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6 March 2026

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## SCADA Systems

BLUF:

Supervisory Control and Data Acquisition (SCADA) is used to control infrastructure processes, facility-based processes, or industrial processes. SCADA systems hold significant data which can lead to risks and vulnerabilities, and the correct security protocols need to be implemented to mitigate these risks.

Based on the SCADA systems article, one of the main vulnerabilities is unauthorized access for intentional purposes. Individuals that have access to these systems are purposely making changes to cause cyber-attacks like infections. The other common vulnerability is having outdated systems. The SCADA article breaks down three different generations of these systems, today the SCADA systems can be accessed through the internet. This now allows less security and opens the systems up to exposure to cyber-attacks.

Some ways SCADA systems mitigate risks is providing real-time data and this allows operators to make quick decisions to resolve problems (Zhydik 2025). These systems also provide abnormal conditions and can automatically shut down in order to prevent severe accidents. It also collects data from different sensors to ensure the system is running smoothly and allow for changes to be made (Zhydik 2025). It's also very important to ensure operators that access these systems are authorized to and have the correct training to prevent malicious attacks.

In conclusion, the SCADA systems role is to protect and mitigate the explained vulnerabilities from cyber-attacks. These critical infrastructure systems are being manipulated by individuals with unauthorized access and run on outdated technology. SCADA will resolve these issues with providing real-time data, alert abnormal conditions, and collects data from different sensors to guarantee a strong performance.

## References:

Zhydik, O. (2025, April 30). *Understanding SCADA: Key Features and Benefits for Modern Manufacturing Industries*. <https://eleks.com/blog/scada-for-modern-manufacturing/>