Experion’s Procedural Operations Solution captures plant procedures and supports their execution. Procedural Operations supports any type of procedure ranging from basic instructions to comprehensive start-up, shutdown and grade transitions. Experion’s Procedural Operations Solution drastically improves business performance through consistent, more efficient and safer execution of procedures resulting in quick payback in investment. Experion® PKS – The Knowledge to Make it Happen.

**Do You Know if Your Procedural Operations are Effectively Maintained and Executed?**

In recent years the process industries have started to move away from written procedures but it has been hard to “automate” documented or undocumented procedures due to a number of factors including the absence of a sufficiently sophisticated platform.

Transient operations or procedures in the process industries are a fact of life. Procedures are typically planned and implemented in the same way as other process control configuration components, however because of their nature; a procedure that is not well maintained has the potential to outdate quickly, even before commissioning finishes, creating the potential for hazardous or ineffective scenarios.

Recent investigations highlighted a disproportionate percentage of process safety incidents that occurred during transient operations, specifically those conducted infrequently such as startups or shutdowns, as well as abnormal or emergency events. A typical process plant will spend less than 10% of its time in transient operations and yet 50% or more of process safety incidents occur during these operations. Deficiencies in procedures and employee training often are cited as root causes of these incidents.

A key problem associated with the automation of procedures lies in the potential for ineffective operator interfaces. A common approach previously would include the use of the existing control displays, while the operator follows the printed procedure with a finger, pencil or highlighter. Instead, Honeywell uses procedural displays that are complimentary to the continuous control displays and is far more effective. The Experion Procedural Operations Solution communicates the sequential progress of procedures and provides a bi-directional dialog between the procedure and the operator.

**Key Benefits**

Procedural operations customers realize the following benefits:

- **Enforcement of Best Practices**
  Procedural Operations not only provides operator support, but also analysis capabilities for improvements of procedures and an audit trail and reporting capability.

- **Regulatory and Safety Compliance**
  There is no doubt that only when procedures are carried out in a standard, documented and repeatable manner, these procedures contribute to safety enhancements and incident reductions.

- **Plant Optimization**
  Automated procedures ensure quality and consistency of control, while minimizing time spent away from normal production.

- **Retention of Intellectual Property and Operator Knowledge**
  A procedure that is automated and incorporates the skill level of the best operators will retain that skill set and best practices for the lifetime of the plant.

- **Operator Effectiveness**
  A well-designed and effective automated procedure relieves stress on the operator in many ways, not only providing a safety and economic impact, but also generally improving the operator’s effectiveness.
- **Reduced Alarms Summaries**  
  As procedures typically operate outside of the normal operational ranges, distraction from unnecessary alarms is addressed by having the procedure inhibit or modify limits, and automatically return these to normal operations after the procedure ends.

- **Controller Level Execution**  
  Automated procedures are executed in the DCS controller, which is optionally redundant. There is no additional hardware required, execution is fast and reliable.

### Types of Procedures

The Abnormal Situation Management® (ASM) Consortium ([www.asmconsortium.net](http://www.asmconsortium.net)) is a group of companies and universities that have researched how to prevent and manage abnormal situations. Procedures are one area of this research.

The consortium recognizes three main types of procedures (transient operations) in the continuous control industries:

- **Non-routine operations or planned operations that infrequently occur.** Such operations include total or partial startup or shutdown of a major unit, catalyst regeneration or change-out, and furnace decoking. These types are usually characterized by a detailed written procedure. This type of procedure is typically console operator initiated.

- **Abnormal or unplanned operations.** This type of operation is usually called the “safe park/safe stop” procedure. Examples include unscheduled unit shutdown (or equipment trip), operations outside of design specifications, and operations past the point where routine corrective actions will work (for example reactor runaway). This type of procedure operation is usually process initiated, not operator initiated, and usually has no detailed or specific written procedure.

- **Product quality or grade change operations.** This is an operation that is usually planned and is designed to handle a grade change or a unique or unusual feedstock. A typical example is a polyethylene or extruder grade change. This type of procedure frequently consists of a simple written guideline rather than a detailed written procedure.

### The Role of the Operator in the Plant

The role of the operator is expanding, and the process control system should support the operator in taking the right actions based on process conditions. This ensures safe and effective procedure execution.

Key deliverables of operator procedural operations include:

- Interactive Instructions consisting of an operator confirmable instruction with messaging, ensuring that procedures are fully available to provide the right information at the right time while not distracting the operator from other responsibilities

- Operator initiated procedure execution, as well as automatic execution based on process conditions

- Context-based support of active tasks with a single, consistent environment for all operations — whether operator actions, automatic monitoring, control, or alarming

- Pre-built, modular components for easy addition of procedures to operator control displays

- Full support for incremental automation to support conversion from a manual operator task to an automated action

### Frequently Asked Questions

Operators may ask the following questions when reviewing the Honeywell Procedural Operations Solution:

- **Why do we need to automate our procedures?**  
  A common element in procedures is the requirement for increased human interaction with the process. Often the operator is the key layer of protection for the prevention of incidents. Reduced operator experience - because of retirements, longer turnaround intervals, and more reliable units - frequently results in more reliance on procedures as a source of information. Procedures are now a critical layer of protection against process hazards.

- **Does our plant have enough instrumentation to implement a ProcOps program?**  
  An automated procedure always brings significant benefits, even when use to create a pure “Operator Guidance”
procedure. This type of procedure can provide messages and lists of work (for the field or control room operator), monitor the timing of operations for the operator, list target values and monitor any signals that are already in the process control system.

- **Our operators like what they have; why change?**

  We know the pitfalls with what we have – what would something new do to me? Consider the cost of incidents that could be avoided. Simply keeping a process running or reducing stress on assets may pay for implementing an effective automated procedure.

- **Will implementing ProcOps be costly?**

  Avoiding a major incident and the associated costs make the investment in an effective operator interface an obvious decision. A procedure automation “implementation” program is scalable and the user of procedural operations can start with small investments to generate immediate benefits.

**Questions to Ask Your Operation Teams**

- **Is the lack of procedure guidance costing your operation money?**

- **Could your safety be improved?**

- **Could your procedure consistency be improved?**

- **Could your procedure time be reduced?**

ASM Consortium research indicates that 42% of abnormal situations are caused by “people and work context factors.” This includes categories such as the failure to recognize a problem, inadequate or incorrect action and failure to follow procedures or instructions. The research would suggest that whether you know it or not, many of your abnormal situations could have been avoided or dealt with more effectively with an automated procedure that deals with incipient problem situations before they rise to the level of an abnormal situation.

**System Requirements**

Honeywell’s procedural operation platform functionality is the execution engine for the Experion Procedural Operations offering. The automated procedures perform directly within the Experion Control Execution Environment, built on the capabilities of the Sequential Control Module (SCM) or Recipe Control Module (RCM) available with C200E, C300 and ACE controllers. Also part of the solution is a comprehensive toolkit of visual objects supporting the integration of procedure tracking and messaging elements in Experion process and procedure displays.

The procedural operations offering may also run on Honeywell’s TPS and other systems through OPC connectivity.

**Training Designed to Effect Change**

Honeywell is uniquely positioned to help you with this first step in effecting this important change at your site. We can provide an assessment of your existing procedures and training in the identification of procedures suitable for automation. As part of a deployment project, we can train users in the concepts and visualization of procedural operations.

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