

Industry: Process

Products Used: Control Systems/Modular

MELSEC System Q: Controlling a modern district power station

Safety and economy are top priorities for the builders and operators of process installations. In Frankfurt, redundant controller technology from Mitsubishi Electric protects the Nordweststadt waste incineration plant and the neighbouring



district heating power station against failures. A Profibus master module provides centralised field device management and the foundation for fully-optimised automation systems. The planning, installation and configuration of the automation systems for the plants were carried out by KH-Automation Projects GmbH, an automation partner of Mitsubishi Electric.

The waste incineration plant in Frankfurt Nordweststadt was built in 1965 together with the neighbouring district heating power station. Since then the two facilities have supplied the city district with electricity and district heating. It was then decided to convert the plant into a modern waste-fired district heating power station with an annual incineration capacity of up to 525,000 tonnes of household waste. Work on the conversion and modernisation project began in 2004 and is being continued in a staged process. The modernisation of the district heating power station has now been largely completed, together with the main section and two of the four incineration lines of the waste incineration plant.

The objective of the operators is to combine the two plants into a single integrated facility that will remain efficient and economical for many years to come. One of the main specifications for the control systems was that they should be able to guar-



antee trouble-free continuous operation of the waste-fired district heating power plant. In addition to this the operators wanted to have access to up-to-date performance, diagnostics and service data at all times, so as to enable inexpensive and simple servicing and maintenance. The engineers from KH-Automation Projects installed exactly the same control and automation technology in both the neighbouring plants to maximise the potential synergy effects. A joint control room with five control consoles provides comprehensive information on the status of all components of the plants.

PMSXpro was chosen as the central process control system. Distributed local process stations acquire the process data from the individual plant units and then pre-process and archive the data. The central control system is connected to the individual automation stations via an Ethernet network.

The MELSEC System Q automation platform is Mitsubishi Electric's most powerful modular PLC system. Up to four CPU modules can be installed on a single backplane, sharing the load of the control, data processing and communications tasks. The processes in the plant are controlled by special high-performance CPUs designed for redundant configurations and the requirements of critical industrial process applications.

Local communications take place via a Profibus master module that supports up to 125 distributed field devices (slaves).

Application story first released in March 2006