

Scanners virtually eliminate lost item search

ROD 4 area scanners are the latest addition to an integrated network of more than 400 scanners and sensors from **Leuze electronic** deployed throughout the distribution warehouses of JD Williams. While many perform a role of ID, the new ROD 4 scanners have been brought in to virtually eliminate the potential for picked items to be 'lost' at final discharge and transfer to the packaging stations

JD Williams, based in Oldham, handles in excess of 150,000 items per day. The nature of the company's home delivery service relies on an efficient handling system that can track new orders from pick to despatch, as well as a returns department where items are inspected and only then returned into the pick bays or bulk store. The high operational efficiency calls for reliable sensing capability, automating as many processes as possible. To achieve this, more than 300 Leuze electronic scanners and barcode readers are deployed throughout this highly successful distribution centre.

Diverse range of applications

Leuze optical sensing technology is central to the overall efficiency of JD Williams' facility and are used for a diverse range of applications including data-transmission in the high bay warehouse, barcode scanning for stock verification from suppliers and location allocation.

The Ethernet ready ROD 4 scanner was brought into the warehouse to eliminate a situation where tote bins that did not empty their entire picked loads would still be free to automatically be sent back to take up position in a new order-pick cycle. Only later would an alert be raised when items arrived at the final packaging station not correlating with the actual pick list. This meant a manual search to locate bins with the items.

Now, two Leuze ROD 4 optical scanners are included in the tote bin return path immediately after the discharge point. Tote bins are tilted through 160°, emptying their contents for final transfer to the packing stations. After righting they are conveyed on one of two lines back into the order pick process, but not before passing beneath another ROD 4 scanner. These can be pro-

grammed to sweep a 2D arc up to 190°, permitting the width, contour and position of an object to be detected. At JD Williams both scanners are connected to a Siemens S7 300 PLC and an operator panel designed and built by members of the maintenance department. The system shows the number of boxes scanned and errors found. This information is then integrated into the order picking control system. The scanners sweep the internal dimensions of every tote bin, any foreign objects are automatically detected and the bin is sidelined for the item to be removed and returned to final packing stations.

In the beginning

As boxed items arrive from suppliers they feed through an enclosed twin-roller conveyor delivery system, Leuze BCL 80 barcode scanners read the attached barcode to identify content and ensure it correlates with expected delivery. Each carton is held on a slim tray, which also carries barcoded data. During this initial stage the boxed content and tray are married for onward tracking and location placement.

Fast moving items are sent to bulk storage racks for easy pick, while the rest are held in a 32 aisle, high bay warehouse with 400,000 individual store locations. Information to each automated crane is sent using a Leuze DDLS 200 optical data transmission system.

This DDLS 200 installation is typical of the applications where this unit excels, the transfer of data to and from stacker-cranes operating in automated storage and retrieval (ASR) applications. One of the most significant benefits afforded by these devices over alternative systems is that they negate problems associated with wear and tear caused by continual crane travel, thus reducing downtime and costly repairs.

Each crane can pick and hold cartons



ABOVE: Leuze electronic ROD 4 scanners are used to check contents of tote bins

INSET: Leuze electronic BCL 80 barcode readers are used to track cartons above the conveyors



Tray and carton transfer cycles are controlled via strategically positioned BCL 40 barcode readers, tracking cartons by reading the code on the slim carrier tray

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from two different locations. To ensure complete control and identification two Leuze BCL 40 barcode readers are mounted alongside the handling device to log what has been collected.

Overhead detection difficulties

Throughout the movement of cartons, each is held on a slim tray, which is used to identify and track movement. The trays have unique identifying barcodes positioned on the very slim edge of the plastic tray and this runs parallel to the conveyor's rollers. The potential for incorrect reading and subsequent tracking of a tray and its load was high due to code location. For this application JD Williams turned to the Leuze BCL 80 series which is suitable for long scanning distances, up to 2,400mm. It also has a wide depth of focus, enabling it to quickly and accurately read the ID labels on the narrow trays.

The BCL 80 is supplied as standard with a capacity for 600 scans per second, although versions are available to accommodate applications with requirements of between 400 to 800. The BCL 80 also has the ability to detect and signal deterioration in label quality. Long term operation of label printers and use of soiled or damaged labels means impaired contrast between the label and barcode. The ability to recognise such situations allows preventative action to be taken.

The Leuze scanners have had a marked impact on the organisation's ability to track potentially lost items and re-route them for entry into the sort path. Commenting on the success of the scanners, Ron Rutter, maintenance team leader, says: "The scanners have paid for themselves in just three months, dramatically reducing the percentage of items that need to be traced manually to around 1%, compared to 10% previously."