

Application Story

Industry: **Power / Process**

Products: **Control Systems**

Energy Supply Center for Munich Airport



Reference project
Energy Supply Center for
Munich Airport

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ME-Automation Projects GmbH

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Reference project Energy Supply Center for Munich Airport

Customer:	Flughafen München GmbH
Plant:	Supply center for electric power, heat & refrigeration
Project value:	~ 5 million Euro
Project duration:	2003 – present (in discrete construction stages)

Description

The energy supply center was commissioned together with the inauguration of Munich's new airport in 1992. Flughafen München GmbH is responsible for operating the cogenerating plant that supplies heat and refrigeration for the airport, whereby electric power is also generated. The electric power also serves as the airport's emergency supply in case of a grid power failure.

The new Terminal 2 of the Munich Airport was opened for passenger service at the end of June 2003. As a result of this constructional expansion, the cogenerating plant had to be adapted accordingly. Together with the modifications to the technical process equipment, the process control & automation technology was also modernized and expanded.

Already in 1989 ME-Automation Projects, back then called Philips Automation Projects, received an order to supply the complete process control & management system for the airport's cogenerating plant. At that time, the PMS 68000 process management system with its distributed architecture fulfilled all the requirements for overall plant control reliably.

Thanks to the plant's horizontal structure in function units with clearly assigned process management areas, an exceptionally high level of operational safety and flexibility was achieved.

During the migration to the new process management system, this structure proved to be highly advantageous, so that particularly efficient concepts for renewing the system in stages could be implemented.

During another constructional change in 2006, the superseded process management system PMS 68000 was replaced completely with the modern PMSX[®]pro system. The new system is particularly powerful, and provides all the functions required for plant automation, plus the high level of reliability demanded for such complex installations.

Especially the automation functions for the emergency power supply and the associated switchgear must operate reliably and respond immediately and effectively in case of a grid power failure. Moreover, distribution of the process control & automation tasks in several process servers ensures high performance, fast response, as well as utmost reliability and operational safety.

The entire project had to be executed within an extremely tight schedule and under difficult conditions without interrupting normal operation. A particularly important requirement for project management was the essential demand that emergency power was always available to ensure smooth airport operations during replacement and upgrading of the process control & automation systems. Even during the Europe-wide power failure on November 4, 2006 – in the middle of the expansion and commissioning phase – there were no disturbances in airport operations, thanks to the excellent migration concept.





Technical requirements

- Process management of entire plant from a central point
- Vertical and horizontal data consistency
- Highly available automation stations in redundant architecture
- Distributed system architecture with local process servers
- Consistent data coupling with office network
- System-wide engineering from a central engineering workplace
- Archiving of all incoming alarms & messages
- Archiving of all relevant measurement values in appropriate compression stages
- Strict data consistency in all software tools
- Access to all process values from the office environment
- Standardized software tools

Scope of delivery

- Process management system PMSX® pro
- Automation systems – some with highest availability
- Failure-proof sequence control
- Network using switch technology
- Installation & wiring
- Target specifications / engineering / programming
- Documentation in RUPLAN
- Factory tests with plant simulation
- Commissioning / trial operation / training

Process management characteristics

- | | |
|-----------------------------|--|
| ■ Process management system | PMSX® pro |
| ■ Topology | distributed system |
| ■ Network | Ethernet fiber optic – single-fault tolerant |
| ■ Automation system | Mitsubishi System Q, Siemens S7 |
| ■ Data points | about 30 000 |
| ■ Automation stations | 53 |
| ■ Operating stations | 10 |
| ■ Process servers | 6 |

Excerpt from our reference list

				
Waste incineration plant Frankfurt	Waste incineration plant Iserlohn	Waste incineration plant Weißenhorn	Wastewater treatment plant Erdinger Moos	Wastewater treatment plant Bad Homburg Ober-Eschbach
				
Milk production Regensburg	Energy supply center Dresden	Energy supply center Oberhausen	Pellet production plant Offenbach	Biomass CHP plant Wiesbaden
				
Energy supply center Munich Airport	Waste incineration plant Frankfurt	Drinking water plant Haltern	Sewage network and wastewater treatment plant Hamburg	Pellet production plant Dotternhausen
				
Wastewater treatment plant Düsseldorf-Nord	Waste incineration plant Frankfurt	Waste incineration plant Hamm	Waste incineration plant Frankfurt	Facility Management Control System Dresden
				
Facility Management Control System Nijmegen	Tank terminals Rotterdam	Barthel Pauls Söhne AG Biomass CHP plant	Wastewater treatment plant Stuttgart-Mühlhausen	Wastewater treatment plant Nuremberg
				
Wastewater treatment plant Nidderau	Wastewater treatment plant Landshut	Drinking water plant Friesland		
				
Tank terminal Botlek	Sewage network Wuppertal			

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