

Summoning Ethernet Industrial Switches



Overview

Switches are active network components that support the structuring of an industrial communication network into electrical or optical line, star and ring structures.

Key Takeaways

Industrial Ethernet switches are robust networking devices designed for reliable, secure, and high-performance communication in harsh industrial environments.

Overview

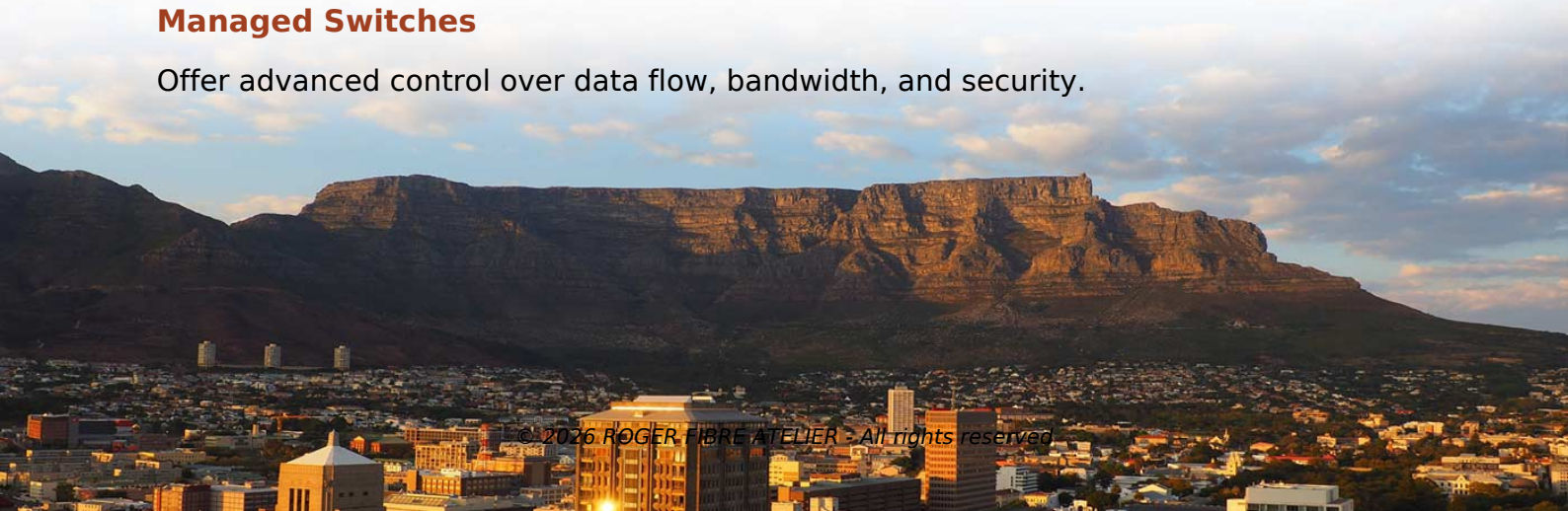
Industrial Ethernet switches are specialized network switches built to withstand extreme conditions such as high temperatures, vibrations, dust, and moisture. They are used to connect devices like PLCs, HMIs, sensors, actuators, robots, and industrial computers, enabling deterministic and fast communication essential for automation and control systems. Types of Industrial Ethernet Switches¹.

Unmanaged Switches Plug-and-play devices requiring no configuration. Automatically adapt to transmission speeds and connector assignments using protocols like autonegotiation and autocrossing. Suitable for simple network setups where minimal control is needed.

2.

Managed Switches

Offer advanced control over data flow, bandwidth, and security.



Support VLA

Ns, Quality of Service (QoS), SNMP monitoring, and access control lists. Allow configuration via web interfaces or network management software, providing monitoring, alarms, and redundancy management.

Key Features

Redundancy: Many switches support ring redundancy (e.g., Xpress Ring) and dual power supplies to ensure uninterrupted communication even during failures. **Power over Ethernet (PoE):** Provides power to connected devices like cameras or sensors, with options up to 90W per port. **Fiber Optic Integration:** SFP modules allow connection over multimode or single-mode fiber for distances up to 80 km, enabling flexible network design.

