

# Achieving Process Automation Excellence



*The Rockwell Automation PlantPax Process Automation System combines control, asset optimisation and decision-support tools into one portfolio for process applications.*

Implementing the right process control solution goes a long way in helping companies realise business value such as improving startup time, easing system maintenance and reducing cost. Just ask the Murphy Oil Corp., which recently installed an integrated process control system at its new Tupper gas plant near Dawson Creek, British Columbia, in Canada.

Rather than rely on a distributed control system (DCS) plus a number of third-party control systems to run its main plant and other operations, the company implemented an integrated system, using only two software packages to handle processes ranging from main control to pressure control to pipeline control. Tupper started pushing gas in late December 2008 – and is already seeing a return on investment in its strategic business decision.

In terms of man-hours, the time it took to develop the process architecture was cut in half. Programming time was reduced by 30 percent. In addition, because the plant runs on fibre optics and wireless technology with a high-speed connection, maintenance has been simplified. Operators can dial into their plant from any location and troubleshoot any of the control systems. What's more, the solution was far less expensive and provided twice the functionality of traditional DCS-based systems.

Murphy Oil Corp.'s process control solution was based on the Rockwell Automation® PlantPax™

Process Automation System. Announced in November 2008, PlantPax unifies Rockwell Automation core capabilities and technologies with those of its market-leading partners, like OSIsoft and Endress+Hauser, and acquisitions like Incuity, Pavilion Technologies, ICS Triplex and ProsCon, under a common systems and solutions umbrella to provide innovation and value to process industry customers.

## A Framework for Process Success

PlantPax, based on the Rockwell Automation Integrated Architecture™, is composed of both automation and information segments defined as the Logix Control Platform and the FactoryTalk™ Integrated Production and Performance Suite. It offers scalability for a range of process applications, whether manufacturers want to migrate from an existing but no-longer-supported DCS solution or implement a single plant-wide platform for the first time.

Controllers provide the processing power to control many loops with advanced process control strategies. Every controller features its own tag-based, real-time database that integrates with software applications.

The system supports a hierarchy of networks including EtherNet/IP, ControlNet and DeviceNet. Each speaks a common language, the Common Industrial Protocol (CIP), and shares a universal set of communication services, allowing

for transparent flow of information that is critical in process applications.

## Control Strategies

Control strategies are configured using modular and reusable objects that simplify design, commissioning and maintenance to save time and cost. For example, for continuous control, an object-oriented, drag-and-drop configuration allows users to build complex process functions. Faceplates associated with instructions help to set up, tune and control the elements. Additions and modifications can be performed online while the process is running.

For advanced process control (APC), the PlantPax platform provides optional function blocks for advanced regulatory control. These address the hard-to-control applications with multiple interacting inputs-outputs or with long dead times. In addition, a fuzzy-logic design environment allows users to create custom algorithms for use in Rockwell Automation controllers.

The recent acquisition of Pavilion Technologies brings process optimisation capabilities to the PlantPax platform. Inferential measurements, supervisory control and real-time technologies include model predictive control, dynamic simulation and modeling, neural network technology, and sustainability and environmental compliance.

Control strategies are also enhanced with Add-On Instructions and process libraries. Add-On Instructions permit users

to create custom instructions. Users also can create their own library of process control and visualisation objects, which augment standard, built-in capabilities.

## Information at Your Fingertips

It's critical to have real-time access to data in process applications. The PlantPax platform supports real-time visualisation so that key personnel can track process status and other real-time information from production to make informed decisions.

For example, the Alarms and Events management approach helps operators use alarms efficiently to diagnose issues that may occur. Operators can manage native alerts, as well as those associated with third-party controlled equipment, in accordance with current industry standards.

In addition, equipment ranging from pumps and valves to instrumentation can be managed using standard faceplate objects. With global objects technology, users can create their own reusable library with standard visualisation objects to control unique pieces of equipment, trace events related to equipment, and manually or automatically tune the control loop.

