

SECTION 27 20 00
Data Communications

Part 1 General

1.1 Summary

- 1.1.1 In today's fast-paced digital age, communication systems play a crucial role in ensuring the convergence of technologies in Intelligent Buildings
- 1.1.2 Rapid advancements in technology have made it essential to maintain efficient communication systems.

1.2 Related Documents

- 1.2.1 The Internet of Things How the Next Evolution of the Internet Is Changing Everything (Cisco)
- 1.2.2 Attaining IoT Value: How To Move from Connecting Things to Capturing Insights (Cisco)
- 1.2.3 The Guide to Smart Building Technologies (Cisco)
- 1.2.4 The following best practices:
 - BICSI, Telecommunications Distribution Methods Manual (TDMM)
 - BICSI, Information Transport Systems Installation Methods Manual (ITSIMM)

1.3 General Requirements

- 1.3.1 The world of communication systems is constantly evolving, bringing forth new technologies aimed at enhancing intelligent building capabilities, from the Internet of Things (IoT) to AI-driven systems.
- 1.3.2 The Internet of Things (IoT)
 - IoT connects devices and systems, allowing for seamless data sharing and communication.
 - In Division 27 Communications, IoT enables better integration between security, automation, and other systems.
 - IoT devices play a significant role in smart building technology, optimizing energy consumption and improving overall efficiency.
- 1.3.3 Artificial Intelligence (AI) and Machine Learning
 - AI-driven systems can analyze vast amounts of data to identify patterns and trends, enhancing security and building automation capabilities.
 - Advanced video analytics use AI to detect unusual activities or potential threats in real-time, increasing safety and reducing response time.
 - Machine Learning algorithms can adapt and improve over time, offering a more robust and intelligent communication system.
- 1.3.4 5G Networks
 - The 5G revolution promises faster and more reliable connections, significantly impacting Division 27 Communications.
 - Enhanced data transfer speeds and reduced latency facilitate smoother communication between devices and systems.

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- Critical applications like video surveillance and remote monitoring will benefit from improved connectivity and real-time responsiveness. These emerging technologies continue to reshape the landscape of Division 27 Communications, presenting new opportunities and challenges for professionals in the field. By staying informed and adaptive, you'll be better prepared to harness these innovations for your property's security and communication needs.

1.3.5 Wi-Fi 7

- Wi-Fi 7 (IEEE 802.11be) is the next-generation standard from the Wi-Fi Alliance that defines new features. Wi-Fi 7 builds on Wi-Fi 6E (uses the 6 GHz band) and increases data rates through the use of 320 MHz channels up to 40Gbps.

1.3.6 Fiber to the Edge

- Fiber to the edge, or FTTE, is an architecture for local area networks (LAN) that uses optical fiber to bring data to the edge of the network. At the edge, the network interfaces via ports or wirelessly through cellular or Wi-Fi with Internet of Things (IoT) devices, like cell phones, laptops, security cameras, machine-to-machine controls, building management systems, automated guided vehicles, etc. and the applications that support them.

1.3.7 Fault Monitored Power Systems (FMPS)

- The new Class 4 classification standardizes an improved format of electricity. As you hear more about Class 4, you'll realize it has many names: fault-managed power systems, packet energy transfer (PET), Digital Electricity™ (DE), pulsed power or smart transfer systems. These terms are used interchangeably, but they all refer to Class 4 circuits.
- To understand Class 4, it's important to also understand Class 2 and Class 3 circuits.
- Class 2 circuits can support lower power (up to 100VA) in many types of environments. They consider safety from a fire initiation standpoint and offer protection from electric shock. Class 2 power loads are often delivered through Power over Ethernet (PoE) cables.
- Class 3 circuits function similarly to Class 2 circuits, but they support higher voltage and power limitations. Class 3 power loads can also be delivered through PoE cables.
- But while Class 2 and Class 3 systems are power-limited systems with ratings of up to 300 volts, Class 4 is a new standard dedicated to fault-managed power systems with voltage ratings of up to 450 volts.
- These fault-managed power systems provide up to 20 times the amount of power or 20 times the distance of PoE and offer a cost-effective alternative to AC power.

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Part 2 Product

2.1 General

2.1.1 To be determined

Part 3 Execution

3.1 Identify Your Needs and Available Systems

- Assess your current security infrastructure and identify potential areas for improvement.
- Familiarize yourself with the different systems within Division 27, and understand how they can enhance your security setup.

3.2 Plan for Integration

- Create a detailed plan for integrating new communication systems with your existing security infrastructure.
- Ensure compatibility between devices and technologies to avoid communication breakdowns.

3.3 Train Your Personnel

- Properly train your staff to use and maintain the newly integrated communication systems.
- Conduct routine training sessions to keep everyone up-to-date with the latest technologies and best practices.

3.4 Monitor and Maintain

- Regularly monitor your communication systems to identify any issues or potential threats.
- Perform routine maintenance to ensure optimal performance and longevity of your devices and systems. By following these steps, you'll create a more secure and efficient environment, ultimately making the most of the Division 27 Communications solutions available.

End of Section 27 20 00