



**Düsseldorf Airport** **DUS**

#### Property

Zentralgebäude Ost

#### Customer

Düsseldorf Airport

#### City

Düsseldorf

#### Service

Optimized climate control with MeteoViva Climate

#### Area

100,000 sq ft

#### Technology

District heating, ceiling cooling panels, radiators, ventilation systems. 3 zones, 73 data points, BMS with BACnet connection

#### Savings

39 percent on energy costs (in the first year)

#### Amortization

3 months

## Düsseldorf Airport Sets its Sights on the Environment

Düsseldorf Airport is the third largest airport in Germany with just over 21 million passengers. The airport is not only the start and end point for many business travelers and vacationers from the Rhine-Ruhr region, but it has also become a notable air traffic hub with two million connecting passengers. In order to maintain its competitive position both nationally and internationally, resource efficiency has become a central issue in every area of airport operations – including building energy supply and consumption.

### The Project

Zentralgebäude Ost is adjacent to gate A at Düsseldorf Airport and was built in the mid-1990s. The six-story complex is used by Flughafengesellschaft Düsseldorf as a modern customs center and office building. As part of the major renovation project „airport 2000 plus“, the tract was expanded and adapted to the airport’s new architectural design. MeteoViva Climate has been in operation here since the end of 2011. The technology ensures that all areas of the 100,000 sq ft building are climatized, cooled and heated in an energy-saving manner.



*"Thanks to MeteoViva Climate, we were able to lower our energy costs 39 percent in Zentralgebäude Ost during the first year. This was achieved despite the fact that the building was already equipped with modern HVAC technology."*

**Ralf Möbers,**  
Head of Supply Technology,  
Flughafen Düsseldorf GmbH



## The Assignment

People are working 24/7 in this building – from 4am to 11pm, 365 days a year. One part of the building is used by a large airline to coordinate their flight operations. Other airport service providers, all of which are subject to the rhythm of normal airport operations, also have their offices here. The building management technology operates constantly.

## Implementation

Heating, cooling and air conditioning of the rooms in central terminal east is performed across three zones. Heating and hot water run on district heating. Cooling panels are installed on the ceilings for cooling in addition to complex ventilation systems for air conditioning. These static heating and cooling zones were no problem for MeteoViva Climate – the technology is able to influence every component of the HVAC circuits. 73 data points were identified in the building, which MeteoViva Climate uses to control the system's operations. They provide the necessary data to create an exact simulation model for describing and forecasting the building's thermodynamics.

## Conclusion

The system reduced operating costs for the central terminal by 39 percent in the first year of operation and cut the airport's CO<sub>2</sub> emissions by 42 percent. Due to low installation costs, a payback of just 3 months was achieved for this project.

To further reduce electricity consumption, the previously stage-driven ventilation systems have

Energy costs are correspondingly high. MeteoViva was tasked with optimizing the operations of the built-in heating, ventilation and air conditioning technology so that it used substantially less energy while not compromising comfort and air quality. Since the building is fully leased, the installation of the technology had to be done hassle free without interruptions of operation.

As the original installation already included the necessary sensors and actuators only a digital interface needed to be added in order to operate the existing building management system more efficiently. For the customer, it was very important that the technology could run reliably and stable in the new environment right from the start. The fact that MeteoViva Climate does not physically intervene in the existing BMS infrastructure, but rather operates on top of it, proved to be a great advantage. Interruptions to operations and additional maintenance costs are therefore completely avoided. After a short testing and calibration phase, the system was up and running.

now been equipped with frequency converters. They now allow the HVAC system to operate dynamically and therefore more effectively with MeteoViva Climate. Plans to implement MeteoViva Climate in the other airport buildings are already being discussed.