Application Story

Industry: Food & Beverage / CPG
Products: Control Systems

Bayernland eG dairy company in Regensburg

Reference project
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MITSUBISHI ELECTRIC Group
ME-Automation Projects GmbH
Customer: Bayernland eG
Plant: Regensburg dairy
Processing of: 270 million kg of milk per year
Project value: about 0.5 million Euro
Project duration: 2010–present (in discrete construction stages)

**Description**

Every year, some 1800 producers deliver 270 million kg of milk to the Bayernland Regensburg dairy for the production of drinking milk, curdled milk, yoghurt, desserts, cream cheese, butter, and skimmed milk & whey powder.

Automatic receiving stations with a capacity of 250,000 liters for the delivered milk are fitted with inductive flowmeters and temperature measurement. From the receiving stations, the raw milk is pumped into a storage tank that can hold up to 820,000 liters. The milk is then pumped to the processing hall as required, where it is separated, pasteurized, and cooled. Finally, the milk and cream are passed to the individual processing stations via a pipework system. The processing stations consist of individual storage tanks, various sizes of ripening containers, and machines for producing the end products. All pipework systems, storage tanks, and containers are connected to an automatic cleaning installation. Cleaning is carried out automatically at defined intervals.

Due to the outdated process control equipment and the associated problems regarding the procurement of spare parts, Bayernland eG decided to renew the entire process management system.

The aim of this migration project was to achieve significantly higher plant availability, an increase in productivity, and the implementation of a modern, flexible, and future-oriented process management system.

By means of the PMSX pro process management system, all the processing installations can be operated and monitored from the central control room or via the decentralized operating stations. Moreover, PMSX pro permits the efficient and automatic production of various dairy products, all of which must meet the high quality demands of the consumers.

The main challenge of this migration project was the extremely short time frame. Within just 3 days, roughly 4,200 field signals had to be reconnected, tested, and the PMSX pro system commissioned, so that normal production could be resumed at the start of the next week. The work was carried out successfully as planned, because all relevant processing stages had been simulated and tested in advance during a comprehensive factory acceptance test. Moreover, a specially designed adapter system was used to reconnect all the field signals.
Technical requirements

System migration within a very short plant shutdown period
RetentionPolicy of the operating concept
Process management and sequence control of entire plant from a central location
Operation and monitoring of entire plant from all distributed operator stations
Stepwise migration from the existing control & automation system to PMSX® pro
Vertical and horizontal data consistency
Conversion and expansion during normal operation without retroactive effects
System-wide engineering from a central engineering workplace
Long-term storage of data and messages
Strict data consistency in all software tools
Availability of all process values for further processing
Standardized software tools in accordance with IEC 61131-3

Scope of delivery

- Process management system PMSX® pro
- Automation equipment
- Network using switch technology
- Large-screen displays
- Engineering
- Programming according to IEC 61131-3
- Documentation
- Factory acceptance test (works test)
- Installation / commissioning / trial operation
- System training

Process management characteristics

- Process management system PMSX® pro
- Topology distributed
- Automation system Mitsubishi System Q
- Data points about 5000
- Automation stations 2
- Operating stations 4
- Process servers 2
- Large-screen display 4 LCD monitors
Excerpt from our reference list

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