PlantPax allows plant-wide process data management through its historian capability, which is based on the PI System from OSIsoft and integrated with the Rockwell Automation FactoryTalk suite. Furthermore, the new FactoryTalk VantagePoint enterprise manufacturing intelligence and reporting software helps enable aggregation, analysis and display of plant information.

## Reliable and Safe Systems

For process automation, system availability indicates the system's ability to tolerate certain failures and maintain continuity in operations. PlantPax delivers high-availability systems to maintain continuity in operations. Users can make repairs, replacements, online changes and additions while operations continue, thereby helping to maximise productivity.

In addition, PlantPax controllers are TÜV-certified from safety-integrated levels (SILs) 1 to 3, with both fail-safe and fault-tolerant offerings. The Logix controller carries TÜV SIL 1 and SIL 2

ratings and is available in simplex and fault-tolerant configurations including I/O.

Systems from ICS Triplex, a leader in process safety and critical control, are integrated with PlantPax. The flagship Trusted Controller is based on Triple Modular Redundancy technology and extends the Rockwell Automation process safety offering to SIL 3 level. In addition, the integration over EtherNet/IP allows users of ICS Triplex safety solutions the advantages of the Rockwell Automation Integrated Architecture.

The new ICS Triplex AADvance solution is a scalable, modular architecture that provides users with the ability to configure the level of safety and fault-tolerance required for SIL 2 and SIL 3 loops. Systems can be configured for simplex, duplex or triplex applications.

## Staying Connected

For easy access to data at the operations or business level, PlantPax provides information flow ranging from field devices to business integration systems so that users can optimise plant assets and reduce costs. The platform offers connectivity to the leading process device networks including HART, Foundation Fieldbus and Profibus PA.

Primarily, the levels of connectivity include data flow from the device to the controller and data visualisation on the operator workstation. It also includes data access by Rockwell Automation asset management software.

At the operator level, faceplates provide the visualisation of instrument status, device-specific diagnostics and process variables. The PlantPax asset management solution communicates through the architecture to allow commissioning and maintenance of the process devices.

## Managing Assets

Asset management improves overall security, intelligence and predictability related to plant resources. Monitoring and auditing equipment or network health, as well as overall resource availability, creates a foundation for better maintenance and plant operations.

As an integral element of the PlantPax system, expansion of the Rockwell Automation asset management suite includes new data delivery capabilities,

tools and procedures that track assets and their performance. PlantPax secures access to the control system, tracks users' actions, manages asset configuration files, configures process instruments and provides backup and recovery of operating asset configurations.

Rockwell Automation asset management is based on industry-leading field device type/device type manager (FDT/DTM) technology. In addition, an expanding library of device DTMs and communication DTMs is supported.

## Bringing Value to Users

The PlantPax portfolio includes a breadth of features and functions. Collectively, they deliver strategic business value, allowing companies to achieve process automation excellence.

PlantPax helps manufacturers react to changing production conditions while maintaining operations at peak efficiency. Its implementation helps reduce costs, minimise waste and improve asset performance.

The portfolio also assists manufacturers in improving quality, consistency, flexibility and time to market as well as in meeting regulatory challenges. What's more, they can execute real-time control and maintain critical process parameters. The single automation and information infrastructure helps to reduce risk and total cost of ownership.

John Watts, Rockwell Automation manager, Process Solutions, Asia Pacific, says, "PlantPax represents a significant shift in how customers control their plant, bringing the best of technologies together. It offers end-to-end plant-wide control, scalability and seamless integration of power control into the process control platform. In addition, PlantPax has world-class technologies for process safety, real-time decision support, model predictive control and asset management. This helps give customers significant savings in project implementation, operations and maintenance costs." AT

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For more information on the PlantPax system, visit: [www.rockwellautomation.com/solutions/process](http://www.rockwellautomation.com/solutions/process).