PYRAMID CONTROLS, INC.

RFID ENABLED SOLUTIONS

MATERIAL HANDLING INDUSTRY OF AMERICA® Member Company
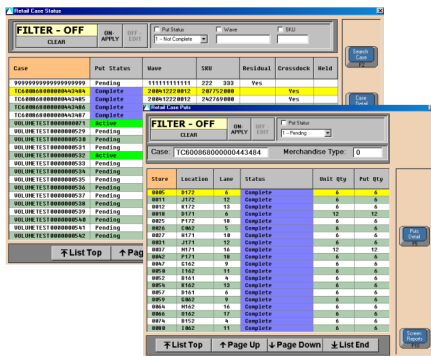
Rockwell Automation Solution Provider

PYRAMID DIRECTOR SERIES

Product Overview

Pyramid Director Warehouse Control System (WCS) is a comprehensive PC-based software and hardware package that provides supervisory controls and monitoring functionality to manage warehouse operations including:

- Manage communications between WMS/host, and other sub-systems including conveyor/sortation, unit sorters, PTL and voice systems.
- Monitor the flow of cases, cartons, and totes throughout the system.
- Highly configurable system allows rule configuration at the system, sorter, reason, carrier, location, and user level.
- Maintains text-based and graphical diagnostics for all conveyor equipment.
- Operates in conjunction with client's host or WMS, or as a stand-alone system.
- Maintains history of all sortation activity throughout the warehouse.
- Combined with other modules, provides complete, integrated warehouse solution.
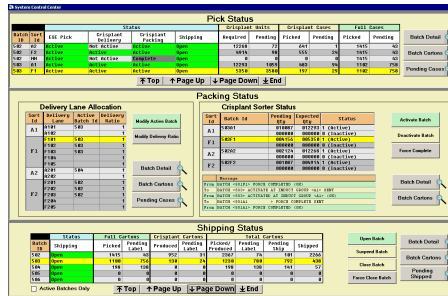

Base WCS Features

- Designed for real-time processing. Maintains large amounts of data while still providing real-time responses for large volumes of transactions.
- Maintains transaction logs for all host communications, sortation, and sub-system communications.
- Maintains status of all completed transactions, and can refresh data on sub-systems in the event of data loss.
- Complete password protection ensures security for all critical operations. Access is based upon configurable user-levels to give completely control access to all functions.
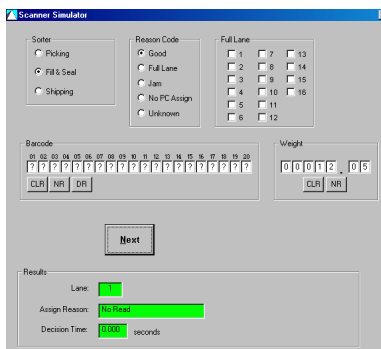
Wave Management

- Manages waves and sub-waves throughout the system.
- Provides complete visibility of wave status (current, historical, and future) to simplify operations.

- Downloads wave tasks (picks, puts, units to sort, etc.) to all sub-systems.
- Provides wave planning function to create waves based upon pending work, equipment capability, available operators, and other user-controlled parameters to maximize wave efficiency.

Simulator & Other Tools

- Built-in simulator allows all sortation and other functions to be tested without conveyor or physical product. This allows WCS and the host/WMS to be tested **BEFORE** the conveyor is installed.
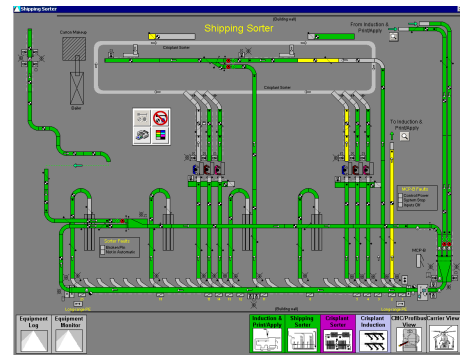- Simulator tests logic, configuration, host interface, statistics, and other functions.

- Built-in sort exerciser provides a simple means to test PLC/conveyor without labels and data.
- WCS can be configured to automatically E-mail a manager(s) if a critical event occurs (e.g., configuration error, communication failure, etc).
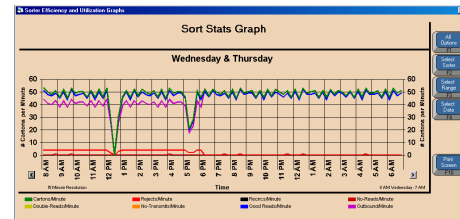
Graphical Diagnostics

- Real-time graphical mimicking of conveyor equipment and electrical device status. Color-coded for ease of use.
- Maintains current status of all fault conditions (e.g., jams, E-stops, motor overloads, full/half-full, etc).

