

Experion Control Builder



Features

The Experion[®] Process Knowledge System (PKS) is a next-generation process automation system that unifies people with process. At the heart of the Experion controller is the Control Execution Environment (CEE), which is configured with Control Builder software.

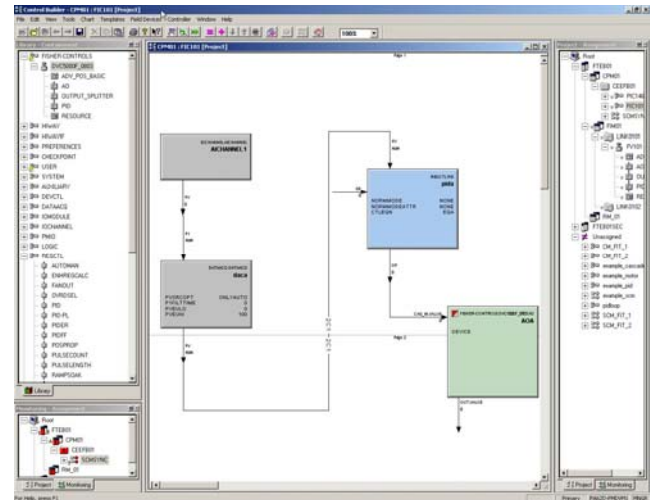
Control Builder is a single tool that provides a fully integrated engineering environment to quickly and efficiently create, test and document the system and control strategies. Experion control strategies are built using this tool, providing a graphical, object-oriented tool that supports all controllers executing the CEE, such as:

- C200 Control Processor
- C300 Control Processor
- Foundation Fieldbus Interface Modules
- ACE Supervisory Control Processor
- Simulation Control Environment

Control Builder supports system design, test, documentation and monitoring, and provides comprehensive handling of various I/O points, including Fieldbus, Honeywell DE, HART, Profibus and DeviceNet. In addition, it covers continuous, logic, motor, sequential, batch and advanced/supervisory control functions through a comprehensive library of predefined function blocks.

Benefits

- Easy, intuitive, cost-effective engineering environment
- Single environment for system design, test, documentation and monitoring
- Robust database integrity checking
- Comprehensive revision management



Control strategies can be designed, tested, documented and monitored with a single, intuitive graphical environment.

Control Builder combines Honeywell's experience in the process control industry with open and familiar Microsoft technologies and practices to provide the most intuitive, easy-to-use and efficient engineering environment possible.

User productivity is facilitated by an intuitive graphical environment, access to a comprehensive function block library, and industry standard views and tools such as tree hierarchies, drag-and-drop facilities and cut/paste/copy functions.

The user can quickly configure and define the system hardware using predefined forms and templates. Resulting configurations are displayed on easy-to-use hierarchical trees.

Continuous controls and logic are implemented in a graphical environment by simply selecting control function blocks from a comprehensive library, dragging the block into a container referred to as a Control Module (CM), and interconnecting (soft-wiring) each block as required to establish the desired input to output signal flow. Using CMs, the user can easily partition the control strategy into logical sub-groupings by function and process subsystems.

Sequence Control Modules (SCMs) provide a container and graphical environment to design and implement sequential step-by-step procedures.

Procedural Operations interactive instructions work in conjunction with SCMs to provide functionality that leads the operator through a manual procedure or a procedure that contains both automated and manual actions. Most facilities use procedures to perform startup/shutdown sequences, equipment changeovers, emergency procedures or pulling manual samples. With interactive instructions, these manual procedures can be performed with both consistency and accuracy. Automated actions and manual actions can be easily interspersed as a natural extension of the Sequence Control function.

Additionally, interactive instructions leverage a common interface through station displays and the SCM table view to monitor and control the procedures. The table view is focused on the needs of operators as they perform the steps necessary to complete a procedure. As procedures are completed, events, annotations and operator actions are recorded in the standard Experion journals.

Control Builder provides a comprehensive and easy-to-use import and export capability. This provides an effective method to transport configurations between Experion systems.

Control Builder enables the creation of reusable control strategies, which can be duplicated with minimal effort through a simple copy and paste action. To further increase the engineering productivity of Control Builder, it optionally supports user templates. With this licensed option, the user can create block templates and/or CM templates. These user templates can be loaded to a control environment.

The Bulk Build Utility is an advanced Control Builder configuration tool designed to streamline the process of duplicating existing control strategies. It lets you clone a typical object multiple times featuring automatic renaming and the ability to edit specified parameters.

User-defined symbols (UDS) may be created in Control Builder as an alternative representation of the standard Control Builder symbols. This allows the user to easily adapt the graphical representation of the control strategy to meet industry and site-specific needs and norms.

The following figure shows the default or standard symbol used to represent an AND logic block in Control Builder.



