

Transnational Blenders Improves Blending Performance and Reliability with Experion LX

Case Study

“The flexibility and scalability of Experion LX enables us to meet our goal to expand our installation and increase our business.”

- Ed Valk, Operations Manager, Transnational Blenders B.V

Background

Transnational Blenders B.V. (TNB) is an independent, Dutch, lubricant blender for marine customers and automotive brands serving large shipping customers, a wide range of private-label customers, and European bulk distributors with high performance lubricants. Products include motor oils, agricultural oils, compressor oils and more. TNB distributes lubricants in bulk and as packaged products.

Located in Dordrecht, Holland, TNB initiated aggressive investments that effectively increased plant capacity to approximately 120,000 metric tons annually. With growth came the need to ensure that the blending control operation be able to support increasing demand. An assessment of TNB's blending control system uncovered opportunities to modernize the aging and outdated system with state of the art process control system. In consultation with Honeywell Process Solutions, TNB identified opportunities to improve operations and increase efficiency.

Challenge

Business growth and increasing product demand exposed shortcomings and vulnerabilities with the existing control system:

- C++ applications were too complex to maintain and expand.
- The Process Control System ran on the office-network.
- The server hardware was aging and outdated
- The backup server was unreliable due to its age
- Due to an unstable server/network it was normal to restart the server up to 5 times daily
- The PROFIBUS interface was unstable due to installation faults
- There was limited on-site functional or technical knowledge about the system

Any one of these limitations made the operation vulnerable. Taken together TNB was concerned that it was just a matter of time before they would risk a plant shutdown or worse.



Transnational Site and Storage Tanks

The Dordrecht Plant

The TNB Dordrecht plant comprises two in-line Blending Systems with a capacity of 75 Liter/Hr. and a Batch Blending System that includes 14 blending tanks with a total blending capacity of 3000 cubic meters. The finished product is then moved to large storage tanks from where they are loaded directly into barges from two of the larger batch blending tanks.

The plant has:

6 automated pig-pipelines (“pigging” is a pipe maintenance technique to ensure a smooth flowing pipeline by periodic automatic scraping of the pipeline interior)

103 storage tanks with main valve, pressure and temperature measurements and high-high alarms

16 frequency controlled pumps

375 pneumatic valves with open and close feedback

Two servers with custom C++ application for control, HMI and safety interlocks

Remote IO, Instrumentation and frequency drives connected via PROFIBUS DP backbone

According to Mr. Ed Valk, Operations Manager at TNB

“The flexibility and scalability of Experion LX enables us to meet our goal to expand our installation and increase our business. This could not have been achieved without the perfect support of Honeywell’s System Integrator LC Engineers & Consultants and distributor De Gidts & Feldman”.

Experion® LX is a purpose-built distributed control system (DCS) leveraging the proven Honeywell Experion PKS technology to meet process automation requirements in continuous and batch process control applications. This flexible automation solution is simple to use and configure.

Experion LX helps users

Maximize plant uptime and improve plant reliability

Optimize plant efficiency and increase scalability

Boost plant performance and agility to respond to business changes

Enhance operator effectiveness and safety

Communicate effortlessly with third-party devices and drives

Reduce Total Cost of Ownership (TCO)

Also, TNB’s department of Quality, Health, Safety and the Environment (QHSE) is responsible to ensure compliance with all current and future Dutch and European laws and regulations. TNB management decided it was time to modernize controls.

Solution

Following evaluation of various solutions and suppliers TNB settled on the Honeywell Experion LX system, C300 Series 8 controllers and eServers to replace the existing in-house system. TNB determined that Experion LX was perfectly suited to optimize their batch and sequence-oriented control applications.

TNB embarked on a 2-phase implementation program: Phase 1 comprised 1355 I/O and Phase 2 comprised 258 I/O. The project team set milestones and objectives for the project at the outset:

- Definition of functional design specs based on reverse engineering of the existing C++ application and on interviews with TNB operations staff.
- Ensure conformance with ISA S88 physical/procedural model
- Honeywell Experion LX implementation based on control (CM, EM and Unit) and sequential flow (phases and procedures) typicals
- HMI displays re-designed and optimized with the Honeywell standard HMI library
- PROFIBUS communication implemented to read/write the field I/O, leaving field wiring unchanged.
- Honeywell Series 8 remote IO communication via fiber optic convertors to the local control cabinets.
- Web-based access to the HMI displays available through the eServer functionality.
- Communication with MES via OPC connection.
- Testing/Delivery based on Field and Site Acceptance tests.

