# ABB unveils world-first circuit breaker to boost energy resilience and cybersecurity



ABB has launched the SACE Emax 3, a next-generation air circuit breaker designed to enhance energy resilience and security in high-demand environments, including AI-driven data centres, advanced manufacturing sites, hospitals and airports. As these sectors grow more reliant on uninterrupted power and face increasing challenges around grid stability and cybersecurity, the Emax 3 is positioned as a key innovation to meet these demands.

The SACE Emax 3 addresses issues such as grid instability, human error and cyber risks, which increasingly threaten safety and operational continuity in essential facilities. According to Massimiliano Cifalitti, Smart Power president at ABB Electrification, the circuit breaker introduces a new level of energy resilience by tackling some of the main causes of power outages. Its built-in intelligence enables proactive power management, allowing users to identify and resolve issues before they escalate.

A standout feature of the Emax 3 is its distinction as the world’s first air circuit breaker to achieve Security Level 2 certification under the IEC 62443 cybersecurity standard. This certification demonstrates its strong defences against cyber threats targeting electrical distribution systems. With infrastructure becoming ever more connected and digital, this level of protection is seen as increasingly vital.

Safety is further strengthened by the Emax 3’s integrated arc flash detection system, another first for air circuit breakers. Arc flash incidents, which involve hazardous electrical discharges, can cause severe injuries and equipment damage. The system’s real-time detection reduces these risks, helping ensure safer and more reliable operations.

The Emax 3 also uses advanced sensors and AI-powered algorithms to continuously monitor electrical loads, system health and environmental conditions. This enables predictive maintenance by detecting potential issues early, helping prevent unexpected downtime—critical for facilities where uptime directly affects financial performance and service reliability.

Lara Cortinovis, head of Distribution & Energy Management at ABB Electrification, highlighted the high stakes involved. “Power outages in today’s environment can result in losses reaching millions of dollars,” said Cortinovis. She stressed that innovations such as the Emax 3 are key to improving resilience, safety and security as energy consumption and digital demands continue to rise.

Designed for easy integration into existing electrical systems, the Emax 3 offers scalability and upgrade options to adapt as power needs grow. This flexibility ensures long-term benefits without requiring full system replacements.

As the UK and other nations seek leadership in responsible AI and advanced manufacturing, technologies like the Emax 3 represent major progress in building secure, resilient energy systems. While cybersecurity and grid stability remain challenges, the protective features and intelligent monitoring in the Emax 3 show how innovation can help meet growing power needs safely and sustainably. This enhanced energy resilience is set to play a vital role in supporting the next wave of AI and manufacturing advances, ensuring critical infrastructure keeps pace with rapid technological change.

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## Bibliography

1. <https://futurecio.tech/new-abb-circuit-breaker-aims-to-enhance-ai-data-centres-and-advanced-manufacturing-resilience/> - Please view link - unable to able to access data
2. <https://new.abb.com/news/detail/127141/new-abb-circuit-breaker-to-make-ai-data-centers-and-advanced-manufacturing-more-resilient> - ABB has introduced the SACE Emax 3, a next-generation air circuit breaker designed to enhance energy security and resilience in critical infrastructures such as data centers, advanced manufacturing sites, hospitals, and airports. The Emax 3 addresses concerns about grid stability, cybersecurity, and the increasing power demands of Artificial Intelligence (AI) in data centers. It features advanced sensing capabilities, predictive maintenance, and is the world's first air circuit breaker with Security Level 2 IEC 62443 cybersecurity certification, along with a fully integrated arc flash detection system to improve safety and reliability.
3. <https://new.abb.com/low-voltage/products/circuit-breakers/emax-3> - The SACE Emax 3 is an innovative air circuit breaker engineered to make electrical distribution systems more adaptive, reliable, and secure. It integrates seamlessly into systems and equipment, evolving with changing needs by providing scalable solutions and upgrades for future requirements. Developed to maximize uptime, Emax 3 employs comprehensive sensing capabilities and effective power and asset management strategies to ensure that critical operations remain uninterrupted. In today's environment, where security is paramount, Emax 3 meets the highest cybersecurity standards to protect your data, while maximizing the safety of both people and assets.
4. <https://www.manilatimes.net/2025/07/02/tmt-newswire/globenewswire/new-abb-circuit-breaker-to-make-ai-data-centers-and-advanced-manufacturing-more-resilient/2142037> - ABB has unveiled the SACE Emax 3, a next-generation air circuit breaker aimed at enhancing energy security and resilience in critical infrastructures such as data centers, advanced manufacturing sites, hospitals, and airports. The Emax 3 addresses concerns about grid stability, cybersecurity, and the increasing power demands of Artificial Intelligence (AI) in data centers. It features advanced sensing capabilities, predictive maintenance, and is the world's first air circuit breaker with Security Level 2 IEC 62443 cybersecurity certification, along with a fully integrated arc flash detection system to improve safety and reliability.
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6. <https://smartbuildingmag.com/news/97561-abb-s-new-circuit-breaker-boosts-resilience-in-ai-and-manufacturing> - ABB has unveiled the SACE Emax 3, a next-generation air circuit breaker designed to enhance energy security and resilience in critical infrastructures such as data centers, advanced manufacturing sites, hospitals, and airports. The Emax 3 addresses concerns about grid stability, cybersecurity, and the increasing power demands of Artificial Intelligence (AI) in data centers. It features advanced sensing capabilities, predictive maintenance, and is the world's first air circuit breaker with Security Level 2 IEC 62443 cybersecurity certification, along with a fully integrated arc flash detection system to improve safety and reliability.
7. <https://www.businesstoday.com.my/2025/07/02/abb-unveils-new-circuit-breakers-for-ai-data-centres-and-advanced-manufacturing/> - ABB has launched the SACE Emax 3, a next-generation air circuit breaker aimed at bolstering energy resilience in high-demand environments such as AI-driven data centers, advanced manufacturing sites, hospitals, and airports. The Emax 3 integrates real-time data analytics, predictive maintenance capabilities, and advanced power sensing, offering a major leap in energy security for facilities where uptime is business-critical. ABB said the new system responds to mounting concerns over grid instability, cybersecurity, and rising power requirements linked to artificial intelligence. Notably, the Emax 3 is the first air circuit breaker globally to be certified to Security Level 2 under the IEC 62443 cybersecurity standard. It is also the first of its kind to feature a built-in arc flash detection system, which enhances operational safety by identifying dangerous electrical discharges in real time. Equipped with high-precision sensors and AI-driven algorithms, the Emax 3 continuously monitors electrical usage, system health, and ambient conditions.