Honeywell

Product Information Note

Experion® Solution Suites for UOP Technology

Experion Solution Suites provide control and safety system solutions for UOP-licensed process units. Proprietary UOP knowledge and experience — embedded into the Experion PKS system — helps reduce project schedule and risk, and enables superior operator effectiveness. Give your project a head start!

The Challenge: Reduce risk, accelerate project schedules and optimize production

In today's challenging business climate, refiners, petrochemical producers and gas processors are seeking to use the latest advances in automation and project management to simplify construction, reduce risk, expedite unit start-up, and optimize operations.

In many cases, projects take too long; they are too engineering-intensive; and automation systems become the critical path in the final stages, often causing the project to start up later than planned.

Petroleum industry companies require advanced automation and project management solutions for various units and refinery complexes.

When it comes to starting up a new unit, for example, refiners often deal with extensive punch list items for process control systems. These can range from basic controller configuration, graphics and alarms, to complex advanced control strategies. Last minute modifications to automation schemes can accumulate and cause significant delays in reaching full production.

During plant start-up, operating companies may face additional challenges such as: poorly designed displays causing operator confusion; poorly designed alarm systems leading to alarm flooding; non-functional distributed control system (DCS) interfaces; and operators unfamiliar with unit procedures missing critical steps.

Now, more than ever, refinery, petrochemical and gas processing owners need an integrated solution that gets their plants to full capacity sooner, optimizes their day-to-day operations, and reduces their total cost of ownership.

The Opportunity: Integrate proven technologies and process licensor expertise to achieve operational excellence

For the petroleum sector, one of the key ways to achieve operational excellence is to capture the process licensor process design and operations know-how in the automation system. This is best achieved through having the process licensor and automation provider work closely together.

Honeywell Process Solutions (HPS) is a recognized global leader in refining and petrochemical automation. It has installed control systems at nearly half of the world's refineries, helping to refine nearly 40 million barrels of oil a day.

HPS has developed its LEAP™ methodology to address issues common with large capital expenditure (CAPEX) project delivery. Through the application of new breakthrough technologies, LEAP modifies the traditional sequential project workflows and allows for parallel execution of the physical and functional design aspects of automation systems.

This approach removes classic design dependencies and the impact of late design changes on the delivery of automation

systems. This helps keep control solutions off the critical path and reduces any risk of schedule delays.

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With a century of innovation in the Oil and Gas Industry, Honeywell UOP is the leading supplier of process technology to the petroleum refining, gas processing, and petrochemical industries. Efficiently transferring this knowledge and experience from UOP to the customer is the goal of every project engagement.

Honeywell has addressed this issue through the combined capabilities of HPS and UOP. Driving quality into the project and UOP expertise into the operational aspects of control systems, reduces risk to project schedule and accelerates startup. HPS developed a unique way to embed UOP knowledge in base automation systems, and at the same time, leverages LEAP technologies to remove the impact of interdependent physical/functional design efforts on project delivery.

The Solution: Experion Solution Suites for UOP

Honeywell's Experion® Solution Suites for UOP is a fully integrated approach to mitigate risk and accelerate project schedules in the oil & gas and petrochemical industries. Employing pre-engineered automation system solutions for UOP licensed process units, they enable Honeywell customers to meet demanding project schedules and start up operating facilities on or before target dates to gain a valuable business edge.

The three primary objectives of this solution are:

- Shorten project delivery schedules
- Reach production targets sooner
- Operate at peak performance

Experion Solution Suites for UOP configurations are designed to provide fully integrated solutions for control and safety systems, human-machine interfaces (HMIs), alarm management, and embedded operating procedures.

Integrated experience and know-how: Experion Solution Suites for UOP combines the industry leading experience and know-how of both HPS and UOP to enable new levels of operational success. For example, UOP input and validation of the pre-engineered Experion Solution Suites for UOP provides consistent design and execution of UOP designs, which optimizes commissioning activities and minimizes the control and safety system punch list items at the customer site. Experion Solution Suites for UOP also helps operating companies reach target production sooner. UOP models embedded in HPS simulation software allow for earlier development of operator training and procedures, and capturing UOP process knowledge in Abnormal Situation Management (ASM®) Consortium compliant graphics shortens the operator learning curve and improves effectiveness.

By deploying Experion Solution Suites for UOP, Honeywell customers can focus on operations and know their UOP integrated automation assets will deliver and maintain the highest levels of availability and performance.

Embedded best practices and expertise: Experion Solution Suites for UOP uniquely embeds UOP best practices and expertise in the customer's DCS and safety-instrumented system (SIS). DCS configurations on UOP processes are pre-engineered and pre-validated. In addition, UOP's extensive startup and operational experience is embedded in the operator interface. The standardized HMI improves consistency for better UOP startup assistance.

Valuable intellectual property: With UOP intellectual property inherent to their automation system, refinery personnel can improve the visibility of the plant and ensure the process stays within defined ranges. Operators benefit from UOP-defined graphics built to ASM Consortium (asmconsortium.org) guidelines using HPS standard graphics libraries. Furthermore, a fully documented alarm help system ensures the most effective operations from day one of plant startup. Embedded operating procedures capturing UOP's operations know-how enable consistent operations over the long term.

