Technical Case Study

KELTRON

Hoechst Celanese - Distributed Multiplex System

Keltron's installation of a distributed multiplex alarm monitoring system was configured to leverage the existing star topology at the Hoechst Celanese plant thereby avoiding costly rewiring.

Physical Configuration

Keltron's PLM703 distributed multiplex system includes the PET400 series RS485-based event transceivers and is installed in the security office at the company's main gate. The distributed multiplex signal wiring is local to the security office and is terminated at three wall mount enclosures. These enclosures house 15 RS485 repeaters, five in each enclosure, along with a PET404 to monitor the battery and AC power.

Hoechst Celanese specifications required that the enclosures be mounted in close proximity to the existing wiring termination point for the direct pairs that connect to the monitored devices in the field. From each repeater branch port, two pairs are connected and used to connect to two newly installed remote PET408 multiplex transceivers. The repeaters are connected to the Keltron PLM703 universal FACP (fire alarm control panel) monitoring system controller via the un-terminated trunk/main port and all repeaters are 'T-tap'-connected. The remote PET408 transceivers are connected to the repeater branch port via their terminated trunk/main port. Multiple PET408 addressable transceivers at a single location can be connected through simple, low cost, daisy chain wiring, using the main/trunk port as the receive port from the repeater and the branch port to connect to the next PET408 at that location. As each repeater is connected to two remote PET408 transceivers, the wire run from a remote PET408 on one pair back to the repeater and out to a remote PET408 on the other pair may not exceed 4000 feet in total length.

System Operation

The Keltron PLM703 monitors end-of-line (EOL) supervised dry contact inputs via PET408s, using the RS485-based PET400 multiplex system option. The PET408s are 8-zone distributed multiplex transceivers for EOL resistor inputs. The Hoechst Celanese system also uses PET494s to provide field-programmable, control-by-event relay outputs at the rooftop siren locations. Relay control software includes programmable activation delays, fixed activation periods, three modes of operation, and relay coil supervision. The PET494 provides four FORM "C" relays whose contacts are rated for 10 Amps, 30 VDC-resistive-load.

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. All specifications are subject to changes without notice. For more information visit www.keltroncorp.com or contact us at 781-894-8710.