Environmental Protection: IP-rated enclosures (e.g., IP40, IP67) and wide operating temperature ranges (-40°C to 85°C) ensure reliability in harsh conditions.

Protocol Support: Compatible with industrial protocols such as PROFINET, EtherNet/IP, and IEC 61850, ensuring seamless integration with automation systems.

Applications

Industrial Ethernet switches are used in: Manufacturing and process automationEnergy and utility networksTransportation and infrastructureShipbuilding and offshore installationsIndustrial IoT and smart factory setupsInstallation and ManagementDIN rail or 19-inch rack mounting is common for easy integration. Managed switches can be configured using software like FL Network Manager or web-based interfaces for monitoring, firmware updates, and network segmentation. Quick installation features, such as PUSH IN connections and snap-on mounting, reduce setup time.

Conclusion

Choosing the right industrial Ethernet switch depends on network complexity, required redundancy, PoE needs, fiber connectivity, and environmental conditions. Unmanaged switches are ideal for simple setups, while managed switches provide advanced control, security, and monitoring for critical industrial networks.

Article Content

Cisco Industrial Ethernet switches

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

How to pick the right Industrial Ethernet Switch for critical networks

Industrial Ethernet switches are high-reliability and cost-effective network devices designed to be applied in harsh industrial environments where they are likely to be subject to shocks, vibration and extreme

How to Pick the Right Industrial Ethernet Switch:

When choosing a switch for an industrial environment, one of the most important decisions to make is whether to use a managed or unmanaged

Managed Industrial Ethernet Switches

Switches are active network components that support the structuring of an industrial communication net work into electrical or optical line, star and ring structures.

Industrial Ethernet Switches | Phoenix Contact

Our Industrial Ethernet Switch portfolio comprises Managed and Unmanaged Switches with Gigabit, PoE, IEC 61850 certification, and for DIN rail mounting. This gives you the flexibility to build powerful

How to Choose and Deploy the Right Industrial Ethernet Switch

Antaira Technologies, a global leader in industrial networking solutions, presents this engineering guide to help plant managers, systems integrators and OT engineers specify, deploy

Industrial Ethernet Switches – Simple and effective

Our Ethernet switches are designed for use in industrial environments. They are robust, impact-resistant and temperature-resistant. All products fulfil the highest

Industrial Ethernet Switches

Provides an overview of deploying PoE in an industrial environment, exploring how this sector can benefit from PoE technology and describing the PoE capabilities offered by Cisco

The Ultimate Guide To Picking An Industrial Ethernet

Discover the essential factors for choosing an industrial Ethernet switch. Our comprehensive guide offers expert insights and tips.

Industrial Ethernet Switches: A Guide to Hardened Hardware

A complete guide to industrial Ethernet switches—certifications, managed vs. unmanaged, and Cisco solutions for Industry 4.0 networks.

IEC 61850-3 Substation Ethernet Switches

To meet the growing demand for digital substations, Westermo offers industrial Ethernet switches compliant with IEC 61850-3. Substations and power utilities are mission critical systems where 100%

Layer 2 Managed Switches

Moxa's Layer 2 managed switches feature industrial-grade reliability, network redundancy, and security features based on the IEC 62443 standard. We offer toughened, industry-specific products with

What You Need to Know: Unmanaged Switches for

Network switches allow the interconnection of devices and controllers across a facility, with particular features that make them a good fit for industrial

Industrial Ethernet Switches

Unmanaged Ethernet Switches: EKI-2000/5000 A full series of industrial unmanaged switches that have been specifically designed for use in demanding industrial environments.

Breaking Down the Basics of Industrial Ethernet Switches

An industrial Ethernet switch is a network switch specifically designed for harsh environments. Unlike standard Ethernet switches used in

Industrial Ethernet

Industrial Ethernet PLANET Industrial Ethernet Solution offers high reliability and security to ensure continuous industrial operation in harsh environments such as factory floors, outdoors, and at

Cisco IE 2000 Switch Hardware Installation Guide

Note: When the switch is installed in an industrial enclosure, the temperature within the enclosure is greater than normal room temperature outside the enclosure.

Industrial Ethernet Switches: Features, Types, and Selection Guide

Conclusion Industrial Ethernet switches are indispensable in creating robust, efficient, and scalable industrial networks. By selecting switches based on durability, management

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

