

Miami University of Ohio **Universal Compatibility and Redundancy** **in a Campus Environment**



Set in the rolling hills of Oxford, Ohio, most of Miami University of Ohio's more than 15,000 students live and attend classes in over 250 buildings that are spread out over 1100 acres of scenic country. As with most colleges and universities across the country, MUO is committed to maximize its students' safety.

The Challenge

Burnt popcorn, candles and vandalism all contribute to the high rate of activity that is intrinsic to a campus environment. Miami University of Ohio's original fire alarm system was a remote power management system that monitored diverse systems across the campus including the fire alarm systems. The system was comprised of individual fire alarm control panels from different manufacturers that were tied into the campus police station through the telephone lines. The system was not UL-listed as intended for fire alarm monitoring, and the information it transmitted to the dispatcher was limited to alarms and troubles in general areas. The public safety group at Miami University of Ohio determined that their current system could be vastly improved with newer technology to ensure increased fire safety throughout the campus.

Three requirements were recommended for the MUO system:

- UL-listing for fire alarm monitoring
- Ability to connect with various different manufacturers' fire alarm control panels
- Capability of transmitting all information from each type of addressable fire alarm panel

The Methodology

In November, 2000 the university public safety group commissioned a study to evaluate their current fire alarm system and make recommendations for an optimal fire protection system for the MUO campus. The objective was to design a system that would be reliable, easy to use and cost effective. Three requirements were recommended for the MUO system: UL-listing for fire alarm monitoring, ability to connect with various different manufacturers' fire alarm control panels (FACPs), and the capability of transmitting all information from each type of addressable fire alarm panel.

In addition to these major requirements, the study suggested that the university avoid relying on a single vendor for fire protection equipment so as to be open to new technologies and remain cost competitive. Other considerations were redundancy and the ability to monitor the system from more than one station.

In early 2002, the safety department published their bid for a campus fire protection system and the project was awarded to Siemens Building Technologies, Inc., using Keltron Corporation's distributed multiplex system equipment and Keltron receivers.

The Solution

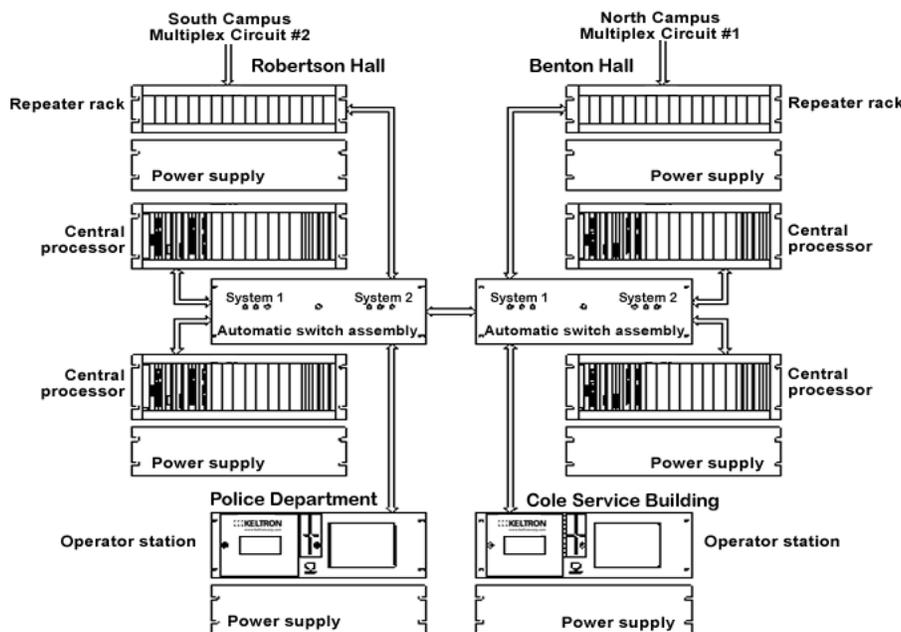
The Keltron solution provided Miami University with a system that fit their specific requirements: mirror-image, fully redundant receivers at two separate switching stations that connect to the campus police station for general alarm dispatch and the maintenance station for troubles. It is important that the campus safety staff be able to monitor alarms - particularly troubles - at their maintenance office as well as at the police station, to react efficiently to equipment malfunctions.

Keltron installed redundant processors with CPU-fail monitoring and automatic switchover. The four processors - two active and two on standby - are located at two sites where the active pair creates a peer-to-peer network. Both sites have mirrored databases. To ensure the annunciation of all alarms at the operations consoles, the receivers are equipped to send all signals to one if the other fails.

The universally compatible Keltron DMP703 receiver accepts point-addressable information from about 100 existing FACPs from three different manufacturers and enables the university to deploy FACPs from any manufacturer in future installations. "Prior to installing the Keltron system, we didn't know it if we lost communication with an FACP," said Brian Burke, electrical engineer at MUO, "Now that the line is supervised, we know immediately if there is a problem." Display text mode in the Keltron receiver eliminates redundant programming by displaying point descriptions that had been programmed at the FACP.

The Keltron system monitors the Miami University of Ohio campus buildings using distributed multiplex technology. The campus had star wiring in place so Keltron included repeaters at the switching stations to adapt the multiplex circuit. There were sufficient repeaters to warrant inclusion of a dedicated mounting chassis.

Diagram of the Miami University of Ohio Fire Alarm Monitoring System



The Benefits

Keltron's unique system provides a wide range of benefits for Miami University.

- **Reliability** - redundant system monitors two separate dispatching areas on a peer-to-peer network
- **Flexibility** - universally compatible system monitors approximately 100 existing FACPs from different manufacturers using existing telephone lines
- **Ease of use** - intuitive dispatch operation with English text
- **Ease of programming** - display text mode in the Keltron receiver eliminates redundant programming by displaying point descriptions that are programmed at the FACP
- **Scalability** - MUO can add to the system, up to 1000 FACPs from diverse manufacturers using any signaling technology
- **Ability to upgrade** - Keltron engineers continue to upgrade systems software and hardware to meet the needs of new technologies and changing environments

Keltron develops and manufactures universally-compatible, UL listed life safety event management systems for the municipal and proprietary markets. Solutions include Ethernet signaling systems, active network radio systems, distributed multiplex systems, digital communicator/receiver systems, and direct wire systems. This document is not intended for installation or maintenance purposes. For more information visit www.keltronicorp.com or contact us at 781-894-8710.

