PalletSolver®

Comprehensive robotics palletizing software suite

PalletSolver®

Revolutionary robotics palletizing software suite for Motoman® robots.

This feature-rich software is designed for homogeneous palletizing with two primary objectives:

- Enable fast development and integration of robotic palletizing system through easy-to-use configuration, setup and customization routines
- Facilitate system uptime without compromising production throughput through intuitive operator-friendly interface

TWO COMPONENTS

PalletSolver-PC
An offline pattern generation tool that resides on a PC or laptop.

PalletSolver-Engine
Resides on the robot controller (DX-series) or Rockwell PLC (MLX200 unified controls). Consists of robot libraries and I/O map to enable optimized pattern execution.

QUICK CHANGEOVERS

PalletSolver facilitates quick changeover of patterns or products without halting production for validation.

Offline pattern generation tool designs the build sequence taking physical constraints into account for a specific cell.

Pattern files are stored in XML format and execution of build occurs on demand through operator interface.

PALLETSOLVER-PC

- Allows offline generation of pallet patterns.
- Build sequence for each pattern is optimized based on established constraints to ensure maximum production rate for each workcell.
- Patterns stored on a network can be accessed directly by the robot controller. Patterns stored on a local PC can be transferred to the robot controller with a compact flash card or USB storage device.
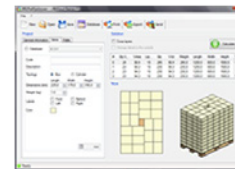
- Intuitive graphical interface for configuring cell parameters; step-by-step process to generate pallet patterns.
- Directly imports pallet patterns generated by widely used TOPS® or CAPE Software.
- Accommodates virtually unlimited SKUs (Stock Keeping Units).
- Scalable architecture easily handles single and complex multi-line palletizing, as well as single and multiple workcells.
- Dynamic gripper zone management allows handling of various case sizes.

PALLETSOLVER-ENGINE

- Modular, flexible design allows customization of each palletizing system.
- Runs directly on a DX-series controller or when used with the MLX200 as part of the customizable PLC ladder.
- Build sequence from pattern files generated offline is synthesized and coordinated with online robot motion and I/O.
- Communicates with PLC or other supervisory control for operational execution, including:
  - Prioritizing infeed devices
  - Changing pattern files
  - Handling end of production on partially built pallets
  - Continuing build on partial pallets
- Optimizes build process, robot path, production speed and motion parameters specific to physical characteristics of each SKU.

DURING OPERATION

- To switch the pattern file during production, an operator simply selects a new file (using product and line information) to command the robot to execute the selected pattern.
- During execution, data (including errors) related to build station status, is relayed to the pendant or to a customized operator interface.

PALLETSOLVER	DX-SERIES	MLX200
Maximum System Configuration		
Infeed	8	4*
Build stations	8	4*
Pallet dispensing stations	2	2
Slip sheet/tier sheet dispensing stations	2	2
Dynamic robot path adjustment (ensures optimum production rate)	✓	✓
Pre-mapped I/O to communicate with PLC/supervisory control (status and monitoring)	✓	✓
PLC - Robot Messaging interface (operations control)	✓	N/A
Intuitive guided setup and configuration using robot pendant HMI	✓	✓
PLC-less operation (robot controller is only controller in system)	✓	N/A
Network-enabled (import pattern files generated by PalletSolver-PC)	✓	✓
Granular control of palletizing operations	✓	✓
Controlling infeed pick sequence (round robin, priority, relative ration, PLC-controlled)	✓	✓
Automatic part rejection	✓	✓
Conveyor/pallet lock-out (for maintenance or failures)	✓	✓
End of production handling	✓	✓
Adjust pick/place depth (package changes due to environmental conditions)	✓	✓
Integrated Customization Library (unique gripper handling, error handling, pick/place handling)	✓	✓

*Configuration expandable to 8 in x 8 out. Default configuration shown to support 3 MB PLC memory.