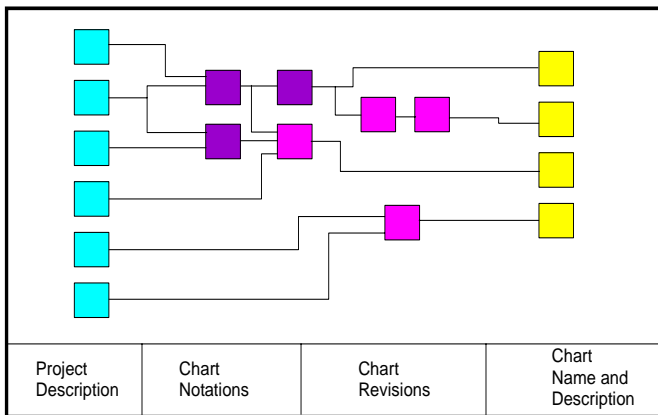
Standard Symbol (AND Gate)

Depending on the application, the representation that is desired may be different. For example, the power generation group uses SAMA standard symbols when documenting control strategies. The following figure shows an alternate UDS that could be used to represent an AND logic block in Control Builder.



The user can substitute a custom symbol for any standard block symbol in the library. The ability to define custom symbols provides increased flexibility, and where documentation is required to follow specific guidelines for symbols, significant cost savings can be achieved.

In addition to the custom symbol support, flexibility in the formatting and content of headers and footers of chart printouts is available. These help provide a consistent user documentation style and content. An example for the type of layout for a printed chart is shown below.



One Environment for Design, Testing and Monitoring

The Control Builder environment provides two essential views, the Project Tab and the Monitor Tab. Both views can be activated at the same time, allowing the user to easily and quickly navigate between each without the need to close or open any additional applications. This provides a build, test and monitor environment that has the same look and feel. This also promotes an environment to support cost-effective and expedited commissioning and startup phases.

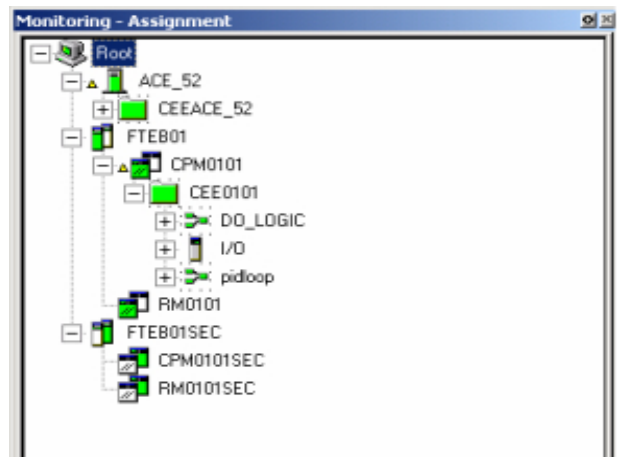
The Project Tab allows the user to complete all system configurations and create control strategies in an offline mode. The user can complete and save this work without disturbing the online (ASIS) configuration currently loaded into the various system components. The Project Tab is also valuable during the project cycle when the actual hardware may not be available.

Once the configuration is built and validated it can be quickly downloaded to the associated system components. The user can load all components at once or specifically select those components that they wish to load.

In conjunction with templates, import/export tools and Bulk Build Utility, the Project Tab enables an efficient environment that allows centralized engineering groups to create configurations that can be easily transported to other sites and systems.

The Monitor Tab provides an online environment to view the current (live) information for all system components, and control strategies and modules. Using the hierarchical tree, the user can drill down to view the desired system component or open Control or Sequence Modules to view and trace through the active control strategy. While viewing strategies, users see the current numerical, logical and enumerated data as inputs and outputs to each control block. They also have access to all associated parameters, variables, limits, settings and status. Those users with the proper credentials can also change many of the operational limits and settings.

The Monitor Tab is a valuable tool and provides performance support for many process-related engineering, operator and maintenance tasks.



Control Builder also supports a multi-user control strategy development and debugging environment. The function provides remote access to engineering databases across any media capable of TCP/IP and UDP/IP communication. For maximum security, access is password protected. Several users can create, configure and load control strategies at the same time from different workstations.

Robust Database Integrity Checking

Every load/save operation is preceded by a comprehensive integrity check to ensure that all entries and configuration are correct and proper. All errors are annunciated and the operation is halted before it can result in a fault or abnormal condition.

Any differences between the Project Tab database and Monitor Tab database are automatically identified and annunciated through visual icons.

Comprehensive Revision Management

Control Builder provides enhanced capabilities to support the regulated industry and their unique requirements related to FDA regulations, particularly compliance with 21 CFR Part 11. Control Builder supports three levels of version control.

Manual version control is the system default. It allows a user to enter version-specific information in a version parameter available on each configurable Control Builder object. The user is responsible for updating and controlling the version information. Four additional parameters are maintained by the system: date created, created by, date modified and modified by.

Basic version control is standard and is enabled through the system preferences menu. It differs from manual version control by automatically assigning a version number. The version number is shown on the Control Builder tree view and in the chart title.

Qualification and Version Control System (QVCS) specifically supports the regulated industries and makes system validation easy and efficient.

QVCS simplifies system qualification by defining and enforcing a user-defined development lifecycle. The user also defines what configuration may be loaded to a controller. The enforced lifecycle guarantees an implementation procedure and reduces the number of standard operating procedures while eliminating manual signatures and paper trails. For each configuration object, the system maintains an individual audit trail and stores each version in a repository.

For More Information

To learn more about Experion Control Builder, visit www.honeywell.com/ps or contact your Honeywell account manager.

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