

Industrial-grade routing switches



AI Overview

Industrial-grade switches perform routing by enabling cross-VLAN communication, Layer 3 switching, and integration with corporate networks while maintaining reliability in harsh industrial environments.

Overview of Industrial-Grade Switches Industrial-grade Ethernet switches are designed to operate in extreme conditions, including wide temperature ranges, vibration, electrical noise, and exposure to dust or moisture, making them suitable for manufacturing plants, railways, oil and gas facilities, and smart city infrastructure (). Unlike standard commercial switches, they provide robust construction, EMI/EMC protection, redundant power inputs, and advanced network features such as Quality of Service (QoS), VLANs, and Spanning Tree Protocols ().

Routing Capabilities The routing function in industrial switches allows Layer 3 communication, enabling devices in different VLANs or subnets to exchange data efficiently. This is critical in industrial networks where logical isolation is required for security and broadcast control, but cross-department or cross-workshop communication is still necessary ().

VLAN Routing VLANs (Virtual Local Area Networks) divide a physical network into multiple logical broadcast domains, isolating traffic for security and performance ().

VLAN routing breaks Layer 2 isolation, allowing communication between VLANs. Common methods include:

Router-on-a-stick: A single router interface with sub-interfaces handles multiple VLANs. Suitable for small networks but can become a bottleneck ().

Layer 3 switches with SVI (Switched Virtual Interfaces): Each VLAN has an SVI acting as its default gateway, providing wire-speed routing and loop prevention via

STP/RSTP/MSTP ().

VLANIF interfaces: Logical interfaces on some industrial switches that simplify routing without a full Layer 3 engine ().

Integration with Industrial Networks Industrial switches support protocols like PROFINET, Modbus, EtherNet/IP, and can connect PLCs, HMIs, sensors, and actuators. Layer 3 routing ensures seaml...

Article Content

Industrial Switches (ISW) | Extreme Networks

Extreme Industrial Switches are an excellent choice for industrial environments, including intelligent transportation systems, utilities, and smart cities. Full redundant ring technology creates fault-

19 Industrial Ethernet Switch Manufacturers in 2026 | Metoree

This section provides an overview for industrial ethernet switches as well as their applications and principles. Also, please take a look at the list of 19 industrial ethernet switch manufacturers and their

SCALANCE

SCALANCE offers solutions for: Switching: The right switch for every application, whether managed or unmanaged Routing: Wired and wireless routers proven in

Types of Industrial Grade Network Switches

Learn about L2 and L3 Industrial Grade Network Switches, PoE vs non-PoE types, and how to choose the right rugged switch for your industrial setup.

Industrial Ethernet Switches

Westermo industrial Ethernet switches are designed to deliver reliable and secure communication in harsh and demanding environments. Our industrial Ethernet

Cisco Industrial Router Portfolio At a Glance

The Cisco industrial router portfolio includes a range of compact, ruggedized modular products to build a highly secure, reliable, and scalable IoT infrastructure. These products are

Industrial IoT Networking

Build a secure industrial IoT network foundation with market-leading Cisco industrial switches, industrial routers, industrial wireless, and industrial compute.

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.

Moxa Industrial Ethernet Switches & Routers

Moxa unmanaged switches (Moxa EDS series) belonging to Industrial Ethernet Switches & Routers provide a wide range of din-rail Ethernet switches with

Industrial Ethernet Switches | Industrial Network Switch

Rugged, yet easy to use, Perle has over 734 models of Ethernet switches that feature Industrial Protocol Management support, superior reliability, advanced

Industrial Network Routers and Gateways | Westermo

Offering remote access solutions using wireless cellular 2G/3G/4G LTE/5G or DSL broadband technologies and industrial-grade layer 3 routing switches, Westermo

Industrial Power over Ethernet

PLANET Technology offers a range of Industrial Power over Ethernet solutions, including managed and unmanaged switches, injectors, splitters, extenders, and media converters.

Industrial Ethernet Switches | Industrial Network Switch

Industrial-grade Ethernet Switches are specifically designed to connect devices in network environments that are subject to extreme operating temperatures of

Industrial Grade Ethernet Switches -

Discover what industrial grade Ethernet switches are, their unique features, real-world applications, key differences from regular switches, and

Industrial Layer 3 Ethernet Switches | Westermo

Westermo industrial Layer 3 Ethernet switches provide secure and reliable routing for mission-critical networks. Designed for harsh industrial, rail and energy environments, they enable advanced

Industrial Switch: Understanding Industrial Ethernet

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

Industrial Ethernet Switches with 8/16/24 Ports for

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

June 2026 | TOP 7 Industrial PoE Switch Solutions for Outdoor ...

June 2026 | TOP 7 Industrial PoE Switch Solutions for Outdoor Surveillance Networks
As outdoor surveillance systems expand across critical infrastructure, transportation hubs, and perimeter

Ethernet Switches

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

How to pick the right Industrial Ethernet Switch for

Industrial Ethernet switches are comprised of managed and unmanaged switches with Gigabit, PoE, and various industry certifications. Featured industrial-grade

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 protocols.

Layer 3 Managed Switches

Moxa's Layer 3 managed switches feature industrial-grade reliability, multicast availability, and security enhancements based on the IEC 62443 standard. We

All Industrial Switch Products

Ruijie offers next-generation industrial Ethernet switches designed for harsh industrial environments, providing flexible full-gigabit access as well as 10GE uplink ports, and supporting a wide operating

Contact Us

For more information, pricing, or custom solutions, please contact us:

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