Gigabit and 100Mbps switches are used in industrial applications



Overview

Despite the prevalence of Gigabit speeds in many consumer and enterprise applications, the advantages of a 100Mbps solution are clear when it comes to industrial settings.

Key Takeaways

Both Gigabit and 100Mbps industrial switches are widely used, with 100Mbps switches favored for cost-effective, low-traffic environments and Gigabit switches for high-performance, data-intensive industrial networks. 100Mbps Industrial Switches100Mbps (Fast Ethernet) switches remain relevant in industrial settings due to their rugged construction, stable throughput, and reliability under harsh conditions such as temperature fluctuations, vibrations, and electromagnetic interference. They are particularly suitable for: Small-scale or specialized networks where high bandwidth is not critical.

Edge network deployment, connecting sensors, actuators, or small production units with predictable, low data traffic. Cost-sensitive applications, as 100Mbps switches are generally less expensive and consume less power, reducing both capital and operational costs. Simplified management, especially in smaller industrial networks where fewer high-speed ports are needed.

These switches often feature automatic speed detection, QoS, and autocrossing functions, ensuring reliable communication even in constrained environments.

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Gigabit Industrial Switches

Gigabit (1000 Mbps) switches are designed for high-performance industrial networks where large volumes of data must be transmitted quickly and reliably. Key characteristics include: High throughput and low latency, supporting modern automation, IIoT systems, and applications with large data packets such as video streams or analytics. Backbone and core network deployment, connecting controllers, servers, and cloud platforms efficiently.

Advanced features like PoE, traffic prioritization, and QoS for critical data delivery. Scalability and future-proofing, accommodating growing data demands and network expansion. Gigabit switches are often used in large plants or data-intensive industrial environments, where network congestion and packet loss could impact production if lower-speed switches were used.

Deployment Strategy

In industrial networks, a hybrid approach is common: 100Mbps switches at the network edge for sensors, actuators, and small devices. Gigabit switches in the backbone or core layers to handle high traffic between controllers, servers, and analytics platforms. This strategy balances cost, energy efficiency, and performance, ensuring reliable operation across diverse industrial environments.

Summary100

Mbps switches: Cost-effective, energy-efficient, reliable in harsh conditions, suitable for low-traffic or edge applications. Gigabit switches: High throughput, low latency, advanced features, ideal for backbone networks and data-intensive industrial applications. Hybrid networks: Combining both types optimizes performance, reliability, and cost-efficiency in industrial Ethernet deployments.

Choosing the right switch depends on network size, data volume, environmental conditions, and budget, with both 100Mbps and Gigabit switches playing complementary roles in modern industrial networks.

Article Content

Why Choose a 100Mbps Industrial Switch?

Despite the prevalence of Gigabit speeds in many consumer and enterprise applications, the advantages of a 100Mbps solution are clear when it comes to industrial settings.

Industrial Ethernet Switches

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Built for diverse industrial applications, these switches feature all-gigabit, high-density, all-copper or mixed copper and fiber ports, PoE options, and resiliency protocols.

Ethernet Switches

Moxa provides a wide range of industrial Ethernet switches that feature industrial-grade reliability, network redundancy, strengthened security, easy management, and competitive price-to

Ethernet Switches

Our LAN9694, LAN9696 and LAN9698 Ethernet switch devices support the IEEE ® 802.1Q standards for Time-Sensitive Networking (TSN) with deterministic communication for

10 100 1000 Base T Explained: A Guide to Gigabit Ethernet

In larger environments such as campuses, data centers, or industrial facilities, this distance constraint can require additional networking equipment such as intermediate switches or media converters.

How to pick the right Industrial Ethernet Switch for critical networks

A range of advanced Ethernet management features, with support for necessary redundancy and security elements, these switches meet the demands of a wide range of applications.

WDH-8GT-DC 10/100/1000Mbps 8-Port Gigabit Industrial Ethernet

The WIWAV ® WDH-8GT-DC series up to 8 Ethernet devices through a rugged, energy-efficient, industrial 10/100Mbps Ethernet switch for critical applications in hazardous environments, such as

Why Gigabit Industrial Ethernet Switches Improve Network

Gigabit industrial Ethernet switches provide the bandwidth and port density needed for scaling networks efficiently. Additional machines, sensors, or automation systems can be added without compromising

DIS-100G-8SW 8-Port Gigabit Unmanaged Industrial Switch | D-Link

The D-Link DIS-100G Series industrial switches are compliant with all international requirements for product safety and electromagnetic compatibility that ensure safe deployment.

Why Gigabit Industrial Switches Are Worth the Investment

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These switches are widely used in industrial automation, smart manufacturing, traffic management systems, oil and gas facilities and other mission-critical applications where network failure is not an

Network switch

A network switch (also called switching hub, bridging hub, Ethernet switch, and—by the IEEE — MAC bridge) is networking hardware that connects devices on a

Ethernet Cables Types: Cat 3, 5, 5e, 6, 6a, 7, 8 Wires Explained

This tutorial explains the Definition of ethernet cables, ethernet cable types, shielded cables, and Ethernet cables categories like Cat 3, 5, 5E, 6, 6a, 7, 9 ETC.

Gigabit Switches

These are typically the higher version of network switches, which means it graduates from a 10/100 Mbps speed of fast Ethernet to 10/100/1000 Mbps or 10GB Ethernet. This article discusses various

What is a Gigabit Ethernet Switch? Benefits, Comparison, and Use

Industrial Gigabit Ethernet Switches EtherWAN''s full gigabit Ethernet switches provide high port density, and are an economical solution for applications with high bandwidth demands. They are a cost

Gigabit Ethernet Switch Guide: How It Works, Types & Speed Fixes

Learn what a Gigabit switch is, how it works, and managed vs unmanaged differences. Fix slow speeds (100Mbps issues) and optimize your network setup.

Ethernet Switches

The LAN964xF/S family of Gigabit Ethernet (GbE) switches with AVB/TSN and network redundancy offers a flexible and cost-effective networking

What is a gigabit switch?

Application hosting is now possible with some modern gigabit switches, giving developers increased options for improving network performance. For example, locating an application on a switch at the

Comparison of Full-Gigabit and 10-Gigabit Industrial Switches

Full-gigabit switches are an "economical and practical" choice, suitable for cost-sensitive and clearly defined scenarios; while 10-gigabit switches are a "future-oriented" investment, providing underlying

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