

Constructing a Real-time Monitoring and Alarm System in the Mining Industry with Embedded Computers

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Location / Country : USA

Product Solutions:

[IA261-I/262-I](#)

RISC-based fanless computers with 2 or 4 optically isolated serial ports, dual LANs, VGA, CAN, DIO, CompactFlash, USB

Introduction

Project Introduction

Mining operations are full of risks. In order to ensure a safety on-site, remote monitoring and alarm systems are required to detect anomalies and notify the proper authorities in the event of an emergency. Embedded computers play an essential role in integrating devices into a real-time monitoring and alarm system.

Application Requirements

- Front-end automation embedded computer used for system control, monitoring, data processing, logging and protocol conversion
- Real-time, web-based communication to monitor the peripheral detectors and device performance
- Embedded computers with built-in CANbus interface to communicate with detectors and peripheral meters
- Embedded computers with built-in DI/DO interface to trigger alarm systems in emergency situations
- A reliable, safe, and quick response system and uninterrupted network

Moxa Solution

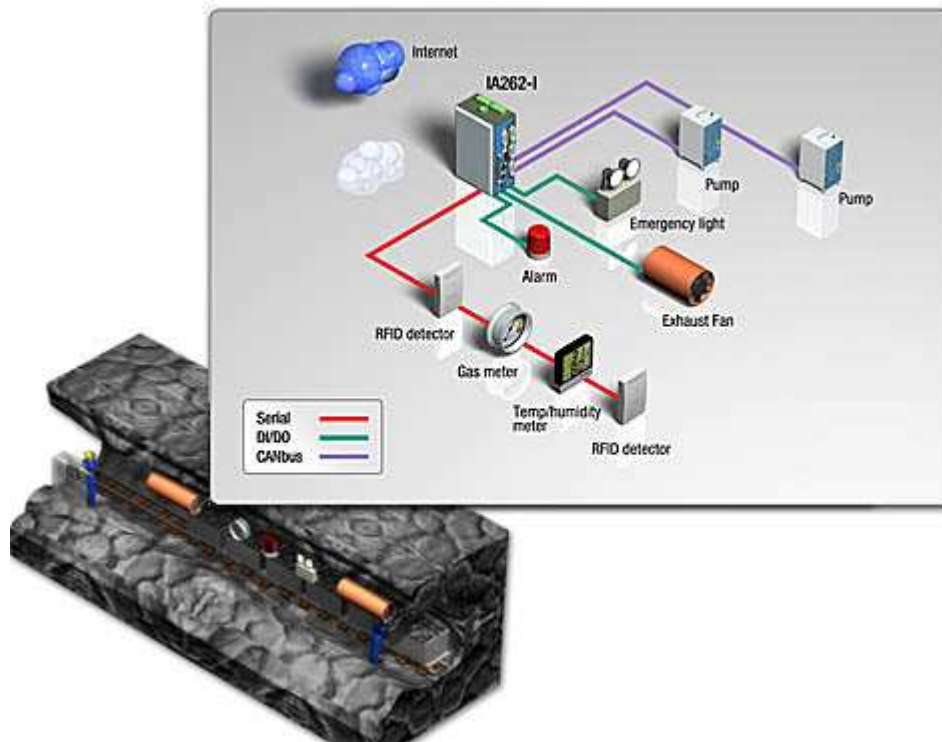
1) Front-end control

Embedded computers can be used as the central controller in a mining operation. When a dangerous event occurs, the RFID detector will inform the IA262-I automation embedded computer that will then trigger the alarms, emergency lights, exhaust fans, and pumps to draw out poisonous gas in the environment.

2) Data acquisition, protocol conversion, and network communication

In addition, the IA262-I embedded computer can also serve as a front-end protocol gateway for data acquisition and protocol conversion. The data collected comes from different devices and each of them has its own protocol. The embedded computer converts various protocols into a single protocol and conducts preliminary data processing before sending data to the control center.

Successful Solution Figure



Why Moxa

- Fanless, cableless, no hard drive, and low power consumption design offers a reliable solution
- Flexible, ready-to-run platform provides multi-level open data interfaces and stability for easy integration with third-party devices
- The IA262-I supports CANbus, DI/DO, serial and Ethernet interfaces for easy integration and communication
- Small size with DIN-rail and wall mounting options
- Features optical isolation to minimize risks