

Yuhan-Kimberly Migrates to PlantPAx® Process Automation System to Increase Productivity

PlantPAx, A Modern DCS, Incorporates Machine Safety on Single EtherNet/IP Network To Meet Needs in Home and Personal Care Industry.

Challenge

The legacy distributed control system (DCS) to meet the increasing demands of customers in the Home and Personal Care Industry.

Solutions

Modern DCS: "PlantPAx"

- The PlantPAx process automation system, based on Rockwell Automation Integrated Architecture®, increases productivity and efficiency.

Integrated Architecture on EtherNet/IP

- Process control and machine safety relies on ControlLogix™, GuardLogix™ and FactoryTalk®, enabling the entire system to communicate over a single EtherNet/IP network.

Results

- **Successful Conversion**
Enable the stable and successful conversion from a Honeywell PlantScape legacy DCS to Rockwell Automation PlantPAx process automation system with the ability to incorporate machine safety into the solution using a single control platform.
- **Reduced Development Time**
Reduced implementation time to two months as it usually took four months by utilizing the PlantPAx Process Library of Process Objects, alleviating the need for separate development for Logic programs and HMI faceplates.
- **Reduced Cost**
Reduced spare part and training costs by deploying PlantPAx and machine safety on a single platform for a complete, reliable and robust system.



The PlantPAx platform based on the Rockwell Automation Integrated Architecture™ system in Kimcheon Factory floor-delivering a unified process and discrete solution.

Background

Yuhan-Kimberly was established in 1970 as a joint venture between Yuhan-YangHang and American company Kimberly-Clark. Yuhan-Kimberly was the first company to introduce several different personal care products that now are an important part of everyday life in Korea. Over the years, Yuhan-Kimberly has strived to provide people of all ages with products that help them to lead more hygienic and active lives, contributing to the health and well-being of Korean consumers.

Challenge

Yuhan-Kimberly's Kimcheon plant is Asia's top personal hygiene paper manufacturing facility, producing household supplies and including tissue, toilet paper and kitchen towels. With the rapidly increasing demand for bathroom paper towels it was no longer efficient or effective to import raw materials from the U.S. for processing and packaging in the Kimcheon facility. Yuhan-Kimberly

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Yuhan-Kimberly's Kimcheon Factory



The Modern DCS PlantPAx has experienced zero downtime since the completion date, saving 2 months of ahead of the scheduled time.

needed to produce the raw materials in-house and decided to undertake a project to move the towel machine in the U.S. facility to Kimcheon.

This would require a major upgrade. Within this production process, Yuhan-Kimberly was running Honeywell's PlantScape, a legacy distributed control system (DCS). Replacement parts were a challenge to find, and it was almost impossible to obtain the updated functions needed to improve efficiency Yuhan-Kimberly wanted, including additional machine safety options and a multi-discipline system that includes a modern process solution plus safety control.

To complicate the situation, to ensure production targets were met, the migration to a new system would need to be completed quickly, with no downtime.

Solution

Yuhan-Kimberly began working towards replacing the legacy control systems at the facility and modernizing the architecture to increase productivity and safety. The company wanted an integrated system that would provide full production line and recipe capabilities, solving quality and consistency issues that had been problematic with the legacy DCS. Because of the complexity of the old system

it was important that the new installation be user-friendly and simple to use.

Yuhan-Kimberly secured bids from Rockwell Automation and other automation suppliers for converting the system, which included controller, human-machine interface (HMI) and machine safety. It also analyzed the applications used on PlantScape, and considered how those applications could be designed, migrated, installed and commissioned on a Rockwell Automation platform.

PlantPax is based on the Rockwell Automation Integrated Architecture system, delivering a unified process and discrete solution. For Yuhan-Kimberly, the process automation platform incorporates control technology, HMI software for visualization into each application; machine safety devices for operators; and communication interface applications to link the systems with EtherNet/IP.

The new process control system centers on the Allen-Bradley® ControlLogix® programmable automation controller (PAC). Unlike traditional controllers, ControlLogix PACs provide multi-disciplined control leveraging development tools, a network protocol and service oriented architecture, making it a fully integrated, scalable control platform that can be used throughout Yuhan-Kimberly's plant.

The core advantage of this is a reliable, single hardware and software solution that includes an Integrated Architecture-based modern DCS, PlantPax, and machine safety control via a single industrial network: EtherNet/IP.

To accelerate the migration process, maintain consistency and reduce installation time, the customer relied on the PlantPax Library of Process Objects. This Library is simple and convenient to use, and allows operators to minimize system deployment and test time. As a result, this solution improved production efficiency, expedited the start-up process and improved time-to-market.

The domain expertise of the Rockwell Automation Global Process Technical Consultant (GPTC) team provided training to Chumdan FA, Rockwell



The Safety machine devices installed at the Kimcheon factory floor.

Automation Process Solution Integrators (SI) engineers, and also to Yuhan-Kimberly operators, helping them acclimate to the new system and teaching them how to leverage the features. This team led Yuhan-Kimberly through its well-defined and strategic technology migration path.

Results

The Rockwell Automation PlantPax Library of Process Objects shaved two months off of the implementation time, so PlantPax was installed ahead of the scheduled time. Operators immediately took advantage of easier operating procedures. For example, instead of checking the Logic programs one-by-one, a requirement of the legacy system, operators can check and change the operating condition of the machine and safely view the interlock status via the faceplate.

“Using PlantPAx DCS’s Library of Process Objects, we were able to cut down the system deployment time by 2 months, and we could conduct an independent test and a simulation test effectively before the SAT, which allowed us reliable and fast system startup.”

Se-Yong Jang (Project Leader, SI partner Chumdan FA)

With the smooth migration completed on the single platform, the cost for the spare parts and training has been reduced dramatically. Additionally, PlantPAx has reduced the Total Cost of Ownership (TCO) while satisfying the customer’s request for improved machine safety. The solution as possible because Rockwell Automation Integrated Architecture enables PlantPAx DCS and GuardLogix safety on an EtherNet/IP network.

“On top of all the DCS features that Honeywell PlantScape provided, we had to deploy machine safety. It was not an easy project. We thought we’d need various network interfaces with many products from different makers, but we were able to deploy PlantPAx DCS and GuardLogix Safety on a single hardware/software through Rockwell Automation Integrated Architecture™ products and solutions, which allowed us to implement a reliable, robust system. Also, we were able to cut down the development time as well as the TCO through PlantPAx DCS’s Library of Process Objects.”

Jong-Kyu Lee (Project Leader, Yuhan-Kimberly Y-K Project Leader)

**For Additional Information,
Please contact
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The results mentioned above are specific to Customer’s use of Rockwell Automation products and services in conjunction with other products. Specific results may vary for other customers.



Rockwell Automation and PartnerNetwork™ companies collaborate to help you develop an ongoing approach to plant-wide optimization, improve your machine performance and achieve your sustainability objectives.



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