

Foxboro Distributed Control System

Powered by more than 100 years of innovation, Foxboro DCS is designed to meet the intelligent automation needs of complex, integrated systems for safe, secure control of critical operations at nuclear power plants.



Challenge

Ensuring safe, long-term operations is the primary focus for utilities with nuclear power plants. Complex, integrated systems that control critical operations require proven technology that provides non-stop operation and state-of-the-art security. Utilities require highly-available digital systems for instrumentation and control upgrades that are proven, licensed, simple and secure.

Solution

As the sole integrator of Foxboro DCS, Framatome offers this industrywide recognized solution designed to meet the intelligent automation needs of the complex, integrated systems that control the nuclear industry's critical operations. Framatome has a world-class nuclear I&C support organization that is highly experienced and responsive.

Distributed Control Solutions

Distributed control solutions took advantage of the first generation of microprocessors, making the formerly hard-wired control algorithms programmable. Furthermore, spreading the programming to run on multiple microprocessors gained increased computing power (hence, "distributed" control). The second generation of digital design increased processing power and data communication speed and began to migrate toward industry-standard operating systems (such as Microsoft Windows). In the meantime, the control design tools and operator interface (Human Machine Interface) became increasingly powerful and easy to use. This generation now sees the first steps toward open connectivity (such as OPC — Object Linking and Embedding for Process Control) with "smart" instrumentation and other manufacturers of controllers (PLCs for instance).

Customer benefits

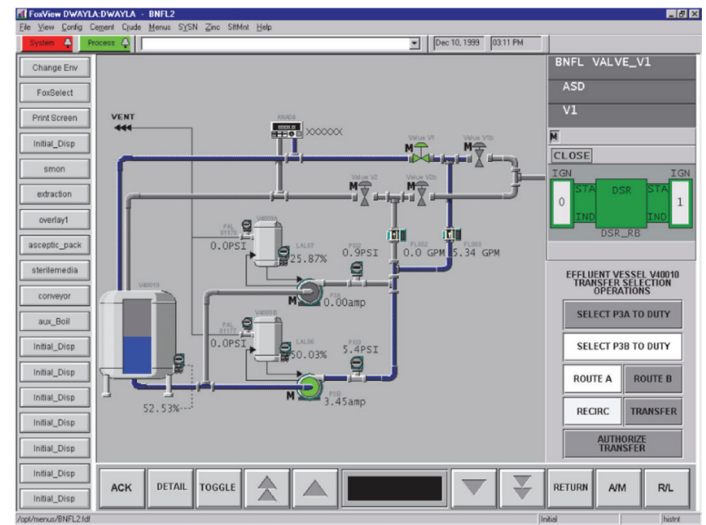
- Faster load-following capability through adaptive, nonlinear, multivariable coordinated control
- Extended online availability resulting from our inherent hardware reliability, software quality and system security
- Improved heat rate through advanced control and optimization techniques (adaptive tuning, constraint control, neural networks, expert systems)
- Increased unit operational range via more accurate multi-output loop compensation strategies
- More stable operation resulting from an integrated plant-wide control system, consistent and intuitive displays, and tighter setpoint controls
- Faster and more reliable startups, with on-screen operator guides and automatic equipment startup
- High-availability digital systems for safety system upgrades that are proven, licensed, simple and secure
- Protection against common mode failure: quality systems and diverse equipment
- Incomparable security in the world's first open industrial system – fault-tolerant, cost-effective performance
- Future-proof technology using a continuously current approach featuring plug-and-play upgrade paths and standardized tech
- Scalable solutions for modernization and expansion; control with a single system

The third generation of digital control seeks to drive hardware costs lower and to increase connectivity further. Open standard communication protocols such as Fieldbus, Profibus and Plant Ethernet allow control to be pushed further into the field, and wiring complexity is reduced. The third generation also increases vertical integration of the control system with the entire plant information systems. This so-called “sensor-to-boardroom” connectivity allows useful, detailed plant information to be rolled up into high-level enterprise or asset management software.

Foxboro DCS is designed to meet the intelligent automation needs of the complex, integrated systems that control the nuclear industry’s critical operations. These system applications require proven technology that provides non-stop operation and state-of-the-art security. This system has been selected by more than 50 nuclear plants around the world to provide critical controls.

Foxboro provided instrumentation and control systems for many of the early government and commercial nuclear plants, and the engineers have participated in the design, assembly, checkout, documentation, and shipment of hundreds of systems for nuclear power plants ranging from single control loops to complete process protection and control systems.

Foxboro DCS offers process automation and control solutions to meet the needs of virtually any enterprise in the process industries — from stand-alone processes that need basic, reliable functionality, to complex integrated plants that control critical or hazardous operations. Powered by more than 100 years of innovation, Foxboro DCS has achieved global recognition by innovating and producing distributed control systems that integrate hardware and software to measure, analyze and control the manufacturing process and positively impact plant performance.



Key Figures

Foxboro DCS is a proven platform with more than

70 applications installed in **16** nuclear plants in North

America. With more than **2,100** I&C professionals at

20 sites in **10** countries, Framatome is ready to support

all your I&C system needs.

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Your performance
 is **our** everyday **commitment**