

Article Overview

Industrial Ethernet switches are rugged networking devices designed to provide reliable, secure, and high-performance connectivity in harsh industrial environments.

Overview

Industrial Ethernet switches are specialized network switches built to operate in extreme conditions, including wide temperature ranges, vibration, dust, and moisture. They are essential for connecting devices such as PLCs, sensors, HMIs, and industrial controllers in automation, transportation, power, and IIoT networks. These switches ensure continuous data transmission, network redundancy, and enhanced security for mission-critical operations .

Types of Industrial Ethernet Switches

- o Unmanaged Switches: Simple plug-and-play devices for basic connectivity. Ideal for small networks or edge devices. They often feature DIN-rail mounting and redundant power inputs .
- o Managed Switches: Provide advanced control, monitoring, and configuration options. Support VLANs, QoS, diagnostics, traffic management, and redundancy protocols. Suitable for larger or critical networks .
- o PoE/PoE+/PoE++ Switches: Deliver both data and power over Ethernet to devices like IP cameras, sensors, and industrial wireless access points. Some models provide up to 90 W per port .
- o Layer 2 and Layer 3 Switches: Layer 2 switches handle local traffic and industrial protocols (e.g., PROFINET, Modbus, EtherNet/IP), while Layer 3 switches support routing, multicast, and advanced network segmentation .

Key Features

- o Rugged Design: Operate in temperatures from -40°C to 75°C, resistant to vibration, shock, and dust .
- o Network Redundancy: Support protocols like RSTP, MSTP, and proprietary ring topologies to prevent downtime .
- o Security: Compliance with IEC 62443 and features like microsegmentation, zero-trust access, and secure management .
- o Flexible Mounting: Options include DIN-rail, rackmount, and wall-mount for diverse industrial setups .
- o High Performance: Full Gigabit Ethernet, 10-GE uplinks, low jitter, and support for time-sensitive networking for industrial AI and automation .

Applications

- o Factory Automation: Connecting PLCs, sensors, and HMIs for real-time control and monitoring .

Industrial Ethernet and Switches

- o Transportation: Rail and intelligent transport systems, often requiring EN 50155 or NEMA TS2 certifications .
- o Power and Energy: Substations and smart grids, with compliance to IEC 61850-3 .
- o IIoT and Smart Manufacturing: Integrating legacy equipment with modern networks, enabling edge-to-cloud connectivity .

Leading Manufacturers

- o Moxa: Offers unmanaged, managed, PoE, and EN 50155-certified switches with industrial protocol support .
- o Cisco: Provides AI-ready, modular industrial switches with advanced security, high-speed uplinks, and software-defined automation .
- o Brainboxes: Specializes in rugged unmanaged switches, serial-to-Ethernet converters, and IoT gateways for legacy integration .
- o Advantech: Supplies DIN-rail and rackmount switches, PoE options, and certified railway and power-sector models . Industrial Ethernet switches are critical for reliable, secure, and high-performance industrial networking, supporting both legacy and modern automation systems while ensuring minimal downtime and robust connectivity in challenging environments.

Industrial Ethernet switches offer features such as robust design, real-time data transmission, deterministic

We provide a wide range of PoE/PoE+/PoE++ switches with up to 90 W output per port to deliver high-speed data transmission while

The EDS-208A Series 8-port industrial Ethernet switches support IEEE 802.3 and IEEE 802.3u/x with 10/100M full/half-duplex,

Managed, unmanaged and Power-over-Ethernet (PoE) IP20- and IP67-rated Industrial Ethernet Switches

The Cisco Industrial Ethernet 4010 Series Switches offer a highly secure, reliable, and scalable Industrial Ethernet platform. Built to

Industrial Ethernet Switches WAGO's range of switches ensures the scalability of your ETHERNET network infrastructure, while

Moxa provides a wide range of industrial Ethernet switches that feature industrial-grade reliability, network

5-Port Industrial Fast Ethernet DIN-Rail Switch TI-E50 (Version V2) [MORE INFO](#) [FIND RETAILERS](#) [Add to cart](#)

Industrial Ethernet and Switches

Industrial Ethernet PLANET Industrial Ethernet equipment is compliant with various industrial protocols and ITS certifications such as

Developed specifically to withstand the harshest industrial environments, these switches offer the most flexible and

Advantech"s industrial Ethernet switch solutions provide an abundance of options, including Gigabit

Our Industrial Ethernet Switch portfolio comprises Managed and Unmanaged Switches with Gigabit, PoE, IEC 61850 certification,

An industrial Ethernet switch is a type of network switch designed to operate in harsh industrial environments. Oil rigs, railways,

FS Industrial Ethernet Switches with robust design for harsh industrial and outdoor environments subject to vibrations, shocks and

SCALANCE offers a comprehensive portfolio of industrial communication solutions. Find the perfect

Our Stratix® 5800 High Performance Industrial Ethernet Switches offer gigabit performance and support

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