PYRAMID

SOLUTIONS

Pyramid Director WES

Pyramid Controller Software Suite

INSTALLATION SCOPE

Pyramid Director WES integrates with WMS and the Pyramid Controller Series (control hardware and software) to supervise and direct MHE throughout the entire facility to manage a variety of processes:

- Wave Staging: RF terminals and marquee display boards
- Wave Release/Sequencing: 2 check points
- Wave Routing: 1 high-speed pop-up wheel sorter
- 3 Identical Packing Sorters: Each sorter consists of 16 induction workstations (2 arrays of 8 each); 1 bombay loop utilizing Pyramid's Loop Sort Controller; 430 chutes equipped with RF terminals and light-directed packing
- Value-Added Sorting: 2 pop-up wheel sorters
- Automatic Label Print/Apply: 2 lines utilizing Pyramid's Auto-Print/Apply Controller
- Outbound Sorting: 2 pop-up wheel sorters

Women's Intimate Apparel Retailer.

Pyramid Director WES interfaces with the Pyramid Controller Series (control hardware and software) to direct picking and routing of inventory to retail stores.

THE APPLICATION

To better support store replenishment, a leading women's intimate apparel retailer needed a powerful, flexible warehouse execution system (WES) installed and customized. The company also required new material handling equipment (MHE) with Pyramid Controller Series control hardware and software for a retrofit and upgrade at its sole existing store replenishment distribution center (DC), in the Midwest.

THE CHALLENGE

To retrofit and update a longstanding customer's existing DC to align core distribution processes (picking, packing and shipping) with:

1. Future volume growth projections.
2. Significant distribution shifts and trends within the business.
3. The need for supply chain performance improvements relative to throughput, accuracy, productivity and store deliveries.

THE SOLUTION

Pyramid Director WES and Pyramid Controller Software Suite of Control Hardware and Pre-Engineered Software for MHE.

pyramidcontrols.com

PYRAMID DIRECTOR WES

KEY FUNCTIONAL HIGHLIGHTS

Picking

Using a Manhattan Associates' warehouse management system (WMS), unitized cases are picked and staged by wave in pallet form for processing. The WMS downloads the waves to Director WES for processing throughout all subsequent DC operations and communicates pallet/cases/articles by wave to WES.

Director WES manages all forward staging of the waves relative to wave status (such as staging or releasing) and inventory status/location by wave, pallet, case and article. The WES features integrated display board marquees that broadcast vital, up-to-the-second wave information to users to facilitate and coordinate their tasks.

Conveyance

The WES drives the case throw-on to package conveyor operation via radio frequency (RF) terminals and the controlled release of waves (one at a time, or in groups called "super-waves") from forward staging. This ensures that individual cases are scanned, tracked and controlled in order to maintain wave sequence integrity. As the inventory shifts from staged to released, the WES continuously updates the WMS about inventory status and location.

Pyramid Director WES tracks and reports the status of all MHE equipment, and provides a color graphics interface for KPIs, diagnostics and alarm management/reporting.
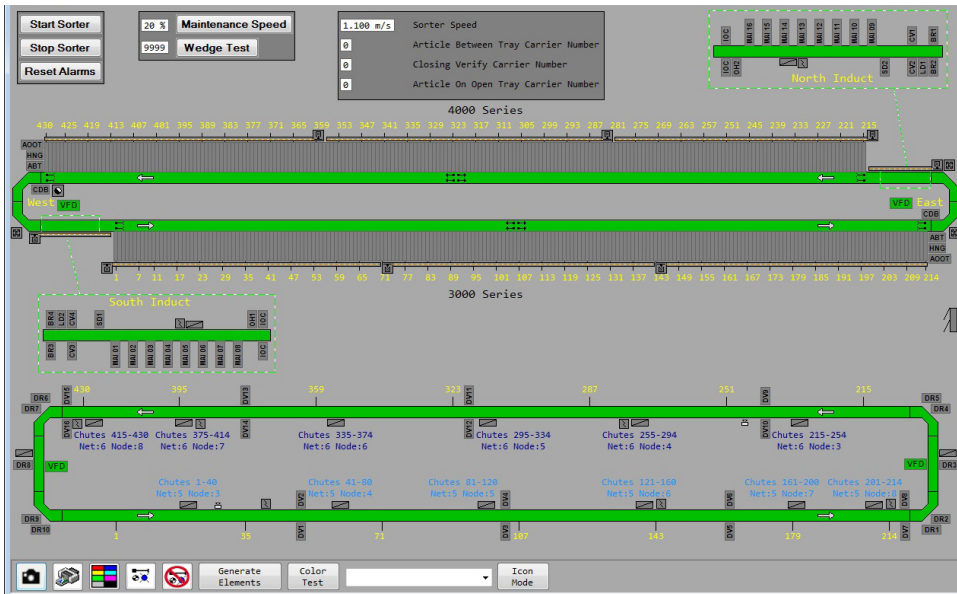
PYRAMID DIRECTOR WES

Director WES provides a comprehensive suite of simple, easy-to-use graphical screens for management and users, as well as a central control dashboard. The dashboard's powerful, intuitive and functionally complete dashboard tools support up-to-the-second status assessments of DC processes, wave execution, inventory status/location and MHE operations.

The Pyramid Director WES dashboard gives users complete, DC-wide visibility and control of inter-process routing of cases and totes. All screens are customized to provide:

1. Real-time visibility into all aspects of the DC's operational activity.
2. The ability to directly control the flow of inventory through the DC by wave, tote, case and more.

