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Commonly Used Industrial Switch Models and Specifications



Overview

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

Key Takeaways

Industrial switches are ruggedized network devices designed for harsh environments, offering features like PoE, high-speed ports, redundancy, and protocol support for industrial automation.Key Specifications

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1. Port Types and Speeds Industrial switches come with a variety of port configurations, including copper (RJ45), fiber optic, and mixed ports. Speeds range from 10/100 Mbps to full Gigabit Ethernet (1 Gbps), with some models supporting 10-GE uplinks for high-bandwidth applications (Cisco, Phoenix Contact, Moxa) . 2. Power over Ethernet (PoE) Many industrial switches provide PoE, PoE+, and PoE++, delivering up to 90W per port to power devices like IP cameras, WLAN access points, and sensors without additional cabling (Moxa, Extreme Networks) . 3. Management and Protocol Support Switches are available as unmanaged, lightly managed, or fully managed. Managed switches support Layer 2 and Layer 3 features, industrial protocols such as PROFINET, Modbus, EtherNet/IP, and network redundancy protocols for high availability (Moxa, Siemens) . 4. Environmental and Ruggedness Ratings Industrial switches are designed for extreme temperatures, vibration, and humidity, often meeting standards like IEC 61850-3, IEEE 1613, EN 50155, and NEMA TS2. DIN rail or rackmount options are common for flexible installation (Phoenix Contact, Moxa, Extreme Networks) . 5. Security and Monitoring Advanced switches include network segmentation, zero-trust access, microsegmentation, and device-to-cloud monitoring. Some models integrate AI-ready features for predictive maintenance and industrial automation optimization (Cisco, Phoenix Contact) .

Popular Models and Series
• Cisco Industrial Ethernet (IE) Series: Modular and compact switches with high-wattage PoE, 10-GE uplinks, and advanced security features, suitable for factories, substations, and transportation networks .

• Moxa Managed and Unmanaged Switches: Includes Layer 2/3 switches, PoE/PoE+/PoE++ options, EN 50155-certified models for rail, and Ethernet-APL/SPE for process automation .

• Siemens SCALANCE X Series: Offers a wide range of switches for structured networking of machines and plants, supporting Industry 4.0 integration and industrial communication standards .

• Phoenix Contact FL SWITCH and Raptor Series: Managed and Layer 2 switches with TSN support, IEC 61850 certification, and high data performance for critical infrastructure .

• Extreme Networks ISW Series: Rugged Layer 2 switches with flexible PoE options, redundant ring technology, and Fabric Attach for zero-touch provisioning in smart city and industrial IoT applications .
Summary

Industrial switches are purpose-built for harsh environments, offering high reliability, PoE capabilities, protocol support, and advanced security. Selection depends on port requirements, environmental conditions, management needs, and integration with industrial protocols. Leading manufacturers like Cisco, Moxa, Siemens, Phoenix Contact, and Extreme Networks provide a broad range of models to meet diverse industrial networking needs.

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When selecting an industrial switch, network architects often classify them by protocol layer (Layer 2, Layer

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