

Keltron PLM703 Distributed Multiplex Solutions



Enables faster event communication

Reduces capital expense

Increases operator accuracy

Keltron originated the concept and use of digitized total message monitoring and offers unique fire alarm control panel (FACP) networking and monitoring systems that are designed to save capital expense and facilitate installation and implementation through compatibility with FACP's from the widest possible range of manufacturers. Our systems feature distributed multiplexing, a method of signaling characterized by the sequential transmission and reception of multiple alarm signals over a single communication channel with means for positively identifying each signal.

The benefits of networking

Minimizing wiring installation, maintenance and related operating costs are benefits of this efficient and cost-effective method of alarm monitoring and networking.

- Enables faster event communication through distributed multiplex signaling
- Reduces capital expense by interfacing with most FACP's and legacy systems
- Increases operator accuracy by providing point-specific annunciation in generic format

How the Keltron PLM703 works

The Keltron system uses addressable transceivers connected through simple, low cost, daisy chain wiring and communicates via distributed multiplex signaling techniques. The PLM703 provides Keltron's flagship alarm monitoring systems with the ability to monitor intelligent and addressable FACP's from multiple manufacturers. It uses an addressable transceiver that is personality-matched to the monitored FACP and connected to it by an RS232 printer port or other type of serial data port.

A distributed multiplex transceiver, such as Keltron's PET402, accepts the RS232 serial printer port data from the addressable FACP, interprets the data, and transmits sufficient information via the stable, RS485 or fiber optic-based communications path, enabling point-specific status annunciation at the head end system.

PLM703 features

Keltron PET models that accept end-of-line (EOL) resistor-supervised, dry contact inputs are available in addition to like models that use fiber optics as the transmission medium. Other features include:

- Universal FACP compatibility
- Full class A style 7 SLC performance
- Simplifies wiring using existing phone pairs
- Monitors process control, environmental condition, and security related status changes
- Standard keyboard data entry is saved for annunciation in response to a received event
- Event annunciations occur in generic format, independent of the transmitting FACP
- Single touch event acknowledgement insures expedient and accurate responses
- Automatic arming and disarming for security points
- Facilitates transition to advanced systems
- Simple operation reduces the learning curve and operator error
- Red/black printer provides a hard copy record of all received events

System versatility allows DMP703/704 systems to simultaneously monitor other types of inputs such as digital dialers, coded signals, direct connects and private network radio. It provides a cost-effective and clear migration path to newer technologies and additional functionality.

Testing FACPs is enhanced by the ability to place a PET in test mode using the PLM703 keyboard. In test mode, the received events from a selected PET will not be presented to the operator but can be placed in history and/or printed. As this may be done on a PET-by-PET basis, protection of other parts of the facility is not affected. This feature reduces operator fatigue and lessens the chances of a real alarm being missed by ensuring that only legitimate events are presented to the operator for acknowledgment and response. The group trouble acknowledge function allows operators to focus on high priority events.

Field-programmable clear text annunciation on a touch-screen CRT is a distinguishing feature of DMP703 systems. In response to a received event, the 7" CRT display shows:

- Type of alarm with date and time of activation
- PET address
- A field-programmed message to identify the originating FACP
- Sensor or device address or zone, and the current date and time

The CRT can also display the device location, parties to be notified and suggested appropriate response as programmed by field supervisory personnel.

The display will accommodate seven lines of 32 characters each of field-programmed text. The seven lines displayed include both PET and device message lines. The complete device message is always displayed. Any pertinent data can be entered via a standard keyboard and saved in memory for annunciation in response to a received event. This data may include warnings of such as hazardous materials and other safety enhancing precautions.

Distributed Multiplex Implementation

Balanced line technology EIA RS485 is a field-proven technology that is well known for its excellent noise rejection characteristics. RS485 provides a stable and ultra-reliable foundation for the fully supervised distributed multiplex communications.

Distributed multiplex wiring provides the ability to connect multiple transceivers to the same 2 or 3 wire communication link. Each PET transceiver has a unique address/ID, which prevents communications conflicts.

Each transceiver and controller (PET4XX and 95K3150) has two identical RS485 communication ports. One port is called the trunk port and the other the branch port. These two ports enable electrical isolation between branches of the partyline to facilitate troubleshooting because electrical isolation serves to localize the effects of any fault.

Class B Configuration

For class B or bus configurations, the trunk port can be used alone for NFPA 72, style 4 communications. Line lengths are allowed up to 10,000 feet of 18 AWG wiring or 4000 feet of telephone wiring. 32 PETs per line can be accommodated. The branch port can be used to provide a fresh start for another 10,000 foot wire run and 32 more PETs up to a maximum of 128 PETs per central port. Standard RS485 rules apply including the ability of a single communications port to communicate in two directions.

Class A Configuration

For class A, PETs are connected in a ring/repeater fashion with the partyline entering via one port and continued via the second port. This way a single fault is reported and a PET continues to report via the remaining route to one of the two central ports used in this configuration. Therefore, the protection provided by the system is not affected by a single fault such as a single ground or open or short. Also, if the PETs are sequentially numbered, any fault affecting performance can be quickly located, as the system will identify between which PETs the communications has been lost.

When using three wire, ring type wiring, NFPA 72, class A, style 7 signaling line circuit performance is attainable. Two-wire bus type wiring can also be accommodated albeit with a decrease in style rating.

Simply breaking connections and reconnecting them via a uniquely addressed transceiver easily accomplishes expansion anywhere on the continuous wiring circuit partyline. A system can also be installed using a mixture of ring and bus type wiring as the application demands.

Output Controls

PETs with output control relays can be placed anywhere on the continuous wiring circuit using the same placement and addressing rules as other PETs. Relay outputs are field programmable and are activated automatically on a control-by-event basis. Three modes of operation are available - restore after programmable time delay, restore on acknowledgment, and restore on change-of-state. Further, a programmable activation delay can be selected. PETs that contain only output relays can be intermingled with other types of PETs on the same continuous wiring circuit.

Distributed Multiplex Capacity

The DMP703 System currently supports four PET400 (RS485) or 600 Series (fiber optic) distributed multiplex circuits. A single distributed multiplex circuit can accommodate 128 PETs, for a maximum capacity of 512 PETs per system. The zone input capacity of each continuous wiring circuit will vary according to the type of PET installed and the style of monitoring. When using only contact input PETs, up to 4096 inputs can be monitored. As each input can monitor two contacts, 8192 points can be monitored. Serial input PETs provide much more input point capacity than hardwired input PETs and are limited only by the ultimate capacity of the connected FACP. Fiber optic (PET600 Series) devices support 9000' between transceivers on 62.5 micron multi-mode fiber.

Keltron develops and manufactures secure, reliable, UL-listed fire and security alarm response management systems and components for the municipal and proprietary life safety markets. Products include radio fire alarm, coded fire alarm and high-line security systems, digital alarm receivers, universally compatible fire alarm control panel networking solutions and a full line of alarm annunciators. For more information, visit www.keltronicorp.com or contact us at 781-894-8710 X 26, or info@keltronicorp.com.

