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# Smart Factories Need Smart IT: ABB's Success with the Rittal SEDC

## **CASE STUDY**

**Engineering, Manufacturing;  
IT Software & Services**



  
**Hewlett Packard  
Enterprise**

**Client:** ABB; HPE

**Industry:** Engineering, Manufacturing; IT  
Software & Services

**Company size:** approx. 109K; approx. 62K

**Founded:** 1883; HP 1939, HPE 2015

**Head office:** Zurich, Switzerland;  
San Jose, California

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# THE PROJECT

## The challenge

- Outdated IT infrastructure lacked physical security, climate control, and power backup
- High risk to critical data and system availability due to inadequate facilities

## The solution

- Installed Secure Edge Data Center (SEDC) for a compact, all-in-one IT edge solution
- Delivered enhanced security, reliable climate control, and uninterrupted power supply
- Reduced energy costs and CO<sub>2</sub> emissions by 15–20%, also saved approximately \$25,000 in upfront investment



## Introduction

Staying competitive in today's data-driven industrial landscape requires innovative solutions to manage and secure vast amounts of data effectively. At ABB's Smart Buildings factory in Schaffhausen, Switzerland, cutting-edge technology met operational efficiency through the Secure Edge Data Center (SEDC), an all-in-one solution designed to optimize performance while reducing costs and environmental impact.

## The Client

The ABB Smart Buildings factory in Schaffhausen, Switzerland, has global responsibility for several product groups within ABB. Among several million miniature circuit breakers per year, the factory also manufactures the SMISLINE touchproof power distribution system for low-voltage, sub-distribution cabinets, a circuit monitoring system, and magnetic relays for ABB residual current devices. While these products are distributed globally and mainly address industrial and critical power applications such as data centers, the factory also provides switches and sockets, which are specifically designed for private households in the Swiss market. On its 40,000 m<sup>2</sup> floor, the factory not only hosts production machines, but also a warehouse where imported goods from other ABB factories are stocked and distributed to ABB's Swiss customers.

## The Challenge

Over the last few years, ABB's Smart Buildings factory in Schaffhausen has frequently upgraded their production and logistic systems to achieve a higher degree of automatization. Thereby, the latest robots from ABB were integrated in the production lines and autonomous storage systems were installed. While these new technologies enable shorter lead times and higher product quality, they also require appropriate IT infrastructure and systems to both operate smoothly and store and back up relevant data.

Like many other production sites designed before modern IT systems were necessary, the Smart Buildings factory lacks appropriate facilities, such as server rooms or closets, to host IT equipment for their machines. Therefore, rooms that previously had a different purpose were transformed to include the on-premises IT. While the room for the factory's main IT had been equipped with suitable IT infrastructure, the room for the back-up IT lacked such infrastructure. To increase the failure safety of the back-up IT, the factory's IT team was looking for a solution that addressed the following issues:

1. Limited physical security and resiliency against external influences
2. Existing air conditioners were inadequate for maintaining stable climate conditions
3. No UPS (Uninterruptible Power Supply) systems to ensure continuous availability in case of a power outage

4. No fire extinguishing system in the room to protect equipment and plant against fire hazards and damage
5. No remote monitoring of environmental conditions inside the room

The above issues put a risk on the workloads that ran on the IT infrastructure. For instance, the backup SQL database for the factory's automated storage system was hosted on one of the servers, meaning that the ~80,000 stock positions of the storage systems were continuously synched on a server according to real-life changes.

The storage system also compared this data with the order pipeline and automatically arranged the stock accordingly to reduce delivery times. Additionally, the backup SQL storage system and the factory's production records ran on these servers. These records allow detailed analyses of production performance and enable measures to further improve the factory output and its quality. They also serve as a database for claim management. Besides these two systems, the backup IT equipment also includes a secondary network connection and a redundant core switch to ensure network continuity and availability for the factory.

### The Rittal Solution

During their evaluation to upgrade the room with individual systems, the factory's IT team learned about the Secure Edge Data Center (SEDC) from ABB, HPE, and Rittal via [ABB's website](#). This all-in-one turnkey solution accommodates all critical systems of a data center in a 19-inch server rack to reduce environmental and power-outage risks.

