

ControlEdge™ Unit Operations Controller (UOC)

Product Information Note

ControlEdge™ Unit Operations Controller (UOC) delivers a powerful DCS solution in a compact form factor. The UOC and Virtual UOC extend the Experion® control environment to fit even the smallest specialty chemical, pharmaceutical, food and beverage, mining, pulp & paper, midstream, and water applications. UOC is your edge to a compact DCS.

Introduction

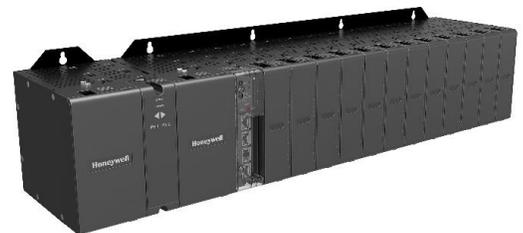
The UOC provides a full set of DCS control features, and can be mounted without a cabinet or additional hardware requirements. The controller eliminates hardware and utilizes optional industry-standard virtualization and cloud technology. UOC shows how even the mightiest control is available to the smallest processes.

The UOC also provides a standalone, fully functioning class-based batch system without requiring a separate batch server. No matter your process or vertical industry, Honeywell's Experion Batch provides you value. Reference the Experion Batch Product Information Note for more information on Batch solutions.

Compact Form Factor

Honeywell brings its full DCS batch automation power to a small, flexible form factor. The Unit Operations Controller (UOC) and the Virtual Unit Operations Controller (vUOC) put the Experion control environments in a form factor that fits in even the smallest specialty chemical, pharmaceutical, or food and beverage plant location.

The option of executing in a virtual environment is especially useful in pilot plants, laboratories, and cost-sensitive operations. The Virtual UOC also decreases hardware footprint when a physical controller isn't needed and provides increased availability through fault-tolerance where required.



The UOC provides a full set of DCS control features, and can be mounted without a cabinet or additional hardware requirements

BENEFITS

- Small, flexible form factor
- Sequences and recipes run in the controller
- Use for any single or multi-unit process to execute complete sequences without the need for a server level batch application.
- Reduce costs and reduce system complexity
- Optimize availability, productivity and reliability
- Sequence execution cycle time is configurable as fast as 50 milliseconds.
- Supports wide variety of both first and third-party I/O solutions

Reduced Testing and Validation Effort

Experion Batch provides enhanced simulation and development benefits. In the past, moving a new or modified configuration from a simulation or lab environment to real-time could require hours of validation and/or an extensive documentation cycle. Today, the same configuration tested in the virtual environment can be downloaded to a physical Unit Operations Controller without change. Experion Batch allows the movement of control strategies from test to production effortlessly, without modification and without reassignment.

Optimized for Regulated Industries

If your manufacturing is in a regulated industry where validation is required, UOC helps reduce validation efforts. Quality Version Control System (QVCS) is a lifecycle management solution for configuration that tracks procedural changes, allowing you to meet strict validation requirements. This allows you to follow a predefined change control procedure that ensures regulatory compliance. UOC helps you meet the stringent standards and regulatory requirements that are commonplace in regulated industries.



Flexible Control Strategies

From the simplest one-step sequences to the most complex class-based recipes, all can be optimally executed in the UOC. The user is not forced to segregate sequence control from continuous control as the control environment can run all types of control simultaneously. You can choose to distribute control strategies without regard to the content in the controllers. The architecture is optimized to enable dedicated unit controllers.

Unit-aligned controllers allow engineering and maintenance personnel to take a unit controller out of service without affecting the other unit operations. Distributed designs can even remove the requirement for a Windows-based batch server, eliminating the need for upkeep and patching associated with traditional systems. Redundant modular controllers deliver the required level of power and capacity users need, in a cost-effective manner.

In the past, control engineers had to worry about different control protocols across different automation equipment and implementing methods to allow that communication between those different controls. Honeywell has made communication and control across multiple controllers a simple and seamless process that works without any configuration required by an engineer.



Engineering and Configuration

The Control Execution Environment (CEE) function blocks support continuous control, logic control, sequential control, model-based control, and batch control. Each function block provided contains a rich set of predefined features, such as alarm settings, different algorithm choices, and maintenance statistics, which are enabled by configuring its parameters. Function blocks are combined and interconnected through soft wiring in either Control Modules (CMs) or Sequential Control Modules (SCMs) to perform a specific control task, enabling efficient strategy engineering.

