

Vaccine Production Benefits from State of the Art Control Solution

Case Study

Latest and most advanced specialty chemicals manufacturing complex gives LG Life Sciences a competitive advantage in global biotech market

Background

LG Life Sciences Ltd. (LGLS) develops and manufactures biotechnology and genetic products such as vaccines including the hepatitis B vaccine which it exports to more than 75 countries. When LGLS announced plans to build a new vaccine production facility, one of the largest ever in Korea, the LGLS project team consulted with Honeywell Process Solutions for its expertise in Pharmaceutical process automation and its understanding of validation standards, rules and regulations. LGLS ultimately selected the Honeywell Experion® LX distributed control system to manage the vaccine production process, the HVAC system and the plant utilities. The new vaccine facility is to become the most advanced, state of the art biotech site globally.

Challenge

Vaccine production is highly complex with numerous critical operations. From production management and batch control to diverse formulation processes, the process entails precise control and plantwide integration. Competition is intense and producers such as LGLS are faced with price erosion due to rapidly evolving healthcare practices and regulations. To remain competitive LGLS must develop and deliver high-quality products on time while maintaining strict manufacturing-practice-compliant conditions. Minimizing batch-to-batch variability requires manufacturing agility and intense monitoring of all aspects of their operations.

The LGLS project team was challenged to deliver on key business drivers for the company:

- Minimize startup cost and operation downtime
- Improve productivity and standardization

Solution

LG Life Sciences required that the vaccine production control solution be flexible, scalable, reliable and purpose-designed for Pharmaceutical applications. Enter Experion LX which enables LGLS to realize the performance advantages of a true distributed control solution at reduced cost with full validation support. The purpose-built Experion LX was configured to meet LG's vaccine production applications; it can be expanded to include additional assets and to integrate with LGLS' business operations.



Experion LX Control Rack at LGLS

Honeywell's project scope comprised the Electrical, Instrumentation and Control System and HVAC & Utilities including 15,000 process I/O and 3,000 SCADA points all connected by a distributed system architecture.

LG Life Sciences documented benefits

"Reduced time of system programming & site test by 20%"

"Reduced cost for system manufacturing by 15%"

"Increased revenue by about 10%"

*Younghun Lee,
Engineering Mgr.
LG Life Sciences Ltd.*

Experion LX

1. Built-in Function Blocks

Designed to suit pharmaceutical applications and DCS requirements with specific function blocks as well as support Custom Algorithm Blocks for building user-defined algorithms and data structures.

2. Rich Function Libraries

Easily create control strategies with the single, integrated Control Builder tool for continuous, sequential, batch and model-based control.

3. Qualification and Version Control System (QVCS)

Establishes well-enforced lifecycle and implementation procedures and reduces the number of Standard Operating Procedures (SOPs) while eliminating manual signatures and paper trails; in accordance with US FDA 21 CFR Part 11

4. C300 controller

ISA S88 model based deterministic process controller for executing control strategies on a consistent and predictable schedule; improved batch execution availability and throughput

The system includes 3 Redundant Experion LX Servers, 30 Experion LX Flex Operator Stations and 24 Experion Direct Operator Stations. Experion LX will provide precise batch control for LGLS' vaccine recipes including sequential control functions as well as HVAC monitoring and control.

The Experion LX simulation feature was utilized for proving out control strategies during the project design phase.

Honeywell partner **Global Engineering Co., LTD.** (Korea), with years of experience and pharmaceutical industry expertise, took responsibility for engineering, third party supply and integration, project management, field acceptance testing and site services including 21CFR Part 11 Compliance.

Benefits

The Experion LX distributed control system is a perfect fit for pharmaceutical and biotech operations of any size or scope. With the Experion LX solution, pharmaceutical production facilities can achieve significant improvements in reliability, agility and efficiency with lower lifecycle costs. Experion LX also provides a comprehensive set of SCADA capabilities including new equipment-based configuration to dramatically reduce the engineering effort.

LGLS cited several advantages realized through Experion LX implementation:

- Increased volume through reduced batch execution times
- Consistent product reproducibility and reduced quality variability
- Streamlined recipe development and verification
- Reduced recipe maintenance through equipment-independent master recipes
- Improved operator effectiveness through display integration and interactive instructions
- Simplified configuration of continuous and batch control
- Reduced maintenance and lifecycle costs



LGLS Vaccine Vessels

Summary

Honeywell is the leading supplier of control solutions for the Pharmaceutical and Life Sciences industries offering industry experience and expertise, proven application experience and worldwide support. Experion LX enables pharmaceutical and life sciences facilities to realize the advantages of a robust and secure DCS solution. With this scalable control system, functions and applications aimed at optimizing performance are inherently available in the context of pharma operations. With Experion LX pharmaceutical manufacturers benefit from significantly enhanced batch capabilities including increased batch execution availability.

To learn more about how Experion LX can benefit Specialty Chemicals production, visit [Experion LX](#) or contact your Honeywell account manager.

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