

Cayuga County 9-1-1 Center Coded Decoder/Master Receiver System



The Keltron alarm monitoring system at Cayuga County, New York 9-1-1 Center monitors, decodes and annunciates coded municipal loop fire alarm signals and retransmits their content via an RS232c serial output and leased line modems to the operator for fast, reliable event response.

The system consists of a 12 circuit, UL-listed Keltron DMP703/CSD703 municipal 100mA loop fire alarm decoder, located in the Auburn Fire Department (AFD) and a master

alarm receiver at the 9-1-1 center, located in the Public Safety Building (PSB). The system was initially set up to monitor two remote decoding systems and is scalable to provide support as the center expands.

The Keltron DMP703/CSD703 system at the AFD is capable of stand-alone operation and provides comprehensive event message display, printing, and audible annunciation capabilities. The system functions automatically if for any reason, the supervised communication with the PSB master system ceases.

Technical operation

The CSD703 monitors and decodes municipal coded Fire Alarm signals. The decoded result is transmitted via an RS232c serial port and modem over a leased, dedicated, voice-grade telephone line to a master DMP703 at the PSB. Each modem includes a line switcher that automatically switches to a secondary line in the event of a primary line failure. This method of installation ensures reliable communications between the AFD and the PSB.

To ensure that each system will function properly and independently, each decoding system maintains its own alarm message database. The alarm data transmitted to the PSB master system consists of the code and the appropriate circuit number to enable the operator to distinguish between identical codes on separate circuits. The RS232 serial alarm output interface eliminates operator interaction with the remote Keltron DMP703/CSD703 decoder. The 'alarm acknowledge' and 'clear screen' functions are accomplished by the DMP703/CSD703 decoder in response to the transmission of the proper control character by the master DMP703.

All Keltron DMP703/CSD703 systems annunciate received coded fire alarm signals on an integral, 10-line- by-32-character, 7" CRT touch screen display and on the red/black printer. When coded signal is received, any field-programmed event description, location or warning information, and proper response instructions accompany the fixed, event-dependent data to the display and printer with a date and time stamp. Received coded signals are stored in internal memory until they are annunciated. All coded signals that are received at the remote AFD decoding system will print upon receipt but will not display if communicating with the PSB.

All coded fire alarm signals received at the PSB will print upon receipt, energize the internal audible indefinitely, and display or optionally transmit to a CAD system. Either manual operator or CAD system acknowledgment is required to silence the audible signals.

The CRT display enables the database to be programmed in the field and assigned any outputs. The printer, required by UL, provides access to the list of codes that have been saved in the database. The printer(s) also provide the only permanent record of received signals unless the history option is included.

The installed configuration is fully supervised for proper operation using a poll and response method. The system also ensures that any remote system automatically converts to stand-alone operation should communications to the PSB be lost. Any remote system still communicating with PSB will continue to do so unimpeded even if another remote system has reverted to stand-alone operation. When communication ceases, the following automatically occurs:

The system at the PSB first annunciates a serial channel communications failure by a channel number that is unique to each remote decoder. The PSB personnel then notify the affected municipality that they need to provide operating personnel at the decoding system. Finally, the remote - in this case the AFD - municipal decoding system automatically reverts to stand-alone operation. In stand-alone mode, the system prints and displays any code received and energizes its local audible indefinitely. Under this condition, manual operator acknowledgment is required to silence the audible. When communications are restored, the remote decoders will automatically return to transmitting signals to the PSB.

15:36:09 15:36:09 15:36:09
03/11/02 03/11/02 03/11/02
15:36:09 15:36:09 15:36:09
05/18/02 05/18/02 05/18/02
20:36:09 20:36:09 20:36:09

The following supervisory fault conditions cause the remote decoding system to withhold response to the supervision poll from the master at PSB:

- Failure of the 95M2739 decoding processor card
- AC power fail
- Open circuit (normally closed circuits)
- Code overrun (too many digits)

Withholding the response to the supervision poll will cause a serial channel communications failure at the master system at the PSB. However, alarms will continue to be transmitted serially from the remote decoding system and will be received at PSB for annunciation and disbursement. This supervisory communications failure provides notification at the monitoring location that the remote system requires examination. To facilitate the location, identification, and correction of these conditions, the fault conditions are annunciated at the remote decoding system as well.

Keltron provided an operational software utility - the REMP703 - to enable the user to remotely program the DMP703/CSD703 message database over a dial-up phone line using a commercially available modem. In addition, the database can be created on a standard PC at any time including prior to initial delivery of the system. The database may then be uploaded on site, as convenient and with or without modems. A major benefit to using a PC is the inherent ability to store a copy of the database on disk for safekeeping and possible restoration in the unlikely event of a catastrophic failure.

The current configuration includes CAD interaction. When connected to the CAD system, system operation at the PSB is the same as the remotely monitored decoder. When the system at the PSB is not connected to a CAD System the operation is as follows:

Each round of codes received is individually annunciated on both the printer and the integral 7" CRT touch screen display. The format for the display/readout is the number of the circuit (channel) on which the code was received, the code itself, and the date and time. Each code received can be individually assigned a field-programmed English text message using the plug-in keyboard or the REMP703 utility. This message will automatically accompany the received code to the printer and display screen.

The Keltron DMP703 system requires that the alarm be acknowledged using the touch screen to silence the audible signal. The display screen then remains on that alarm to enable the operator to read the displayed message and dispatch the appropriate personnel. To enable the next alarm to be annunciated, the operator must then clear the display using the touch screen. An 'alarms waiting' message flashes on the screen and the audible signal activates if additional alarms are received before the display is cleared. All alarms generate a programmable printout of up to four lines that may be used for on site assistance. Up to ten lines may be displayed on the alarm screen at one time and if programmed, more lines may be generated and viewed by using the 'next page' button on the acknowledge display screen.

Accepting codes with as many as 5 digits, the DMP703 can monitor as many as 64 circuits simultaneously with pulse spacings from .1 to 8 seconds.

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.

