

Energy consumption reduced and operation simplified with building controller retrofit

By commissioning the redevelopment of an outdated building controller, it was possible for Nordea Bank of Norway, the owner of office buildings in Oslo, to drastically reduce their energy consumption. The open control solution, based on a Beckhoff Embedded PC and Bus Terminal I/O, has also proved to be an economic success just one year after the retrofit: Energy savings of more than 100,000 euros have virtually offset the investment costs.



Ståle Syversen, Managing Director of SRO (left), and Thomas Thorstensen, ISS Facility Management (right)

Open control solution permits the integration of all existing devices.

While peripheral components, such as pumps, actuators, valves, encoders and sensors as well as high voltage distributors were retained from the existing system, the controller was replaced by a Beckhoff CX9000 Embedded PC. The approximately 2,000 data points distributed around the building are controlled by the Bus Terminals connected to the CX; connection takes place via an Ethernet network. "The energy consumption has been lowered by almost 20 %, enabling the owner to record a profit of several hundred thousand euros even after just one year of operation," stresses Thomas Thorstensen of ISS Facility Management. The CO₂ emissions avoided by this are equivalent in scope to the quantity of pollutants that would be generated by driving around the equator 20 times with a car. In addition, ISS is focusing on further optimizations, such as planning energy consumption in relation to the time of day, in order to reduce energy consumption even further. "We will be optimizing the building even further and expect a savings of 1.5 million kWh this year," says Thomas Thorstensen, outlining the near-term objectives.

The building automation system is controlled from the office of the system integrator SRO. "Here we can intervene quickly for maintenance purposes and change the plant parameters as required by the customer," explains Ståle Syversen, managing director of SRO. For him, the openness of Beckhoff's PC-based control solution is most important. "Nowadays our customers place great importance on their automation investments being based on open technology and scalable solutions that impose no limits on them," says Ståle Syversen. "The solution supplied by us allows the customer to freely select from the various suppliers on the market in the case of service or future expansions."

The requirements of private and public building owners with regard to energy efficiency have changed drastically over the course of the last decade. Following this trend, the Nordea Bank, owner of four office buildings in Lilleaker, in West Oslo, decided to initiate a retrofit of the building automation systems. Up until then the buildings, which were built at the end of the 1990s, had had no intelligent HVAC controller to make it possible to purposefully control energy use and avoid waste. A further disadvantage was the fact that it was virtually impossible for the user to understand and operate the building controller.

Thus ISS Facility Management, Nordea's property administrator, commissioned the Oslo company SRO AS with the development of a modern automation solution. At the center of the project was the optimization of energy consumption as well as an intuitive user interface that would make it possible for the user to operate and monitor the controller if need be.

SRO AS

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