

Freelance in oil refining process Effective process control and efficiencies with ABB's control solution and Operator Training System



CNPC Qingyang Petrochemical Company is located in Qingyang City, Gansu Province. It has an almost 40-year history, with operations starting in 1971.

Qingyang Petrochemical's oil refining project, with a 3-million-ton annual capacity, officially began in March 2009. But its history of using ABB's Freelance distributed control system goes as far back as 2006.

Freelance solution

The whole Freelance system is comprised of 19 pairs of redundant AC 800F controllers to control 12 devices and auxiliary systems with approximately 10,000 I/O signals, as well as four engineering stations and 32 operator stations.

To ensure safety across the production process, ABB provided redundancy across the whole system, including process control stations, network connections and power supply.

The communication protocol between process control stations and operator stations is via fiber industrial Ethernet, with communication speeds of up to 100 Mbits. The operator stations provide a convenient operating environment, with operators able to view process graphics and parameters, logs and alarms, to name a few.

“With Freelance's flexible communication protocols and support for multiple protocol standards, we are able to realize efficient and safe production.”

CNPC Qingyang Petrochemical Company

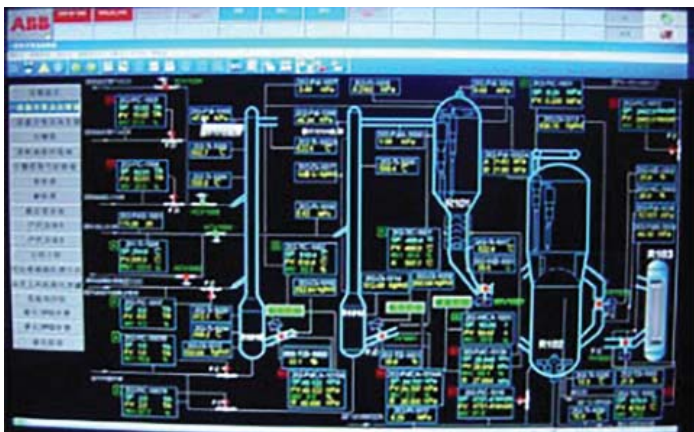


CNPS's control room

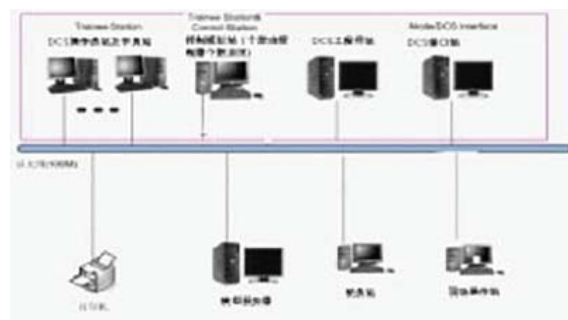
Through extensive fieldbus protocols such as PROFIBUS DP/PA, HART, FF and Modbus, various kinds of instrument equipment can be integrated into the system. In addition, ABB also provided an operator training system (OTS) that helps operators in the early stage to quickly become familiar with operating each production process.

Operator Training System (OTS)

As this was a new oil refining project, CNPC's operators were not familiar with some devices. In order to achieve steady operation, ABB provided the OTS as part of project delivery. Based on the customer's requirements, ABB experts extended the standard soft controller function of Freelance and added special functions and their corresponding interface software.



From left: Operation graphics and ABB's Operator Training System (OTS).



The result — with OTS, CNPC was able to improve the competencies of its personnel, and reduce or avoid errors in operation. CNPC operators were able to handle the system within a short period of time.

Customer benefits and feedback

Freelance provided a powerful automation solution for CNPC. Its integrated operation environment helps ease the tasks of engineering, commissioning, maintaining and managing the system, including fieldbus management. An intuitive operator interface also makes operating the whole system more simple, enabling operators to make timely and correct diagnoses. Furthermore, powerful redundant functions ensure uninterrupted production. CNPC said, "With Freelance's flexible communication protocols and support for multiple protocol standards, we are able to realize efficient and safe production."

This oil refining project of Qingyang Petrochemical was awarded the 2011 Annual Scientific and Technological Achievements by China Instrument and Control Society.



Awards by China Instrument and Control Society

CNPC Qingyang Petrochemical Company, Gansu Province



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