framatome

System Re-Engineering for Instrumentation and Control

Leverage our plant design, engineering and operation experience for high-quality and cost-effective solutions

Challenge

For Instrumentation and Control systems upgrades, operators of nuclear power plants need an optimum solution to meet their needs. They need to address obsolescence while maintaining safety and reliability.

Solution

Framatome can work with customers to determine the optimum solution. With global systems experience and plant knowledge, Framatome provides re-engineering of safety and non-safety analog and digital systems to meet these needs.

Major Instrumentation & Control Upgrades

For large Instrumentation and Control systems, operators may choose the path to re-engineer analog systems due to cost or regulatory uncertainty, including how the regulator defines digital and re-engineering in terms of common cause failure, cyber security and defense in depth.

Designed to replace obsolete components, re-engineered systems require specialized expertise to integrate digital and analog components. In some cases, re-engineering the analog system is necessary to meet the facility's unique requirements.

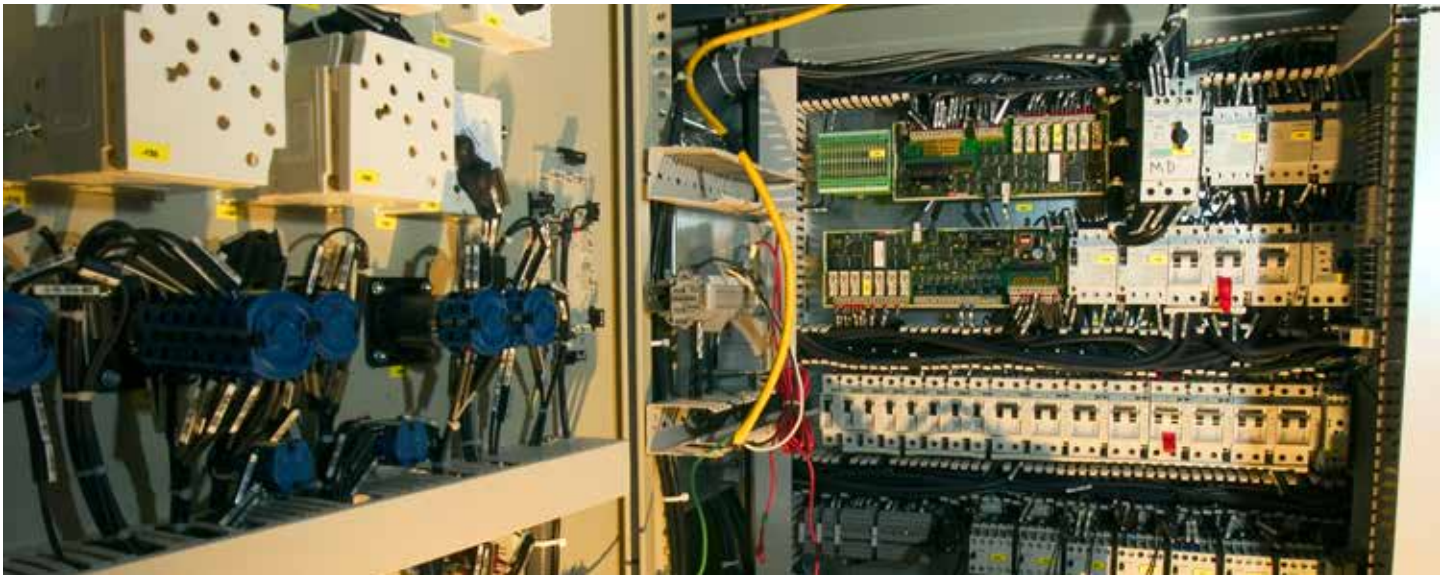
Small Safety and Non-Safety Instrumentation & Control

For obsolete small safety and non-safety related I&C systems, Framatome is a leader in re-engineering systems to meet site-specific needs for a design that delivers the same capabilities. Our approach offers system enhancements where desired to increase performance and reliability to extend plant life and reduce operating costs.

Customer benefits

- Leverage our plant design, re-engineering expertise and operation experience to define optimum solution
- Our solutions are aligned with your goals for safe, cost-effective operation
  - System designs reduce need for technical expertise
  - Systems include streamlined maintenance and periodic testing requirements
  - Framatome team approach allows for desired system functionality and effective development efforts to be identified early in design phase
- Solutions mitigate risk of loss-generation time

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



Features

- Providing options including:
  - Triple modular redundant logic features for fault tolerance
  - Built-in test features
  - HMI based local or remote displays for system status and diagnostics
  - No Single-Point Vulnerabilities (SPVs) or common-mode failures
  - Simple modular construction with short Mean Time To Repair (MTTR)
- Systems are built and supported in Lynchburg, Va.; Foxboro, Ma.; and Lake Forest, Ca.
- Long-term system support
  - Key components have product lifecycles that reach well into the future
  - Nuclear Parts Center in Lynchburg, Va. offers spare storage solutions for the life of the plant

Framatome will work with you, leveraging our plant design and operation experience, to define the optimum solution to lower your risk so you can continue to operate safely and cost-effectively.

As a total obsolescence provider, Framatome offers a complete solution:

- I&C experts prepared to evaluate and identify solutions
- Long-term support with spare parts through our Nuclear Parts Center
- Item equivalency through our Integrated Procurement Solutions, including commercial grade dedication at Framatome's Technical Center in Lynchburg, Va.
- Re-engineering if a design change is preferred to improve system performance and reliability
- Reverse engineering including safety-related cards and analog platforms
- Framatome's engineering arm to assist with design change packages

Framatome is committed to providing the best engineering resources to deliver safe, world-class project performance and total cost certainty. We strive for operational excellence by focusing on safety, quality, performance and delivery of innovative products and reliable solutions to meet your needs.

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