

RIVO MULTITRADE OPTICAL SYSTEMS

Wide-area industrial Ethernet switches



Overview

Industrial Ethernet Switches Built to endure the demanding conditions of factories, transportation infrastructure, grid substations, and Industrial Ethernet.

Key Takeaways

Wide-area industrial-grade Ethernet switches are rugged, high-reliability network devices designed to connect industrial assets over long distances while withstanding harsh environmental conditions.

Key Features

Rugged Construction and Environmental Tolerance: Industrial-grade switches are built to endure extreme temperatures (typically -40°C to 75°C), vibrations, shocks, dust, and moisture, making them suitable for factories, power plants, transportation systems, and remote substations (). They often feature metal housings and enhanced EMI/EMC protection to maintain reliable operation in electrically noisy environments ().

Managed vs Unmanaged: Managed switches provide advanced network control, including VLANs, QoS, redundancy protocols, and remote monitoring, while unmanaged switches offer plug-and-play simplicity for smaller deployments (). Layer 2 managed switches handle MAC-based forwarding, whereas Layer 3 switches support routing between subnets, static routes, and protocols like RIP and VRRP ().

Long-Distance Connectivity: Unlike commercial switches limited to ~100 meters, industrial switches can extend connectivity over several miles using fiber-optic ports, enabling wide-area networks that unify geographically distributed facilities, remote substations, or outlying industrial assets without signal degradation ().

Power and Redundancy: Many industrial switches support redundant DC or AC power inputs to ensure continuous operation during power failures. PoE-enabled models can power devices like cameras, sensors, and HMIs directly through the network ().

Standards and Certifications: Industrial-grade switches often comply with standards such as IEC 61850 for power automation, EN 50155 for rail applications, and NEMA TS2 for intelligent transportation systems. Security features may include IEC 62443 compliance, microsegmentation, and zero-trust remote access ().

Applications: These switches are widely used in automation systems, SCADA networks, intelligent transportation systems, railway networks, water treatment plants, and energy distribution networks. They enable reliable communication between PLCs, HMIs, sensors, and actuators across large industrial areas ().

Summary

Wide-area industrial-grade Ethernet switches combine rugged durability, long-distance connectivity, advanced management, and compliance with industrial standards to support critical industrial networks. They are essential for maintaining uptime, ensuring secure and reliable data transmission, and integrating geographically dispersed assets into a unified network infrastructure. These switches are ideal for industries where environmental challenges and operational continuity are paramount.

Article Content

Industrial Ethernet Switches – Simple and effective

From Quality of Service, redundancy, VLAN and SNMP to Access Control Lists, the switches offer a wide range of functions. The

Ethernet Switches

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

Industrial Ethernet Switches – Simple and effective

They can therefore automatically adapt to a wide variety of transmission speeds or connector assignments. In order to harmonise the

Industrial Ethernet Switches

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

TN-5300A Series

The ToughNet TN-5300A Series M12 unmanaged Ethernet switches are designed for industrial applications in harsh environments.

Industrial Ethernet Switches | EtherWAN

Industrial Ethernet Switches Are you in need of reliable and durable industrial Ethernet switches? Look no further than EtherWAN.

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How to pick the right Industrial Ethernet Switch for critical networks

Industrial Ethernet switches are comprised of managed and unmanaged switches with Gigabit, PoE, and various industry

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

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Industrial Ethernet Switches

Customers want an Ethernet switch that can be used in a variety of locations for improved flexibility and simplified sourcing. Industrial

Industrial Ethernet Switches | Phoenix Contact

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