3KEYMASTER™

Comprehensive Simulation Platform

CURTISS-WRIGHT

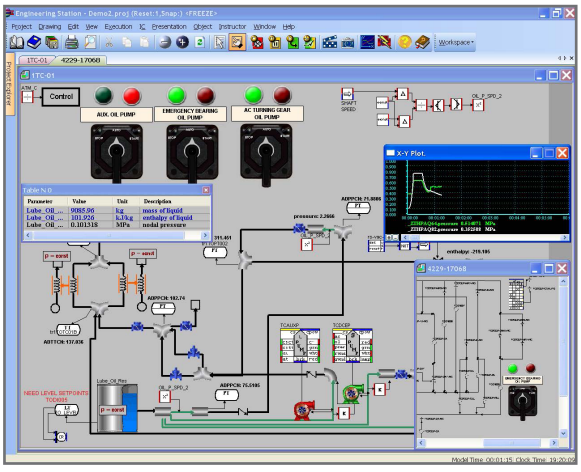
Nuclear Power Products and Services

What is 3KEYMASTER™?

Simulation involves model development, integration, execution, test, visualization, and analysis. The 3KEYMASTER™ environment, developed by Curtiss-Wright's Simulation Group*, provides everything needed to accomplish these tasks, with time-saving efficiency and engineering rigor, in one integrated environment.

Key Components

- Graphical Engineering Station (GES) with extensive run-time simulation controls and data visualization
- Powerful executive to run your models
- Versatile integration platform for Real-time I/O, third-party systems and code
- Complete suite of engineering-grade modeling tools and components library



Why Choose 3KEYMASTER™?

3KEYMASTER™ is the first simulation environment developed ground-up for the Microsoft Windows® operating system. Its open architecture, fully object-oriented approach, support for flexible human interface design, and leveraging of the Windows environment, offers distinct advantages in speed and usability.

Advantages

- Fast, efficient, and cost-effective graphics-based model construction, test, and deployment; no programming knowledge required
- Ease of use–fully GUI-based; user can personalize and customize look and feel
- Easy integration with third-party software and hardware systems, I/O systems, and panels
- Modeling suite provides comprehensive, high-fidelity coverage of systems; knowledge of physical principles and equation solution methods are embedded in the modeling tools.
- Re-hosting or porting of legacy or custom code (C, C++, FORTRAN)–preserve your existing investments
- Extendable–easy to add new modeling objects and code to provide complete simulation of complex systems
- DCS and logic systems translators, emulation, and virtual control systems integration
- Integration with the 3KEYSAFE Configuration Management System

*: WSC, a legacy brand of Curtiss-Wright's Simulation Group, headquartered in Frederick, MD, is a global simulation and services company. Acquired by Curtiss-Wright in 2024, WSC is recognized for the quality and efficiency of their products and flexible team-oriented approach to serving its customers.

3KEYMASTER™

Comprehensive Simulation Platform

3KEYMASTER™ Uses

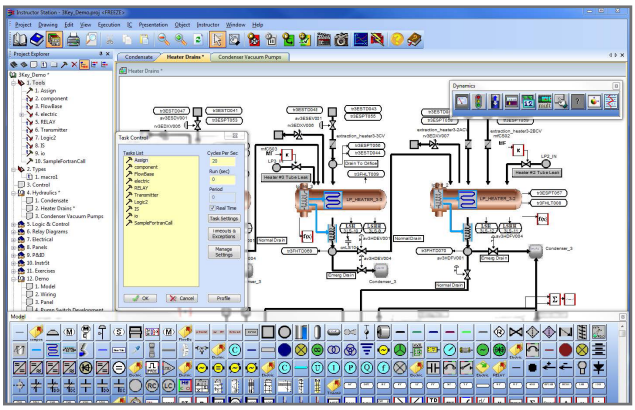
Our Simulation Group has a history of advancing the state of the art for simulation. The 3KEYMASTER™ platform has been assessed and selected by some of the leading power-sector companies as being 'best-of-breed" and "engineering-grade." It provides a path towards more cost-effective management of simulation that is flexible, efficient, and of the highest quality, allowing easy integration into existing engineering processes

Platform for Training Simulators and Advanced Engineering

- Develop new full-scope or part-task simulators
- Refurbishment and modernization of existing simulation systems
- Soft-panel or integrated hard panel simulations
- Learning, testing, and certification
- Simulation Assisted Engineering (SAE)–advanced simulation applications in design, test, V&V, and asset management
- Licensing studies–new and renewal
- Multiple independent deployments across various departments—increasing the benefits by extending the user community

Graphical Engineering Station

The 3KEYMASTER™ Graphical Engineering Station is a full-featured GUI-based application. In its most versatile mode, engineers have access to all its features, and use it to configure and test models dynamically without interruption of the simulation. Generation of source code and its compilation are handled in the background. Model designs can be quickly altered and re-loaded for execution. Engineers can test locally with the GES installed on their computers, or fully integrated with the main simulation load on the server. Locally tested code can be migrated seamlessly to the integration server. This allows for easy parallel development as well as effective integration testing.



GES Features

- Fully configurable and customizable UI
- Full-featured object-oriented graphical editor
- Unified and common graphical front-end for model creation and parameterization for all modeling tools
- Hard panel and HMI graphics emulation
- GUI-based simulation controls
- Powerful visualization–multi-variable trend charts and tables; watch objects
- Dynamic condition animation of model object icons, alarms, and alerts
- Scripting and HMI action recording tool for creating scenarios and playback
- Compound logic-based events
- Click-of-the-mouse controls–including that for displaying or hiding information layers
- Configurable role-based functions in a single environment (engineer, instructor, operator, trainee)
- Audit Trail feature enables automatic archiving and change tracking in drawings of the project

Executive and Architecture

3KEYMASTER™ is designed to work in a multiprocessor computing environment. The simulation load can be shared and balanced across multiple processors. Its architecture is open and scalable and uses standard off-the shelf Windows-based systems. Multiple client workstations can be used for parallel development and for interaction with the simulation load on the main servers. The benefit to users is flexibility and efficient management of the simulation environment.

Executive and Architecture Features

- Multi-processor computing environment
- Individual model or task level execution rates and processor selection; point-and-click immediate changes with no re-compiles
- Support for custom code development in C, C++, and FORTRAN
- Open architecture, easy integration
- Control and viewing using multiple clients
- Web-clients and hand-held clients
- Standard off-the-shelf Windows-based hardware components

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LC - 1010 - 08.2024 - ST - WSC