

Industrial-grade gigabit switches for substations



Overview

To meet the growing demand for digital substations, Westermo offers industrial Ethernet switches compliant with IEC 61850-3.

Key Takeaways

IEC 61850-3 compliant industrial gigabit switches provide reliable, redundant, and high-speed connectivity for mission-critical substation networks. Key Features for Substation Switches



IEC 61850-3 Compliance: Switches designed for substations must meet IEC 61850-3 standards to ensure reliable operation in high-voltage environments and withstand electromagnetic interference (EMC) typical in substations (Westermo, Antaira) .

Gigabit Connectivity: Modern substation switches offer full gigabit Ethernet ports, often with 10-GE uplinks for backbone connections, supporting high-speed data transfer for SCADA, protection relays, and monitoring systems (Cisco, CTC Union) .

Redundancy and Resiliency: Industrial switches implement HSR/PRP protocols and redundant power inputs to maintain uninterrupted network availability, critical for smart grid and substation operations (CTC Union, Moxa) .

Rugged Design: These switches are built to endure harsh conditions, including extreme temperatures, vibration, and electrical noise. Compact DIN-rail or rack-mounted designs allow flexible deployment in space-constrained substation environments (Westermo, Moxa) .

Layer 2/3 Management and Security: Managed switches provide network segmentation, VLANs, microsegmentation, and IEC 62443-based security to protect critical OT networks. Some models also support PoE/PoE+ for powering field devices (Cisco, Moxa) .

Monitoring and Integration: Advanced switches offer device-to-cloud monitoring, SCADA/HMI integration, and support for multiple industrial protocols such as Modbus, PROFINET, and EtherNet/IP, enabling seamless IT/OT convergence (Moxa, Cisco) .

Recommended Industrial Switch Providers

- Cisco Industrial Ethernet Series: Offers modular and compact gigabit switches with PoE options, 10-GE uplinks, ultra-low jitter, and advanced security features suitable for substations and industrial automation (Cisco) .
- Westermo IEC 61850-3 Switches: Compact, EMC-resistant switches designed specifically for digital substations, ensuring 100% reliability in mission-critical power utility networks (Westermo) .
- Moxa Industrial Ethernet Switches: Wide portfolio including Layer 2/3 managed switches, PoE/PoE+ support, redundancy protocols, and compliance with IEC 61850-3 and EN 50155 standards (Moxa) .
- CTC Union IEC61850-3 Layer 3 Switches: Rack-mounted switches with up to 24 gigabit ports, 10-GE uplinks, HSR/PRP redundancy, and dual power inputs for smart grid applications (CTC Union) .
- Antaira IEC 61850-3 Switches: Fully compliant industrial switches for power distribution networks, providing robust protection in high-voltage substation environments (Antaira) .

Conclusion

For substations, IEC 61850-3 certified gigabit switches from providers like Cisco, Westermo, Moxa, CTC Union, and Antaira offer the reliability, redundancy, and high-speed connectivity required for mission-critical power networks. When selecting a switch, consider port count, uplink speed, redundancy protocols, PoE requirements, and environmental resilience to ensure optimal performance and compliance with substation standards.

Article Content

Industrial Ethernet Switches

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

IEC 61850-3 Substation Ethernet Switches

To meet the growing demand for digital substations, Westermo offers industrial Ethernet switches compliant with IEC 61850-3.

IEC 61850-3 Ethernet Switches | Substation Certification

Antaira offers a fully compliant line of industrial Ethernet switches specifically designed for Power Distribution Networks. Our IEC

IEC61850-3 Managed 10G Ethernet Switch | Industrial & Telecom

The industrial grade IEC61850-3 Ethernet switch adopts an enhanced design to meet the substation IEC61850-3 and IEEE 1613

Ethernet Switches

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

IEC-61850-3 Power Substation Switch

Product descriptionThe IPS-803GSM-HL managed industrial grade gigabit Ethernet switch is designed to meet the demands of

Reason S20 | GE Vernova | Electrification

The Reason S20 series of managed Ethernet switches are designed to enable an IEC 61850 digital substation network, including

IEC 61850-3/IEEE 1613 Ethernet Switches | EtherWAN

For substations, generation plants, and control rooms exposed to severe EMI and mission-critical uptime requirements, choose IEC

IEC61850-3 Managed 10G Ethernet Switch | Industrial & Telecom

CTC Union offers a full spectrum of products, including IEC61850-3 Managed 10G Ethernet Switch, Industrial Ethernet, PoE,

IEC 61850-3 Managed GbE Switch | Industrial & Telecom Network

CTC Union offers a full spectrum of products, including IEC 61850-3 Managed GbE Switch, Industrial Ethernet, PoE, EN50155 and E

Industrial Grade Ethernet Switch IEC 61850-3 | Valiant

VCL-MX-XW is an IEC 61850-3 compliant, substation-hardened, industrial-grade 24-port Ethernet switch that is packaged in a 1 U

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