- Trending statistics provide number of occurrences and durations to allow for equipment and operational analysis.
- Provides detailed mechanical and electrical data for each piece of equipment.
- Maintenance tracking logs record user entry of all maintenance performed. Reports provide complete maintenance history.
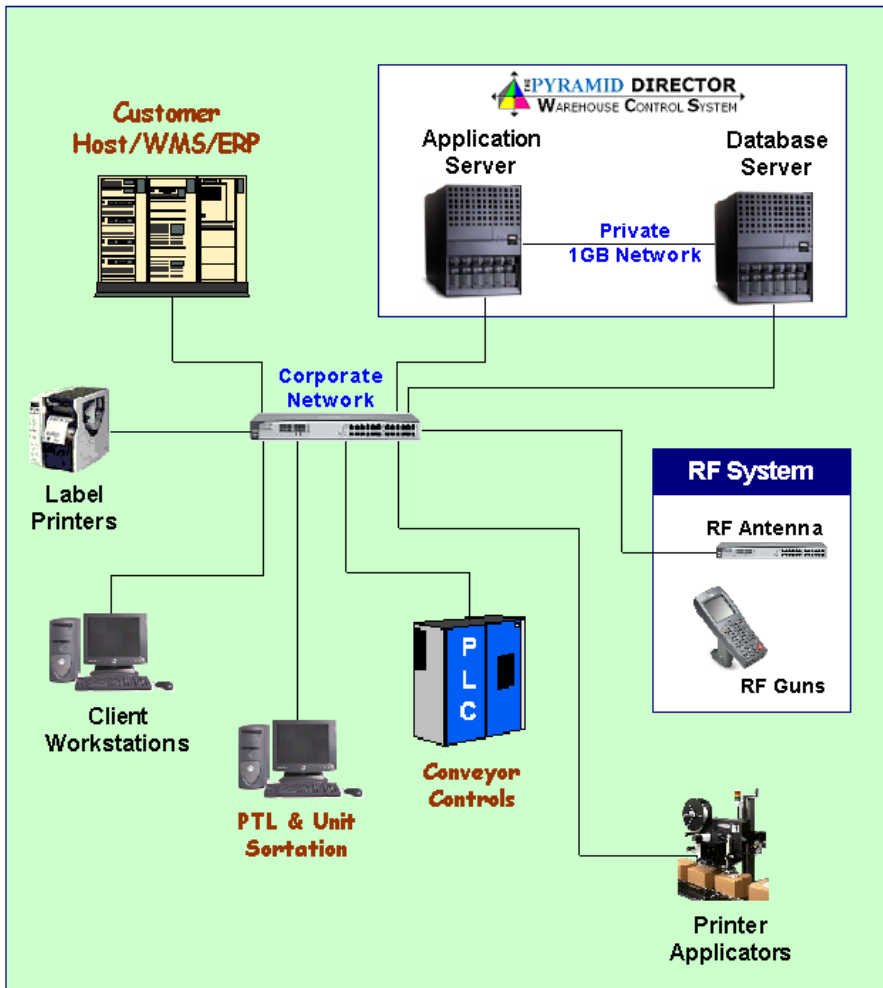
Statistics & Reports

- Complete sortation statistics show throughput, scanner performance, and detailed "by lane" and "by reason" statistics.

- Event log reports all events for current day or previous 9 days.
- All data screens can be printed in report format.
- Data reports include: Wave History, Carton Status, Carrier Configuration, Operator Statistics (picking, packing).

(Over)

Hardware

- Uses standard "off-the-shelf" hardware components – no proprietary hardware.
- Works with customers' brand (e.g., Dell, HP, IBM).
- Supports various storage architectures including RAID 1, RAID 5, SQL replication, clustering, etc.

Software

- Microsoft Windows 2000/2003 Server
- Supports multiple database platforms (SQL Server, Oracle, Sybase).

WMS(host) Interface

- Interfaces with major WMS packages including Manhattan (PkMS/WM), SAP, EXE, Oracle/Retek, Red Prairie, Catalyst, High Jump, Knighted, etc.
- Supports TCP/IP Sockets, FTP, ODBC, MQ Series, Web/HTTP, and others.

Sub-System Interface

- Interfaces with multiple PTL vendors including PCC, Kingway, AL Systems.
- Interfaces with many unit sorters such as Crisplant, Eurosort, and others.
- Interfaces with carousels and AS/RS including White and Diamond Phoenix.

Architecture diagram labels: Customer Host/WMS/ERP; PYRAMID DIRECTOR — WAREHOUSE CONTROL SYSTEM; Application Server; Database Server; Private 1GB Network; Corporate Network; Label Printers; Client Workstations; PTL & Unit Sortation; Conveyor Controls (PLC); RF System — RF Antenna, RF Guns; Printer Applicators

Other PYRAMID DIRECTOR Modules

WCS can be used in conjunction with Pyramid's other **Director Series** Software Products including:

- *Label Manager* – In-motion print/apply of shipping (or other) labels (including compliance labeling)
- *Sort Manager* – Sorting of product for shipment based upon specific customer requirements
- *Dock Manager* – Automatic scanning, cubing and/or weighing of shipping cartons, fluid loading, manifesting and ASNs
- *Logistics Manager* – Supply-chain management tool that tracks delivery of trucks/cartons to stores.

Print/Apply Shipping Labels	Sort Packages/ Cartons	Scan, Cube, Weigh, Load & Manifest Shipping Cartons	Ship & Deliver Cartons To Stores
Label Manager	*Sort Manager*	*Dock Manager*	*Logistics Manager*

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