Fire Alarm Signal Transmission

Introduction

As America's communications infrastructure continues to evolve, so does the way fire alarms send information from a protected premise to a supervising or central station. Fire alarms have traditionally used Digital Alarm Communicator Transmitter (DACT) to send signals from the fire panel to the receiver at the central station where an operator would then dispatch or notify the appropriate people according to the priority of the signal. DACT relied on two standard telephone lines also known as Plain Old Telephone Service (POTS) to transmit fire alarm data. In recent years, these lines have become either unavailable or extremely expensive. To ensure the continued reliability of fire alarm system communications throughout the country, the 2016 edition of NFPA 72 has updated language for the types of transmission technologies and configurations now acceptable for fire alarm monitoring.

NFPA 72 has taken a less prescriptive and more performance based approached in the 2016 edition when it comes to transmission technologies. The intent for this was to allow newly developed technologies to be used that meet the requirements of Chapter 26 (See Section 26.6 Communications Methods for Supervising Station Alarm Systems) and Chapter 10 (See Section 10.6.7 Secondary Power Supplies). Because new technology has been proven to provide a reliable alternative to phone lines, NFPA 72 has implemented changes to the DACT requirements.

Changes to DACT Requirements

A fire alarm system or communicator that uses a DACT can use one telephone line and a secondary means of transmission that is not a second telephone line. Some alternatives to a second phone line include:

- Cellular Communications (GSM)
- One-Way Radio
- Wireless Mesh Radio Network
- IP Based Technology (Internet Protocol)

Many cellular and radio established technologies available on the market provide multiple communication paths allowed by NFPA 72 (See Section 26.6.3.4) that eliminate the need for phone lines. Voice Over Internet Protocol (VOIP) is not recommended for transmitting fire alarm signals because the information being sent is data and not voice. VOIP equipment compresses fire alarm data in a way that affects the messages being sent from the premise to central station.

For questions regarding this transmission, please contact the Minnesota State Fire Marshal Division at 651-201-7221 or by email at fire.code@state.mn.us.

Created December 2016
Revised October 2020