The cabinet of the SEDC provides a secure and contained environment for IT equipment while its enclosure is IP55 rated to protect against dust and water jets. To ensure optimal climate conditions inside the cabinet, a rack cooling system is included, and any condensate is automatically pumped out. The SEDC also has a monitoring system to remotely check climate conditions and the status of integrated systems. On top of that, there is an early smoke detection and a gaseous fire extinguishing system inside the cabinet to protect the IT equipment against fire damage.

To ensure a continuous power supply for the IT equipment, the SEDC features the ABB PowerValue UPS and SMISS-LINE touchproof power distribution system, which includes an overvoltage protection against surges. In case of a power outage, the IT systems can run up to 7 minutes on the UPS battery. The UPS will send a signal via SNMP to the IT equipment, which gives it enough time for a graceful shut down before the battery runs out of power.

Due to the combination of these systems, the SEDC offers an ideal customer solution for on-premises IT equipment and systems, and it can be placed in harsh environments like a production floor.

### The Results

By deploying an SEDC, the Smart Buildings factory could provide a secure environment for their back-up IT equipment and systems and address all shortcomings of their previous IT installation at once. On top of that, the Smart Buildings factory benefitted immediately from the following advantages:

1. **Less Investment Costs:** Compared to upgrading the room with individual systems to achieve an equivalent protection of the IT equipment, the SEDC cost about \$25,000 less. Additionally, project management and system engineering for individual system installations were not necessary, which resulted in incremental savings.
2. **Faster Deployment:** Since the SEDC is a standardized and pre-configured, yet modular and scalable solution, it had a short delivery time and could be deployed faster than individual systems. For its commissioning, the SEDC only required power and data connections and the installation of an external chiller.
3. **Less Operating Cost:** The former air conditioners had to cool down the whole room and were not suitable to ensure stable or efficient climate conditions. Due to the contained environment, only the air inside the SEDC needed to be managed and both humidity and temperature could be tightly controlled. The internal, state-of-the-art cooling unit also runs more efficiently, which results in around 15-20% energy savings for cooling.
4. **Less CO<sub>2</sub> Emissions:** The reduced energy consumption for cooling directly translates into 15-20% less CO<sub>2</sub> emissions. Every saved kilowatt hour of electricity means less CO<sub>2</sub> emissions due to less electricity generation. Therefore, the SEDC also improves the ecological footprint of the Smart Buildings factory.
5. **Increased Security:** While the previous server cabinet was half open, the SEDC features a completely contained environment and provides physical protection against external impacts (including ingress of dust and water). The integrated alarm function informs the factory's IT team about any unwanted openings in real time. To ensure optimal fire protection, the integrated fire detection and extinguishing systems are connected to the factory's fire detection system and immediately send out an alarm to the responsible stakeholders when it is triggered.
6. **Increased Failure Safety of IT Equipment:** The remote monitoring systems provide live data about the status of the SEDC and send warnings about deteriorating conditions. This enables predictive intervention and maintenance and the possibility to carry out counter measures to reduce equipment downtime. In addition, the UPS system ensures continuous availability of the IT equipment in case of a power outage.



## Conclusion

The Secure Edge Data Center (SEDC) provided ABB's Smart Buildings factory with a modern, cost-effective, and compact solution to address its IT infrastructure challenges. By integrating the core elements of a full-sized data center into a single rack, the SEDC enabled the factory to safely process data at the edge for real-time analysis, faster response times, and reduced external network traffic. This helped them achieve a \$25,000 reduction in investment costs and energy savings of 15-20%, which directly translate to a similar reduction in CO2 emissions. The solution offered higher availability, enhanced failure safety, and optimal environmental conditions for critical IT equipment to boost factory performance into the future. Further, its rack-sized design proved more efficient and economical than upgrading the entire room, making the SEDC the ideal choice for the factory's evolving operational needs.

## Contact Rittal for Efficient Automation Solutions

Looking to enhance your IT infrastructure or boost your operational efficiency out on the factory floor? **Reach out to Rittal today** — our experts are ready to discuss the details of your project and help you find the perfect solution.

## About Rittal LLC

Rittal LLC is a global manufacturer of industrial and IT enclosures, racks, and accessories, including cooling solutions and power management systems for industrial, data center, outdoor, and hybrid applications. As the largest manufacturer of enclosures in the world, Rittal provides innovative, high-quality solutions for practically any industrial or IT infrastructure application, from single enclosures to comprehensive, mission critical systems. Products are tested and certified to the appropriate standards that apply, including UL, CSA, ATEX, NEMA, and more. **[Learn more at rittal.us](https://www.rittal.us)**.

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