Views include:

- Process status performance metrics
- Exception reporting
- Inventory status and location
- MHE status and performance
- Communications status and statistics configurable security
- Parametric and diagnostic portals
- Up-to-the-minute information about vital aspects of the DC

KEY FUNCTIONAL HIGHLIGHTS

Sortation

The WES supervises case routing across a high-speed pop-up wheel sorter to three separate bombay packing sorters (or other destinations within the DC). Routing decisions are based on a highly-intelligent, complex sorting algorithm developed by Pyramid to meet the facility's requirements. Sorting logic incorporates many variables, including the optimal distribution of inventory based upon store demand profiles, wave processing restrictions, MHE status, processing capacity and more. As cases are routed to the packing sorter (or other points within the DC), inventory status and location is communicated to the WMS.

When the cases arrive at the packing sorter induction area, the WES directs the de-casing and induction of individual articles across 48 induction workstations spanning three bombay loop sorters. This process identifies both cases and article stock keeping units (SKUs) based on individual wave and store requirements. It simultaneously considers key variables, such as expected and unexpected, as well as overages and shortages. The WES updates the WMS about case and article movement into the sorting process, ensuring all inventory status and location is tracked and controlled.

Real-Time Reporting

Director WES tracks all sorter and scanner KPIs and provides up-to-the-minute statistical reporting in both graphical and tabular form.

Full Diagnostics

Director WES's diagnostics for WMS, PLCs and more record complete, user-friendly transaction logs with advanced filter/find capabilities.

Custom Screen Views

Pyramid's expert software engineers design custom screens to meet unique application requirements.

TOTAL ORDER WAVE CONTROL.

Pyramid Director WES—not the WMS—directly supports all wave initiation, execution, administration, exception management and closure from the point of staging all the way through the pack-out process at the packing sorter.

This includes all levels of inventory accountability, including grouped and individual waves, pallet, case, shipping carton and individual article. In addition, the WES supports the continuous correlation of inventory in its raw state (the originally received case), all the way through its allocation lifecycle to 1:n shipping cartons. This provides management with full supply chain lifecycle visibility for source-to-store accountability.

Pyramid's Auto-Print/Apply Controller in action.

KEY FUNCTIONAL HIGHLIGHTS

(continued from page 3)

Operators using mobile RF terminals position shipping cartons for stores at the packing sorter chutes as directed by the WES. Controlled by the Pyramid Loop Sort Controller, articles are automatically identified on the bombay loop sorters and directed to required chutes. This is accomplished with Director WES's dynamic allocation algorithms, specifically developed to meet the company's unique store distribution requirements. Both Pyramid Director WES and the Pyramid Loop Sort Controller seamlessly integrate to supervise and direct bombay sorter control in real-time across all three sorters in parallel.

Packing

As articles are sorted to their respective chutes and shipping cartons, their arrival is confirmed and automatically credited to the store for subsequent shipment. The WES continuously monitors the disposition of both the chute and shipping carton, providing a visual indication of status via pack lights at the chutes. Functions available to the packers include compressing, dividing, closing and moving the carton. All instructions are supported by RF terminals.

The WES communicates all pack-out activity to the WMS, and tracks the closed shipping cartons through the balance of the DC's ship ready processes, such as value-added sortation, automatic compliance shipping label print/apply and outbound sortation. The WCS supervised value-added sortation process (using pop-up wheel sorters), automatically identifies and sorts shipping cartons based on pre-defined, criteria.

Label Print & Apply

From the value-added sortation process, shipping cartons are conveyed to the automatic, high-speed shipping label print/apply area. Director WCS supervises this operation in conjunction with Pyramid's Auto Print/Apply Controller. Open supply chain compliance labeling occurs automatically and on-the-fly, with high precision and accuracy at throughput rates of 100 cases per minute across two lines.

Pyramid Director WCS directs the article induction process.

KEY FUNCTIONAL HIGHLIGHTS

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Shipping

From the automatic print/apply process, shipping cartons route to outbound sortation. Here, the WES supervises sortation over pop-up wheel sorters to selectively cull shipping cartons with special processing requirements, including new store retention, anomaly conditions that prevent shipment, or other peculiarities that put a shipping carton on hold temporarily.

Key Performance Indictor (KPI) Monitoring

Director WES's human machine interface (HMI) has color graphics for diagnostics and KPI monitoring to support packing sorter management, including both inductions and chutes. To facilitate complete visibility into all aspects of MHE operation, packing sorter performance, status, alarms and more are monitored continuously by the WES and the Loop Sorter Controller. Reports include both real-time and cumulative statistics for proactive maintenance, maximum up-time across all related MHE, and prompt reporting, diagnosis and correction of any issues that may arise.

Print and Apply Visibility

Pyramid Director WES continuously monitors the entire print/apply operation.

Software and Controls for Maximum Distribution and Fulfillment Center Performance.

PYRAMID

Pyramid, a Matthews Automation Solutions fulfillment systems brand, provides Warehouse Control System (WCS) and Warehouse Execution System (WES) solutions that perfectly synchronize a wide array of material handling systems including motor-driven roller (MDR) conveyor, case sorters including sliding shoe, automated storage and retrieval systems (AS/RS) and more. Pyramid's turnkey loop sorter control solutions maximize performance and reduce downtime for new tilt-tray, bomb-bay and cross-belt sorters. We also revitalize existing loop sorter productivity with advanced system re-control solutions.

Fully integrated with your WMS or ERP, our controls optimize wave creation logic and paperless pick/sort systems such as pick-to-light and put walls. Along with order finishing system controls for automated bagging, boxing and packing slip/marketing collateral document insertion, Pyramid empowers your distribution center's transformation into a successful omnichannel fulfillment operation.

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