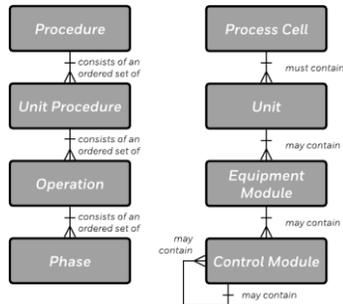
Embedded functionality guarantees consistent control strategy execution and delivers consistent alarming and operations behavior. This consistency reduces operator

From the simplest one-step sequences to the most complex class-based recipes, all can be optimally executed in the UOC. The user is not forced to segregate sequence control from continuous control as the control environment can run all types of control simultaneously.

errors and saves implementation time by eliminating the need to create low-level basic functions.

The CEE fully supports the batch standard ISA S88.01 executing all 4 levels of the procedural model in the controller without any server dependency. Class based batch concepts are supported to reduce the project and lifecycle costs of batch applications. Integration with the rest of Experion provides a single platform for all aspects of batch execution.

Universal Channel Technology provides flexible, efficient configuration of I/O and easy management of spares. With Universal I/O, engineers can configure I/O quickly and remotely, without needing additional hardware modules.



ISA 88 Hierarchy Model

Control Builder: There is no need for different tools to generate sequence control configuration versus continuous control. Use Honeywell's Control Builder Application for control-related configuration.

Use visual programming to build the sequences, then let the operations use the same visualizations to run the plant. Using standard Sequential Function Chart (SFC) shapes to draw the sequence, it is simple to see and understand the sequence logic. Then, using standard visual tools, that same SFC diagram can be used to run the sequences from the standard operator station.

The full tool set includes class-based control. You can take advantage of class-based principles to build a sequence that can be deployed on multiple units. Do you have multiple trains making the same product? There's no problem. Just build the sequence once, and then deploy multiple instances on equipment classes for each train. Class-based control optimizes controller resources by dynamically creating procedural elements and removing them when they are no longer required.

Use Honeywell's standard libraries or create your own libraries of templates to ease the development process. Do you have multiple production paths or want to use

corporate standards? The standard library allows for the development of reusable modules and libraries to allow you to build it once and use it many times.

Redundancy: If you use redundant UOC hardware, no changes are necessary to configuration to make the solution redundant. You can add redundancy later, on process. No additional programming or licenses are needed. We keep the sequence running even through hardware faults. The redundancy is transparent. No additional work is done to the sequence to take advantage of redundancy. Batch redundancy is included with basic controller redundancy.

Supported I/O: Universal Channel Technology provides flexible, efficient configuration of I/O and easy management of spares. With Universal I/O, engineers can configure I/O quickly and remotely, without needing additional hardware modules.

You can supplement Universal I/O with additional I/O and other equipment from a wide variety of vendors. This combination of functions allows you to build the system as it suits your needs with the ability to grow as the production scales up.

Reference I/O

Using Honeywell's I/O reference concept, class-bound control modules can be bulk-built using standard engineering tools and then tested in the Virtual UOC (vUOC). Since the vUOC and the UOC share an identical execution environment, simulation is identical on both the virtual and physical controller. This gives you the assurance that what is running on the hardware version of the UOC will be the same as your simulation.

Simpler testing and validation ensures the same configuration tested in a virtual environment can be downloaded to a physical Unit Operations Controller without change. Move from test to production effortlessly. There is no need for complicated exports and imports or reconfigurations.

Summary

The ControlEdge UOC combines a fully-functioning DCS controller with a compact form factor that also delivers a standalone, fully functioning class-based batch system. While the UOC supports the smallest systems, it can be scaled up to support any solution across many industries.



For More Information

Learn more about how Honeywell's ControlEdge UOC can fit your operations, visit www.honeywellprocess.com/batch or contact your Honeywell Account Manager.

Honeywell Process Solutions

1250 West Sam Houston Parkway South
Houston, TX 77042

Honeywell House, Skimped Hill Lane
Bracknell, Berkshire, England RG12 1EB UK

Building #1, 555 Huanke Road,
Zhangjiang Hi-Tech Industrial Park,
Pudong New Area, Shanghai 201203

www.honeywellprocess.com

ControlEdge™ and Experion® are trademarks of Honeywell International Inc.
Other brand or product names are trademarks of their respective owners.

PN-18-16-ENG

June 2018

© 2018 Honeywell International Inc.

Honeywell