Now in Experion PKS, Honeywell’s Profit® Controller application allows easy implementation of multivariable control and optimization strategies. Profit Controller’s proven and robust algorithm now runs within the Experion Control Execution Environment (CEE), running in the C300 controller or ACE node with faster execution and full C300 redundancy. Profit Controller enables safe control of complex & highly interactive industrial processes with the unique ability to maintain superior process control even with significant model mismatch.

Honeywell’s patented Profit Controller application includes the necessary tools to design, implement and maintain multiple-input/multiple-output (MIMO) applications.

Profit Controller utilizes a dynamic process model to drive maximum value through the following steps:

- Predict future process behavior
- Control the process using the minimum manipulated variable movement necessary to bring all process variables within limits or to set points
- Optimize the process with the remaining degrees of freedom to drive the process to optimum operation

**Benefits:**

**Common Level 1 to Level 3 Solution**
Experion Profit Controller enables common engineering & operations interfaces regardless of where the algorithms are running. Engineers using the Profit Suite Engineering Studio can configure controllers in the C300, ACE, and in the Experion Application Server at L3. Likewise, operators can operate all controllers in a common view within Profit Suite Operator Station.

**Best-in-Class Operator Interface**
Profit Controller provides unmatched man-machine interface capabilities by offering both Profit Suite™ Operator Station and the HMIWeb APC Shape Library. Providing maximum flexibility in the design of the user environment and workflow integration, the end result is a net increase in operator effectiveness, higher application uptimes and more appropriate utilization of your plant’s APC investment.

**Simple Sizing and Licensing**
The licensing is server based, and purchased based on the number of manipulated variables (MVs). MV licenses can be distributed/moved between C300 and ACE platforms.

ACE Platforms will support 10 Experion Profit Controllers with up to 40 Controlled variables (CVs), 20 MVs, and 20 disturbance variables (DVs). C300 platforms will support 5 Experion Profit Controllers with up to 10 CVs, 5 MVs, & 5 DVs. Other regulatory blocks can be configured in the same C300 or ACE platform for maximum flexibility.
Features:
Range Control Algorithm Minimizes Model Uncertainty
Profit Controller uses the Honeywell patented Range Control Algorithm (RCA). RCA minimizes the effects of model uncertainty while determining the smallest process moves required to simultaneously meet control and optimization objectives. Its innovative handling of control through funnels rather than specified trajectories provides the controller with additional degrees of freedom to enhance dynamic process optimization.

Hard and soft limits allow the user to control optimization limits separately from control limits to effectively manage the extent to which optimization is imposed on the process. In addition, the optimization speed is configured independently from desired control performance tuning to allow users to balance control objectives with economic objectives.

Product Value Optimization
Profit Controller’s engine employs both a linear and a quadratic objective function to provide the user with maximum flexibility in implementing optimization strategies. All application variables can be maximized, minimized or specified as desired targets that will be honored under optimization conditions.

The most powerful optimization scenario occurs when true process economics are directly entered into the controller (in either the independent or dependent variables). This technique, commonly known as Product Value Optimization (PVO), allows the overall economics of the process to be optimized by allowing the controller to dynamically determine the best economic operating condition of the unit based on input variables such as product prices, feed prices and utility costs. This technique has also been successfully applied in optimizing product yields within quality constraints to generate the best mix of on-spec products.

Profit Controller Improves Production
Multivariable control typically results in a 50 percent reduction in the standard deviation of lab-measured product quality values. This improvement in product quality is derived from improved process stability, fewer process upsets and more consistent control across operator shifts.

System Requirements
Experion Profit Controller requires Experion R500+ to run in the Control Execution Environment. Additionally C300 hardware is required to be at the CC-PCNT02 level or above.

Training Services
Training courses covering Profit Controller theory, concepts and implementation are available through Honeywell’s Automation College. On-site courses are available upon request. Visit www.automationcollege.com for more information.

For More Information
Learn more about how Honeywell’s optimization options, visit our website www.honeywellprocess.com/software or contact your Honeywell account manager.

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