

PlantWeb® Architecture Provides Flexible Automation Solution for Pilot Ethanol Processing Plant in Sweden

BENEFITS

- Implementation of advanced process automation technology places Chematur Engineering at the forefront of process plant design
- Flexible network architecture makes it easy to modify, develop and expand plant
- Common user interface provides “clean” front end
- Hands-on experience pinpoints suitable future applications for wireless



CHALLENGE

A pilot ethanol processing plant was built by Chematur Engineering in Karlskoga, Sweden to demonstrate its unique ‘Biostil®’ production process and for customers to trial the latest process automation technologies with their specific raw materials. Regular plant modifications for client specific demonstrations created a requirement for a flexible networking architecture. Another requirement was a user friendly interface for easy access to all plant control and monitoring including predictive diagnostic information.

SOLUTION

PlantWeb® digital plant architecture has been implemented with the DeltaV™ digital automation system controlling the entire plant from a single operator station. Using advanced networking functions, process data is placed in the hands of the operator, improving efficiency.

A wireless field network based on Emerson’s *WirelessHART™* devices enables process monitoring of various sections of the plant. Nine Rosemount® wireless pressure transmitters and seven wireless temperature transmitters deliver measurements of water, slurry (water, yeast and starch/sugar mixture) and the final product ethanol. A further 30 instruments communicate process control and asset management information using FOUNDATION™ fieldbus.

“A plant wide wireless network offers enormous benefits by bringing the control room out into the plant. Placing this kind of power in the hands of operators produces much greater worker efficiency. For maintenance and especially during commissioning and start-up phases wireless becomes an excellent tool.”

Johan Selinder
Manager, Electrical & Control Design
Chematur Engineering AB

A wireless plant network consists of a rugged wireless access point providing high bandwidth connectivity to a touch tablet PC. The touch tablet PC incorporates DeltaV and AMS® Suite asset management applications and is used as an operator-station in the field as well as a replacement for local indicators on the field instruments.

AMS Wireless SNAP-ON™ is used to maintain the wireless network. This application graphically displays the communication paths, diagnostic and performance parameters to prevent potential problems with the field instruments.

RESULTS

The implementation of advanced process automation technology places Chematur Engineering at the forefront of process plant design. The flexible network architecture makes it easy to modify, develop and expand the plant, with Smart Wireless enabling temporary installations, and changes of transmitter location without the need for re-engineering.

Hands-on experience has helped Chematur Engineering get an understanding of where wireless technology can be successfully applied. Currently it sees the benefits in monitoring applications accessing data from remote or difficult to reach parts of the plant.

Emerson's AMS Suite provides a common user interface for easy access to predictive diagnostic information from the FOUNDATION fieldbus and WirelessHART devices. The real-time device information provided allows operators to respond faster and make informed decisions. It also helps to achieve a faster start-up and when the plant is running it can increase its availability through more cost-effective maintenance and improved device performance.

“Currently we see the benefits of wireless in monitoring applications accessing data from remote or difficult to reach parts of the plant. Installing cabling in these places can be cost prohibitive, especially if there are just one or two instruments to be connected.”

Johan Selinder
Manager, Electrical & Control Design
Chematur Engineering AB



Nine Rosemount wireless pressure transmitters and seven Rosemount wireless temperature transmitters have been installed.

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Emerson Process Management

12301 Research Blvd.
Research Park Plaza, Building III
Austin, TX 78759
USA

www.EmersonProcess.com