Cogenerative waste incineration plant Iserlohn

Industry: Power / Process
Products: Control Systems
Reference project
Cogenerative waste incineration plant Iserlohn

MITSUBISHI ELECTRIC Group
ME-Automation Projects GmbH
Description

The Iserlohn waste incineration plant was first commissioned in 1970. Between 1994 and 1996, the plant was extensively upgraded and optimized, and is now one of the most modern plants of its kind in Europe. Waste combustion is done in three lines – two with a throughput of 8 tons/h, and one for 16 tons/h. The steam produced during incineration drives two turbogenerators for electric power. After leaving the turbogenerators, the residual heat in the steam is used for district heating (combined heat & power CHP).

Right from the start ME-Automation Projects, formerly known as KH-Automation Projects, has been responsible for the CHP plant’s automation – from installation of the first analog measurement & control system up to the present modern process management equipment. In the course of these modernization measures, a supervisory process management system (PMS 68000) was also installed. Monitoring, operation, and control of the refuse incineration plant are effected via the process management system and an independent back-up system in the central control room. Thanks to these two fully separate operating systems, the plant’s availability and operational safety were increased significantly.

Due to tighter environmental regulations, it was necessary to renew and extend the waste gas cleaning installation in 1996. For this project stage, ME-Automation Projects not only supplied the new process control & automation equipment (PMS 68000 and P8) complete with field instrumentation, but also the entire electrotechnical system.

Control and sequencing operations of the complex plant are handled by a total of 40 automation stations. These individual control modules allow operation in the field, as well as manual operation via a mosaic panel in the central control room. In order to ensure an optimum burnout of the waste with maximum energy utilization, a particularly effective combustion control system was developed and installed in cooperation with the plant’s owner/operator.

During further construction stages (2008 - 2009), the supervisory control system PMS 68000 installed in 1996 was replaced with the modern PMSX® pro process management system. Hereby, the investments of the previous construction phases were preserved by means of an efficient migration concept. Similarly, the control room was also redesigned in accordance with the latest ergonomic aspects during these modernization measures. A large-screen display with ten video cubes supports the operators and provides detailed process surveys and visual insertions at a single glance.

During the following years, the discontinued Philips P8 systems were replaced by state-of-the-art, redundant Mitsubishi System Q automation systems.
Technical requirements

Process management of entire plant from a central point
Vertical and horizontal data consistency
Automation stations, also redundant
FSC automation stations
Process servers, also redundant
Data acquisition via distributed I/O modules
Time stamping in distributed modules
Plant-wide redundant system bus using optic fiber technology
Consistent data coupling with office network
System-wide engineering from a central engineering workplace
Archiving of all incoming alarms and measurement values in appropriate compression stages
Strict data consistency in all software tools
Access to all process values from the office environment
Function plan documentation
Standardized software tools

Scope of delivery

- General contractor for electrical and process control equipment
- Process management systems PMS 68000 /PMSx® pro
- Design and instrumentation of central control room
- Large-screen displays
- Automation technology and combustion control
- Network using switch technology
- Electrical installations
- Target specifications / engineering / programming
- Documentation
- Commissioning / trial operation / training

Process management characteristics

- Process management system PMSx® pro
- Topology
- Network
- Automation system Philips P8, Mitsubishi System Q (also redundant)
- Data points about 40,000
- Automation stations 81, of which 3 are in FSC
- Operating stations 12
- Process servers 13
- Large-screen display 10 video cubes
Excerpt from our reference list

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