

case study

Kempinski Palace Engelberg

CHALLENGE

Built in 1904, the Kempinski Palace Engelberg is 40km away from Lucerne, Switzerland in the snow-covered landscape of the Swiss Alps. The Hotel contains meeting rooms, a restaurant, bar, spa, art gallery, and a 800 capacity event hall. In 2021, the hotel underwent a major renovation and is now a 5-Star hotel under the management of Kempinski, Europe's oldest luxury hotel group.

The Kempinski Palace needed the building management system (BMS) to be integrated and controlling the air handling units (AHUs), heating and cooling systems, room temperature regulations and door monitoring and control. There is also a heated glass roof to melt snow, emergency alarm buttons in the sauna and spa, water detectors, and fuse monitoring. Six AHUs are divided into outside air intake and supply air in the basement and the return and exhaust air on top of the building. Each room is equipped with a panel to request cleaning service or set the room to do not disturb. The digital "make up room" buttons, lighting, temperature regulation, and occupancy settings can work standalone with KNX but also need to be integrated in the BMS to observe and control the rooms. The BMS is connected to the hotel management system, to receive additional data like temperature setpoints and reservation dates to make sure that the guests have a comfortable temperature when they arrive.

Energy meters need to be integrated via MBus and Modbus, and afterwards delivered via BACnet to a subsystem and historical data cyclic exported a SFTP server.



LEICOM

"I never saw such a modern building management system before. Now I can monitor and control practically every process in the hotel in one system."

Thomas Welte
Head of Facility Management
Kempinski Palace

FAST FACTS

Project Type: BMS, HVAC Integration

Building Type: Luxury hotel

Systems Integrated: HVAC, room monitoring systems, lighting, energy meters

Number of Control Points: 4,246 data points have been integrated through the Niagara Framework

ADDITIONAL FACTS

- 290 I/O modules
- 18 JACE 8000 controllers regulate, control, and visual AHUs.
- 1 AHU integrated and visualized via BACnet through JACE
- 17 heating groups responsible for temperature control integrated by Niagara Framework®
- 67 public rooms contain temperature, CO2, and air flow regulation controlled by JACE 8000
- 76 doors monitored and controlled by JACE 8000
- 129 guest rooms are regulated by KNX but fully integrated and visualized on BMS
- 65 counters integrated via MBus or serial Modbus and displayed in BMS

SOLUTION

LEICOM AG implemented an integrated building automation system with the Niagara Framework® and placed a JACE 8000 in every control cabinet with a Windows-based Supervisor. Every JACE controls the infrastructure and application directly connected to it in a closed loop. All JACEs communicate over the Fox protocol to interchange data such as a heating requirement from an AHU to the heating system. The Fox protocol also helps the divided AHUs communicate together but are displayed on one page using virtual access to the JACE.

The data for the entire system is saved on the JACE every 30 seconds to build up a history and then transferred and saved to the Supervisor every 15 minutes to guarantee that there is no data loss if a communication interruption occurs. The historical data collected on the Supervisor can also be exported to an energy monitoring system.

RESULTS

Leicom was able to design the system according to the specific requirements for the Kempinski Palace. If someone gets in trouble in the swimming pool area and presses the alarm button, the system immediately generates an alarm. The alarm is sent by SMTP to an external alarm server and the Supervisor displays all the alarms in the alarm console to provide an overall view to the facility manager. The alarms are available until the operator takes action and the alarm data is collected in a server. A fully automated backup of the complete system is saved on an external network attached storage (NAS) once a week for better reporting and management. By utilizing the Niagara Framework as the standard operating system and installing JACE 8000 controllers in every controls cabinet, Kempinski Palace has achieved fast, reliable performance of building equipment and easy intuitive user experience.

ABOUT LEICOM

Leicom creates digital infrastructures for a safe, sustainable and better Switzerland. Their solutions increase social prosperity and conserve resources through energy efficiency.

ABOUT TRIDIUM

For over 20 years, Tridium has led the world in business application frameworks — advancing truly open environments that harness the power of the Internet of Things. Our products allow diverse monitoring, control and automation systems to communicate and collaborate in buildings, data centers, manufacturing systems, smart cities and more. We create smarter, safer and more efficient enterprises and communities — bringing intelligence and connectivity to the network edge and back. Additional information about Tridium is available at www.tridium.com.