MINIMUM REQUIREMENTS

OFFLINE
Microsoft® Windows® XP Service Pack 2.0 or Windows 7

Microsoft .NET Framework 3.5

400 MHz processor, recommended 1 GHz

128 MB RAM, recommended 1 GB

30 MB hard disk space

1280 x 1024 screen resolution

DX-SERIES
Controller software with MotoPlus™ support

64 MB programming pendant

256 MB industrial grade compact flash card or USB flash drive

MLX200
1769 CompactLogix™ controller with built-in ethernet
– OR –
1756 ControlLogix®/GuardLogix® safety controller, 1756-ENBT ethernet module

3 MB memory on PLC
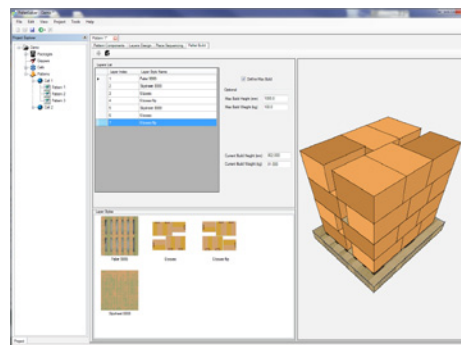
RSLogix™/Studio 5000™ Designer

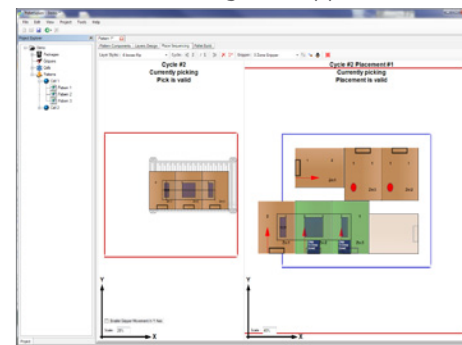FactoryTalk® View ME Station version 6.1; 75 display activation
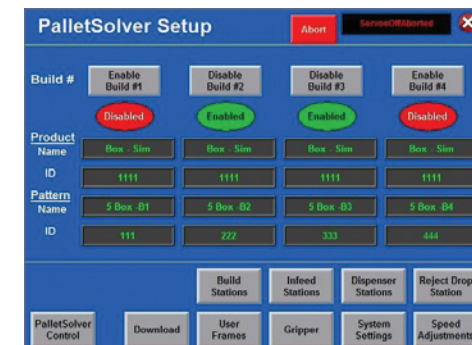
COMPATIBLE WITH

MLX Unified Controls™

Rockwell Automation Encompass™ Product Partner — Americas

PC Screens

3D Pallet Pattern View

Constraints Handling for Gripper

Setup Screens

MLX200

DX-Series
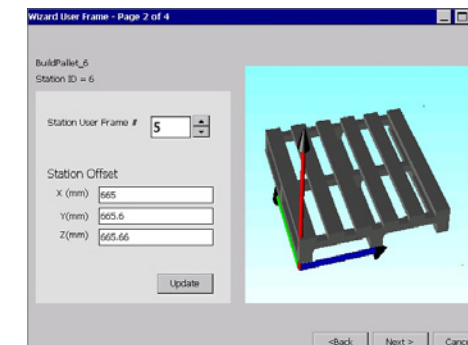
Monitoring and Control Screens

MLX200

DX-Series
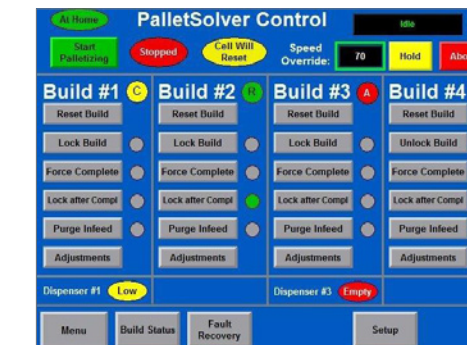
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MOTOMAN ROBOTICS
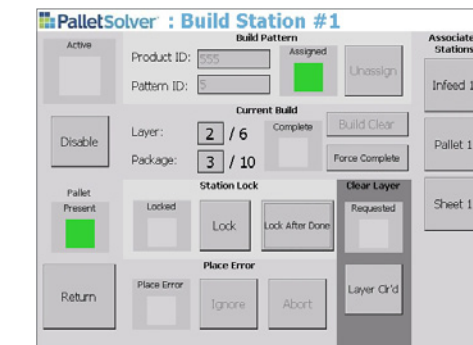
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