic gases, such as ammonia, oxidizers, hydrides, mineral acids, hydrogen cyanide, hydrogen sulfide, and PFCs. The monitoring is done using CM4 gas monitors and system 16 gas monitors (four CM4 monitors combined), and gas cabinets that collect parameters such as temperature and barometric pressure. The gas monitors use digital signal data and special chemtapes to detect leaks in a matter of seconds. The complexity (the number of different gases that need to be detected) of a given location dictates the level of monitoring that is required. The locations are usually scattered throughout the plant, which means that distance, speed, reliability, and safety factors related to operating in a hazardous environment factor heavily into the network configuration.

This semiconductor plant chose a combination of Moxa products that include multiple UC-7408 data acquisition embedded computers for remote communication with their SCADA system and EDS-508-MM-SC 8-port managed Ethernet switches for the fiber backbone and the communication between devices. The EDS-508 Series is Class 1, Div. 2 certified for use in hazardous environments containing volatile flammable liquids, gases or vapors, allowing these switches to be installed in hazardous environments in the plant. The EDS-508 Series'

Turbo Ring feature supports a scalable, extremely reliable, always-on, high speed fiber backbone with quick recovery and long distance data transmission support. Now all collected monitoring data throughout the plant is transmitted to the central monitoring center synchronously, allowing for more reliable and efficient monitoring and data collection.
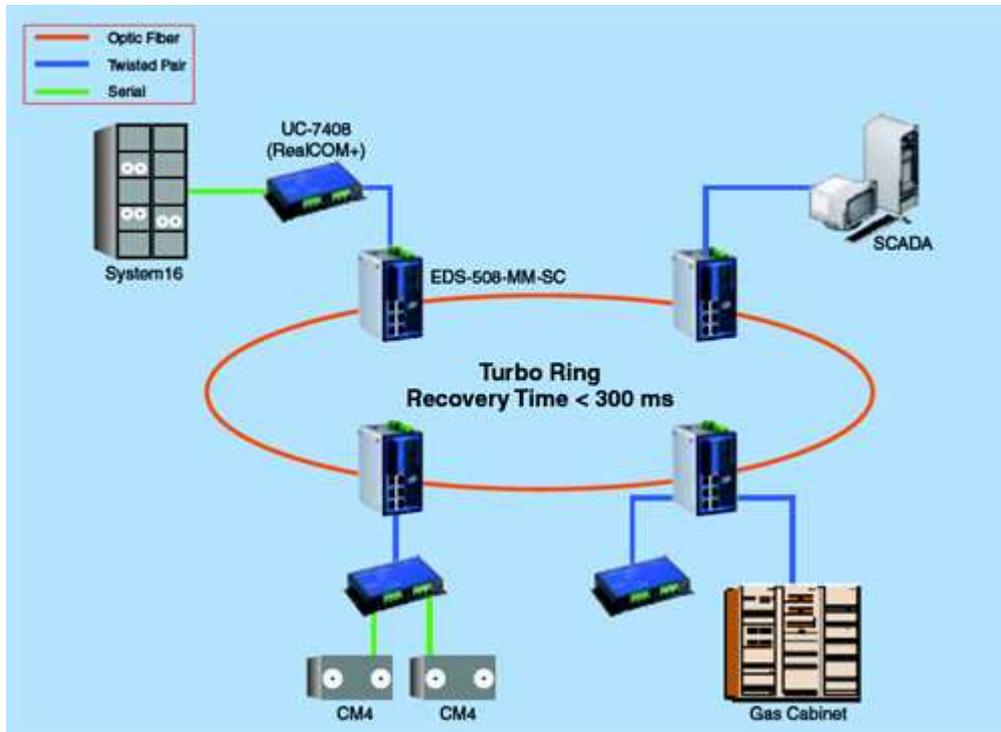
Why Moxa

- Turbo Ring recovery time < 300 ms and relay-out avoid the network failure risk.
- EDS-508 Series is Class 1, Div. 2 certified for use in hazardous environments.
- Rugged and durable Ethernet devices with high MTBF, fan-less design, and redundant DC power inputs ensure long-term, trouble free operation.
- UC-7408 Series is RealCOM+ enabled for:
    - Remote communication and Real COM emulation.
    - Multi-host connection to make SCADA redundant.
    - EDS-508 Series can send out a warning e-mail when a user-configured exception is detected, providing system managers with real-time alarm messaging.
- EDS-508 Series supports two power inputs for increased reliability.
- EDS-508 Series fanless design and high MTBF rating improves reliability.