

Leading Chemical Company Optimizes Control System with Advanced Connectivity Solution

Case Study

“Honeywell’s Ethernet Interface Module minimized our labor hours and provided a significant reduction in wiring costs. Setup and configuration were both intuitive and straightforward.”

- Dave Bell, Senior Control Systems Engineer, DuPont

Background

DuPont was founded in 1802 by Éleuthère Irénée DuPont. With 60,000 employees in 90 countries, the company invented nylon and trademarked leading brands such as Dacron®, Orlon®, Teflon®, Freon®, Kapton®, Mylar®, Corian®, Tyvek®, Nomex®, and Kevlar® among many others.

DuPont merged with Dow Chemical in 2014. The business is now split into three segments:

- Agriculture (Corteva)
- Materials Science (Dow)
- Specialty Products (DuPont)

DuPont’s Spruance Works facility, located outside Richmond, Virginia, opened in 1929 to produce Rayon. Spruance Works is the largest site in DuPont with approximately 2,500 employees.



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Challenges

As part of the technology upgrades at its Spruance Works facility, DuPont needed to interface various control assets to its existing Honeywell Experion® PKS Distributed Control System (DCS). The company had established a test facility in the same building as its existing operations, but had concerns about protecting operations and exposing personnel to production processes. The success of

this project would dictate the feasibility of commercial implementation in the future.

In general, DuPont had been hesitant to implement process control via networked devices, preferring the traditional method of home-run cables back to controllers and I/O modules located in centralized instrument control rooms.

Safety and reliability are of paramount importance for DuPont due to its engrained history, as well as the presence of hazardous chemicals and processes within its process operations. Furthermore, the company faced the risk of production loss if new technology failed to perform.

Site engineers sought to keep controller to controlled device connections as short and simple as possible. It was approximately 200 feet from the DCS to the project area, which was characterized by multiple active operations, varying ceiling and roof heights, and a lack of existing cable trays.

Solution

New equipment being installed as part of DuPont’s automation project consisted of a vendor skid with a Programmable Logic Controller (PLC); pumps, blowers, and constant and variable speed motors; and temperature, pressure, and flow instrumentation. Previously, Experion-compatible remote solutions were limited to Profibus™, and DeviceNet™.

As part of its automation architecture, DuPont chose to implement EtherNet/IP™. The strength of this technology was its ability to pull multiple pieces of data from a given device, avoiding multiple cable pulls and I/O consumption, and giving a more complete picture of the status and operation of the device.

Key to DuPont’s control strategy was the use of Honeywell’s Experion Ethernet Interface Module (EIM) for connections to DCS controllers. The EIM is an innovative solution, which complies with Ethernet/IP and runs its communication protocol

Key to DuPont’s control strategy was the use of Honeywell’s Experion Ethernet Interface Module (EIM) for connections to DCS controllers. The EIM is an innovative connectivity solution, which complies with IEC 61850. The device allows a seamless data exchange across clusters of controls.

About Honeywell Experion PKS Orion

Honeywell redefined industrial automation with Experion PKS, the first enterprise-wide Distributed Control System (DCS) designed to unify people with process, business requirements and asset management. Today, Experion PKS Orion is the most advanced, open and cyber secure control system on the market.

over fault-tolerant Ethernet. The device allows a seamless data exchange across clusters of controls.

For end-users like DuPont, the EIM solution provides one hardware module with multiple personalities. Deployed on Honeywell's modern Series C hardware, it utilizes a common platform offering full redundancy for both the module and network. The EIM features embedded control firewall functionality, and support for Level-0 isolated I/O networks.

Within DuPont's installation, the EIM supports EtherNet/IP-based communication with the module residing in the same cabinet as the DCS controller. Project engineers also developed a backup plan of hardwired connections should it be needed. Various equipment was seamlessly integrated into the Experion control modules, including variable speed drives, electronic overload relays, and PLCs.

Results

DuPont's automation project was completed on time and on budget. The Honeywell Experion EIM performed well, with setup and configuration both intuitive and straightforward. Integration of EtherNet/IP-based devices has gone smoothly to date.

DuPont plans to implement the EIM solution on future control system projects.

The use of EIMs for motor, drive, and PLC interfaces reduced labor hours by 80 percent at the Spruance Works facility, and lowered wiring costs by 50 percent for the same interfaces.

DuPont is currently in the design phase of several projects at its manufacturing facility. Plans call for interconnecting multiple islands of unit operation and deploying remote distributed I/O to reduce current operational risk and project costs, while not compromising operational reliability.

Summary

DuPont can take advantage of improved control system flexibility and connectivity thanks to the Honeywell EIM. The company found this solution provided a secure and reliable method of interfacing various control assets to its DCS architecture when utilizing industrial communication protocols like EtherNet/IP and Profibus.

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For More Information

To learn more about how Honeywell Experion PKS can improve performance, visit www.honeywellprocess.com or contact your Honeywell Account Manager.

Honeywell Process Solutions

1250 West Sam Houston Parkway South
Houston, TX 77042

Honeywell House, Arlington Business Park
Bracknell, Berkshire, England RG12 1EB UK

Shanghai City Centre, 100 Zunyi Road
Shanghai, China 200051

www.honeywellprocess.com

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