Configurable templates: Experion Solution Suites for UOP employ configurable templates based on UOP licensed process designs. The templates are structured around equipment within UOP units and contain associated control, safety, HMI, alarms, and procedural elements. This results in a consistent approach for similar equipment across different process units.

Experion Solution Suites for UOP embeds UOP best practices and expertise in the customer's DCS and safety system.

Interaction Requirements Analysis: As part of the development of the Experion Solution Suites, an Interaction Requirements Analysis (IRA) workshop is performed for each UOP process technology**.** Input from UOP process and controls experts is then used to define key criteria such as:

- Console operator span of control and asset hierarchy
- Display hierarchy and operational workspace
- Level 1 KPIs and critical monitoring parameters
- Level 2 interaction requirements and critical loops
- Abnormal situation management requirements
- Scope for operator training
- Scope for procedural automation
- Scope for process optimization

As part of the IRA process, UOP experts provide:

- Key process objectives
- Unit operations and primary variables
- Equipment list review
- Normal operation
- Abnormal operation
- Startup and shutdown

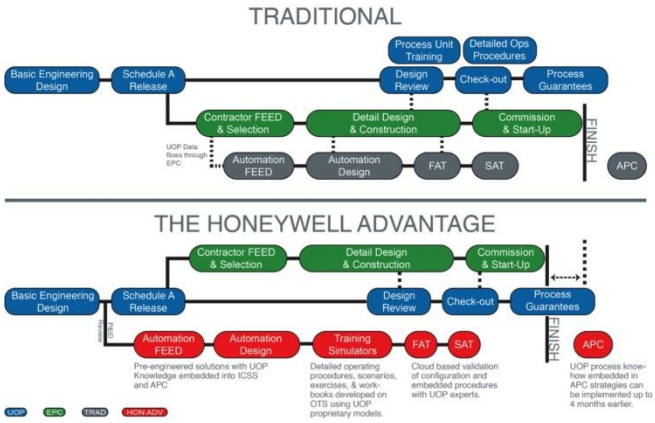
HPS experts support the IRA process by delivering:

- Graphic display layout in line with industry best practices
- Cognitive-based shape selection for best operator response
- HMI level selection based on the process objectives

Enhanced operator workspace: Utilizing Honeywell's advanced Experion Orion Console, Level 1 displays provide situational awareness across the operator's span-of-control. The displays summarize KPIs and critical monitoring points throughout multiple units, and create awareness of drift away from optimal operating conditions. They also allow for proactive adjustments to the process, prior to alarms being initiated. Level 2 displays provide critical control and monitoring points, represent basic process flow, and enable operators to make the most common adjustments. Level 3 displays provide detailed visualization at the equipment level, allowing operators to address abnormal situations and offering access to logic and safety systems. Lastly, embedded procedures provide step-by-step instructions for performing critical operations such as startup, shutdown and restart. Procedures can also be semi-automated to assist the operator. All operator actions and instruction confirmations are recorded in the system log.

Improved collaboration: Honeywell's optimized project execution methodology relies on improved HPS and UOP collaboration at crucial phases of project delivery. The team creates Integrated Control and Safety System (ICSS) functional design specifications to meet specific UOP operating requirements. The team can assist with customer HAZOPs and alarm reviews to document alarm actions, and supports packaged equipment processes to ensure optimized interfaces to the DCS.

Conversely, UOP can also play an active role in the control and safety systems FAT via remote connection to a virtual engineering platform (VEP). UOP experts can review graphics, control schemes, instrument ranges and alarm setpoints. There is also the potential for connecting the DCS to dynamic simulators to check out and pre-tune control loops, and help the customer in developing startup procedures. Through this collaboration, the UOP startup crew can also be familiarized with the DCS prior to travel to the project site.



Honeywell's project delivery methodology shortens automation project schedules by as much as 25%.

Additional features: Experion Solution Suites for UOP includes additional key features for refineries and petrochemical plants. UOP PIC critical control systems are hosted on HPS Experion C300 and Safety Manager hardware and integrate directly into the Experion DCS system. In this way, operators are assured of consistent view and operations between the DCS and UOP control systems. PIC applications include the CCR Platforming

CRCS, Oleflex CRCS and DRCS, Driers for Penex, PSA unit controls, and many other technologies.

Experion Solution Suites for UOP also include robust operator alarm help capabilities. Additional operator information and recommended response actions are provided for each UOP-defined alarm. Alarm help is provided through the fully integrated Honeywell DynAMo® Alarm Suite.

Benefits to Customers

Honeywell customers can realize significant operational and business benefit by utilizing Experion Solution Suites for UOP. With this approach, UOP expertise for operational excellence is pre-built into process automation systems. The solution incorporates best practice HMI displays and alarms, built-in cyber security and disaster recovery capabilities, and a long-term support vision and lifecycle management.

In addition, Experion Solution Suites for UOP were developed to capture and implement UOP's rich operational experience with fully rationalized alarm databases, and built-in best practice operating procedures.

On refinery and petrochemical projects which include UOP licensed complex units, Experion Solution Suites for UOP can significantly reduce risk and expedite automation schedules. An improved delivery methodology supports modular construction, minimizes the impact of late changes, reduces system footprint and local equipment rooms, and keeps functional design and validation off the critical path.

For More Information

Learn more about how Honeywell's Experion Solution Suites for UOP can improve your operational performance and business results. Visit our website www.uop.com.

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PIN-16-03-ENG
March 2017