

case study



Result-oriented energy optimization at the Erfurt-Weimar airport

Terminal B of the Erfurt-Weimar airport was energetically updated in 2010 by Honeywell Building Solutions (HBS). With its model of result-oriented energy optimization, HBS gave the airport an additional incentive to begin the project for the sustainable reduction of its CO₂ emissions.

Through the modernized airport passenger services, the Erfurt-Weimar airport annually saves six-figure energy costs.

Honeywell

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THE ERFURT-WEIMAR AIRPORT

More than 300,000 passengers annually use the international commercial airport Erfurt-Weimar as the starting or ending point for their business trips and vacations. Mainly destinations within Germany and Europe are flown to from the airport, which has also included the names of the Goethe city since 2011.

THE GOAL OF THE AIRPORT

About 15 years after the commissioning of the terminal, the Erfurt-Weimar airport and Honeywell created possibilities for energy savings. However, the challenge for the airport was that it did not have its own budget for the environment-friendly retrofitting of the system technology.

ENERGY OPTIMIZATION FROM A COMMERCIAL POINT OF VIEW

This is precisely where Honeywell's concept of result-oriented energy optimization could be applied. A simple thought is behind the

financing model: The future energy savings in the building will be used to renew and optimize the current system technology.

At the beginning of the project, Honeywell took over the financing of the measures for the airport so that the airport did not need any personal investment. As a beneficiary, Honeywell completed the financing contract with its partner bank, the repayment of the credit occurred through the contractually guaranteed savings coming from the energy costs.

Thus, the airport did not have any added expenditures during the financing period: Instead, the savings covered the payments for the interest and amortization. For the customers, this was accompanied by the benefit that Honeywell contractually guaranteed to take over the risk of the economic success and the energy consumption reductions for years until the complete amortization limit of the investment.

TECHNICAL POTENTIAL ANALYSIS AND SOLUTION

The modernization of the terminals, which were first operated in May of 1996, began with a comprehensive measurement and analysis of the consumption values in order to determine the savings potentials with the existing technology. Through the expertise of Honeywell, the "high energy consumers" could be quickly identified and suggestions for optimization were provided. For a period of more than a week, the temperature, humidity, CO₂ concentration and consumed electricity were continuously measured and a performance portfolio was determined for the individual cooling units and ventilation systems.

Based on the results of this analysis, Honeywell was able to prove the Erfurt-Weimar airport with a comprehensive modernization concept in which the guaranteed savings were already listed in detail. It included the refurbishment of





the heating and cooling technology in the entire waiting and reception area and in the office and retail spaces. Since the required construction measures could most be executed during running operations, they barely impacted daily business.

An important element of the measures was the best possible adjustment of the ventilation and air conditioning systems to the actual requirements through pressure gauges, CO₂-sensors and frequency converters. With the DDC-control system, mostly the existing infrastructure was used so that the cost-intensive acquisition of new devices was unnecessary. Instead, the previously used volume flow boxes, entrance doors and roof windows, along with the installed facade heating, could be integrated into the measuring and control circuits of the building control with the help of LON-technology. While the frequency converter guarantees a gradual and therefore efficient regulation of the air conditioning units, the occurrence of drafts is mostly avoided through the integration of the window and door control. In order to guarantee consistent air quality, air quality and room sensors were installed in all zones with public traffic. The networked technology

determines the consumption values for electrical and heat energy and offers a comprehensive and detailed overview for technicians and operators. Simultaneously, the new building automation significantly contributes to the reduction of sound pollution in the terminal.

THE RESULT

The airport did not have to have a personal investment budget for the modernization. The savings of more than 115,000 € per year as defined during the planning phase were contractually guaranteed by Honeywell. After the first three consumption measurements of the newly installed technology, the expected values were even significantly exceeded. Based on the previous determined values, the Erfurt-Weimar airport can reduce their expenditures to nearly a tenth of the previous costs for the optimized systems.

Thus, Matthias Köhn, director of the airport, is very satisfied as well: "The savings guaranteed to us by Honeywell were exceeded by nearly 30% in the first year. This noticeably relieves our budget for building costs."



The environment profits at the same time: The emission of climate-hazardous CO₂ could be reduced by more than 465 t annually. This corresponds with the saving of the CO₂-emission from 100 middleclass vehicles that drive 20,000 km annually. With their concept for result-oriented energy optimization, Honeywell Building Stations guarantees increased comfort for passengers and employees from the airport with the simultaneous reduction of the CO₂-emissions and a decrease in the energy costs.

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