Benefits

Because Experion LX is based on the Experion PKS platform, it enables facilities of all sizes to realize the advantages of a robust and secure DCS solution. Following installation and successful startup of Experion LX at Dordrecht, TNB has seen significant improvements in performance, reliability and efficiencies in blending operations. Some of the advantages cited by TNB:

- The redundant server set improves data integrity
- The eServer separates the control network from the office network which increases security and stability
- Servers and stations were moved to a conditioned server room/cabinet, improving reliability
- Maintainable software application, engineering is based on the S88 standard and use of control typicals
- The Experion LX installed onsite is expandable with extra C300 controllers and remote IO
- Honeywell’s ControlNet interface enables reliable and cost-effective expansion of remote IO
- TNB realized costs reductions by enabling communication with the existing ET200 modules and measuring instruments



The Experion C300 Controller

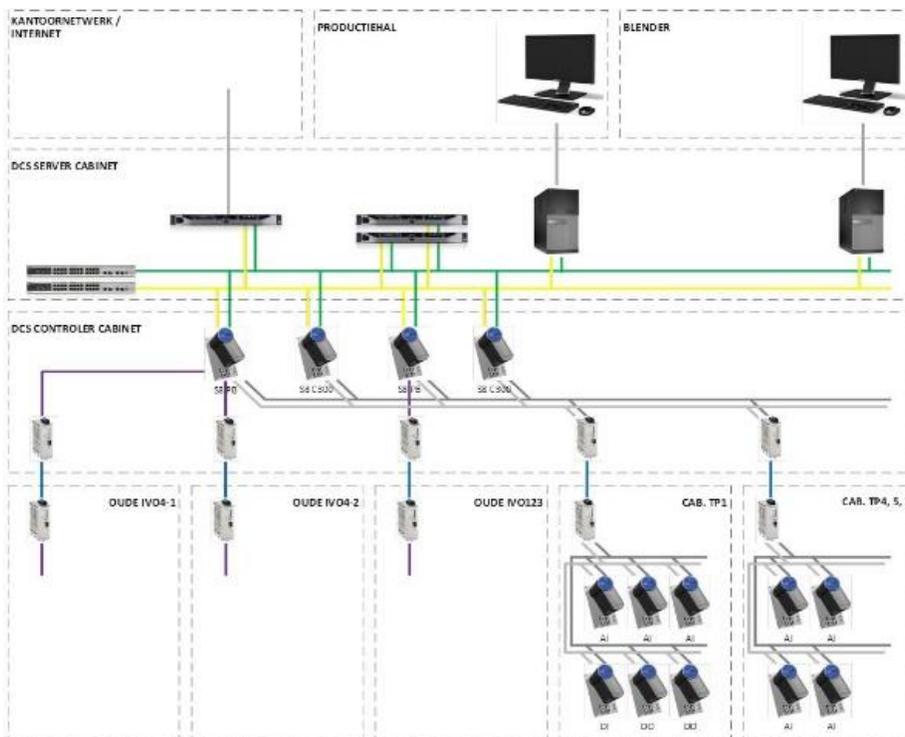
Experion LX Installation and Architecture at TNB

The Experion LX system manages the overall batch blending operation. C300 Controllers execute the sequencing of valves and pumps as determined by TNB recipes. Experion LX allows multiple batch recipes to execute completely in the C300 controller. The controllers monitor and control the flow and pressure of the lubricants and the levels in the storage tanks; they also monitor the status of alarms. In the event of an alarm situation Experion LX alerts the operator and initiates a shutdown sequence if necessary. Operators monitor the operation via the three Experion workstations that provide dynamic displays, easily configured to represent TNB operations.

Installation Detail

- Redundant server set
- eServer (two Ethernet connections for FTE and one for the office intranet)
- 3 operator workstations
- 2 C300 (series 8) Controllers
- 1 PROFIBUS gateway connected with two PROFIBUS loops with 60 slaves each
- 1 PROFIBUS gateway connected with one PROFIBUS loop with 35 slaves
- Series 8 Remote I/O modules (DI, DO and HART-AI 11 new tanks)

Experion LX Installation and Architecture at TNB



For More Information

Learn more about how Honeywell Experion LX can improve performance and reliability, visit www.honeywellprocess.com or contact your Honeywell Account Manager.

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