ZITHA TECH SPECIALTY CABLES (Pty) Ltd

Industrial Security Industrial Switches



Overview

Products Our market-leading industrial switches and routers embed advanced cybersecurity capabilities that let you gain Industrial Ethernet Switches Built.

Key Takeaways

Industrial switches are critical for securing industrial networks, providing both connectivity and protection against cyber threats in OT and ICS environments.Role of Industrial Switches in Security

Industrial switches serve as the backbone of industrial networks, connecting devices such as PLCs, HMIs, VFDs, and sensors across manufacturing plants, utilities, and critical infrastructure . Beyond connectivity, they play a pivotal role in cybersecurity by controlling traffic, enforcing access policies, and monitoring network activity to prevent unauthorized access or malicious attacks .

Vulnerabilities and Risks

Industrial switches can be exploited if not properly secured. Common vulnerabilities include:

• Default or weak passwords and hard-coded encryption keys

• Open or unprotected ports, allowing attackers to access OT or IT networks

• Lack of authentication for firmware updates, which can enable malware injection

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• Protocol weaknesses, such as unencrypted Modbus or OPC UA traffic, which can be hijacked These vulnerabilities can lead to severe consequences, including production line shutdowns, equipment misoperation, or theft of sensitive data .

Managed vs. Unmanaged Switches

• Unmanaged switches are simple, plug-and-play devices that forward traffic without awareness of network priorities or security needs. While reliable for basic connectivity, they lack control over traffic, user access, and device authentication, making them more susceptible to attacks .

• Managed switches provide advanced security features such as multi-level user access control, MAC address filtering, encrypted passwords, and automatic revocation of credentials after failed login attempts. They also allow network segmentation, traffic monitoring, and integration with firewalls and intrusion detection systems .

Security Strategies

To enhance industrial network security, switches should be integrated into a layered defense system:

• Physical Layer Protection: Ruggedized casings, IP-rated enclosures, and surge protection to withstand environmental hazards .

• Protocol Layer Security: Encryption of industrial protocols, secure firmware updates, and monitoring for abnormal traffic patterns .

• Application Layer Defense: Traffic inspection, DDoS mitigation, and segmentation to prevent network-wide collapse . Additionally, deploying Demilitarized Zones (DMZs) between OT and IT networks, using deep packet inspection, and monitoring east-west traffic at the switch level are essential for comprehensive visibility and threat mitigation .

Conclusion

Industrial switches are not just connectivity devices—they are critical security enablers in modern industrial networks. Properly configured managed switches, combined with layered security strategies, help prevent cyberattacks, protect production systems, and ensure operational continuity in Industry 4.0 environments .

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Managed Switches Belden offers a broad portfolio of ruggedized managed Ethernet switches that are

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

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In this blog, we look at industrial cyberthreats and delve into strategies to blunt attackers. Additionally, we examine how industrial

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Featured industrial-grade reliability, network redundancy, strengthened security, and easy management gives you the flexibility to

The Application of Industrial Switches in Industrial Security Protection

Even with high-performance switches, a lack of systematic security strategies may still lead to failure. The following five-step method

IEC 62443-4-2 certified switches

Using an IEC 62443-4-1 maturity level 4 certified process, we can ensure that all our products meet the highest security requirements

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