CONCEPT SYSTEMS INC
conceptsystemsinc.com

HEADQUARTERS
1957 Fescue Street SE
Albany, Oregon 97322
866-791-8140

PROJECT BRIEF

We Can Take You There!™

Project Number: WEY0605-02
Customer: Weyerhaeuser, Tri-Wall
Concept Systems' Contact: Sergei Furduy
Project Name: Advanced Automation Jumbo Retrofit

Description: The Advances Automation machine is used to create a cardboard box assembly. During the process, the machine uses sheets of corrugated paper (5 or 7 layers, called double-wall and tri-wall) to create a complete box assembly. The machine performs the following operations:

- 2-color printing
- Pre-pressing
- Slotting
- Die-cutting
- Folding
- Gluing

The OEM-provided design was based on a custom made PC control system with no spare parts or support available. Any troubleshooting was based on the "trial-and-error" method. The outdated DC drives and motors with analog controls did not provide any status information to allow successful troubleshooting. All the I/O was assembled on an OPTO22 platform. With a couple hundreds relays throughout the system, this configuration presented major challenges.

Concept Systems designed and installed a new control system based on the ControlLogix PLC platform with Kinetix 6000 and 7000 motion (drives and motors) and absolute position encoders, extensively using Ethernet-based remote I/O in strategic locations.

The new control system design includes PanelView Plus touch screen, delivering extended control capabilities and extensive systems status and diagnostic information for machine operators and the production department. The system also provides simplified production recipe data management using standard PC with Microsoft Excel software.

By retrofitting the OEM control system instead of purchasing a new machine, the customer saved over $2.7 million. Minimizing, and in some cases completely eliminating machine downtime and production losses, the company savings and ROI are even greater.

Results:

- Minimized setup time: Use of absolute encoders eliminated needs for machine homing on power up.
- Improved print quality and material handling: Use of Kinetix servo motion provides precise synchronization between five separate motors.
- Eliminated intermittent hardware failures: The ControlLogix PLC hardware and Ethernet I/O provides robust hardware platform for machine operations.
- Implemented machine status diagnostics to minimize need for maintenance service.
- Minimized machine downtime dramatically: Over 95% downtime related to troubleshooting was eliminated.
- Minimized time required for production recipe manual data entry: Increased production volume is especially important for 24/7 operations.

Services Provided:

- Machine evaluation: hardware, software, operator interface, production requirements
- Design and Development
- Startup supervision
- Integration
- Training

Technologies/Platforms Used:

- Factory Talk Automation Platform (Rockwell/Allen-Bradley)
- ControlLogic PLC, Kinetix Motion, PanleView Plus as HMI
- Ethernet remote I/O