zenon Visualizes and Controls an Imposing High Bay Warehouse.

The British retailer John Lewis has significantly increased its storage capacity with the construction of a high bay storage facility in Milton Keynes, UK. zenon from COPA-DATA ensures a smooth flow from the receipt of goods through interim storage to dispatch.

By opening a small draper's shop in Oxford Street, London in 1864, with its 'never knowingly undersold' pricing policy, John Spedan Lewis laid the founding stone for a corporate success story that nobody could have imagined at the time. Today, the John Lewis Partnership (JLP) department store chain is known for its size, selling a large range of products that is best described as "everything except foodstuffs". There are 69,000 permanent employees as 'cooperative partners', and the leading retailers Waitrose, John Lewis and Greenbee are all under one roof with annual revenues of approximately EUR 8.1 billion

(2008). John Lewis, with 27 department stores, is currently the largest department store chain in the United Kingdom. This size can be demanding, and these demands are then passed down to logistics management. Several million articles must be stored on a temporary basis in over 500,000 'locations' – storage spaces sized 60 x 40 x 30cm for goods boxes – before the goods are delivered to the individual department stores. To be able to continue to deliver this volume in the future with efficient logistics, John Lewis has constructed a high bay storage facility in Milton Keynes (UK).

An overview of the complete conveyor facilities: All processes in the new high bay facility at John Lewis are visualized and controlled with zenon.

XXL STORAGE LOGISTICS

A storage facility 375 meters long, 150 meters wide, 15 meters high and with a total of four levels is not a standard size for common high bay storage, and an automation solution to satisfy the requirements of the department store giant would not be a standard one either. From this particularly complex starting point, John Lewis looked for a solution that enabled as many operator stations as possible, which are spread throughout the entire floorspace to be administered centrally. With the requirements of supreme ease of operation, reliability and quick troubleshooting all logistical processes in the high bay storage facility were to be automated by a rack feeder on rails. All these specification required an individual tailor-made solution. This is also in line with the corporate philosophy of the Austrian company, KNAPP Systemintegration GmbH, based in Leoben, which was commissioned to implement the major project in Milton Keynes. As one of the 26 sales and service offices of the Graz-based KNAPP Aktiengesellschaft, KNAPP Systemintegration GmbH, with around 200 employees specializes in delivering solutions to individual, complex problems in the field of storage logistics and storage automation. It is a one-stop solution provider. One of the key components for the John Lewis project is the software used, which visualizes all processes as well as monitoring and controlling all equipment. Working together with KNAPP Systemintegration GmbH, who have been active since 2001 as a system integrator on the international market, the decision was made to use zenon, the HMI/SCADA automation software from COPA-DATA.

## OPENNESS IS THE MOST IMPORTANT PRINCIPLE

For powerful storage logistics to work smoothly, many different hardware and software components must work together. René Gottsbacher, visualization technician at Knapp Systemintegrations GmbH, explains: "zenon is a very open and independent system. Thanks to its diverse range of over 250 drivers, it communicates to most hardware and software products without problems. As a result, it was particularly suited to this complex XXL logistics management. We supplemented our own applications, KiSoft command, KiSoft Warehouse Management System and KiSoft Warehouse Control System, with zenon for this project so that we could meet the customer's requirements."

There were two main challenges that the engineers had to overcome on site: Firstly, the amount of web clients that was necessary and secondly, the user administration, which required a number of different password levels to be set up due to the complexity of the equipment. A minimum amount of 25 user stations in the warehouse were required to monitor

Thanks to a multi-monitor system, the design of a second symbol-based project over-view and integrated language switching, JLP employees acquaint themselves with the system quickly and can operate and administer the projects easily.
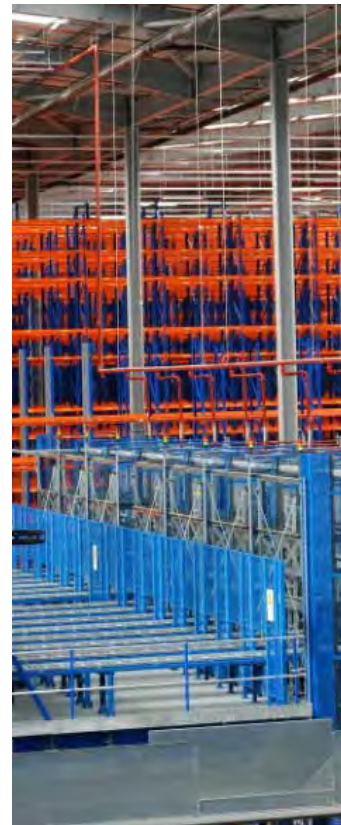
all procedures. In addition, the customer had requested that the project be implemented with as few screen changes as possible to ensure a high degree of user friendliness.

ZENON – CLEAR, SECURE, COMPATIBLE

The planners suggested installing a system with eight monitors to provide as clear an overview as possible. Thanks to zenon's support for monitor administration this could be implemented with no problems. Such a decentralized structure enables simple operation by users throughout the project because several projects can be started at the same on one PC. Furthermore, a second project overview was planned, which is completely based on symbols, so that misunderstandings due to language barriers could be avoided from the start. Using the integrated language switching from zenon, it was possible to make the project operable in German and English. A number of reoccurring tasks and statistics were implemented in the VBA interface available in the zenon editor, with the project planners from Knapp being able to make optimum use of the development environment in zenon to create scripts.

The system needed to be reliable and this was implemented by the engineers who set up a redundant network, which can be implemented in zenon with just a few mouse clicks. If the server breaks down the pre-defined standby server springs into action immediately and takes over all tasks, without losing any data. With 25 user stations spread throughout the whole floorspace, the employees save time for other important activities as the time spent moving throughout the warehouse is reduced. One hurdle to overcome with the JLP project was the problem of memory usage, for which zenon provided the following solution: in addition to the known backwards compatibility, all different versions of Runtime, Server and Client, are 100% compatible with each other. Anyone using the latest version as a HMI on a new machine can still leave all other machines with older versions. The developer with the most recent version can make the project run on older Runtime versions as well. By upgrading Runtime on the server from zenon 6.20 SP4 to 6.21 SP1, the memory requirements were reduced considerably and the project could be run more efficiently.

EVERYTHING UNDER CONTROL:
DATA – CURVES – TRENDS

In addition to the VBA interface, the logistics project was equipped with an archive server that cyclically records all historical process and operating data also, if desired can record when any values are changed. When recording data within a certain

time period, zenon stores the archive data in a ring buffer, where this can be further processed. Using zenon's "Extended Trend" module, John Lewis uses exported archive data to make detailed calculations, in addition to the values recorded online. Either individual variables in the form of trend curves can be shown, or two variables can be compared with one another as desired. In doing so, the number of curves displayed is unlimited. The aim is to have not only an insight into the values given, but also their interrelationships in the overall project and the efficiency of the equipment as a whole. Therefore the maintenance personnel at John Lewis are one step closer to their goal of optimizing the processes in logistics management.

René Gottsbacher adds: "All facilities were involved in this project: from order status to the conveying technology, through to dispatch; everything is now completely automated. With the help of zenon, the Knapp Group has implemented its largest project yet for John Lewis."

HOW JOHN LEWIS BENEFITS FROM ZENON :

▸ Overview: 25 operator stations are administered centrally

▸ Saves time and costs: reduced journeys, optimized processes

▸ Reliability: no down time thanks to a redundant network structure

▸ Quick troubleshooting and rectification of errors

▸ Simple operation thanks to object orientation and language switching

▸ Comprehensive control with archive data and trends