

## Entivity Distribution Success Story #202



### Customer Profile

PowerPick helps companies streamline operations through more efficient material handling. They have expertise in demanding material handling applications such as computer assembly and the high-volume mail industry.

#### Application

- Distribution

#### Industry

- Mail presort line

#### Location and Web Site

- Lincoln, Nebraska
- [www.powerpickintl.com](http://www.powerpickintl.com)

#### Key Benefits

- Embedded control provides easy expansion
- Easier programming capability
- Interface with Windows programs
- Wide variety of I/O networks supported

**“We installed the Live! PC-control system and new conveyors for existing sorting machines. The system decreased each day’s work by two hours. Payback was very quick.”**

**Jim Goodwin**  
Controls Engineer  
PowerPick International



935 Technology Drive  
Ann Arbor, MI 48108  
1-800-722-6875

[www.entivity.com](http://www.entivity.com)

## Mail Sorting Improves 25% with Entivity and Windows® CE

**F**or many companies, the annual cost of customer mailings is a significant portion of their cost of doing business. For example, an electric utility company must pay the postage to mail up to a million or more electric bills each month. Dozens of industries use direct mail that includes everything from catalogs to sweepstakes promotions. The broad interest in controlling costs has given rise to another industry: *presorting*. The U.S. Postal Service charges less for bulk mail that is presorted by destination zip codes. Trays of presorted third-class mail can move through postal service handling about as fast as unsorted first-class mail. By paying third-class rates, companies that do bulk mailings can pay for presorting, get first-class delivery speed, and realize significant savings.

### Saving Big by Pinching Pennies

PowerPick International provides material handling systems for *presort houses*, businesses that specialize in presorting mail pieces for other companies. Jim Goodwin, Controls Engineer at PowerPick, has designed several presorting systems. Goodwin explains, “We installed the Entivity Live!™ PC-control system and new conveyors for existing sorting machines. The system decreased each day’s work (eight hours) by two hours. Payback was very quick.” The presort system upgrade was also cost-sensitive. Says Goodwin: “We looked at about eight or nine PCs before choosing one. Our customers pinch every penny, so we evaluated several software control products. We chose Live! because of its cost and connectivity to Microsoft’s DCOM and OPC communication technologies.”

### Putting it All Together

PowerPick selects several diverse technologies to make their systems work. They include barcode scanners, motor drives, and database management. In order to control costs, PowerPick brought controls programming in-house. Live!’s PC-based control program was chosen because traditional PLCs are difficult to program and some of the other systems need to communicate with PC applications.



Conveyors sort mail via cross-over path for a second pass through the machinery.

The first project that PowerPick used Live! was for a presort house. PowerPick had to design a new system using new and existing hardware. The installation required a complete, new control system and conveyor; yet needed to work with the Bell and Howell sorting systems already in

## Customer Satisfaction

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Controls Engineer  
PowerPick International*



Presort System with sorting machines at top and outgoing conveyors at center.



Control panel with HMI and motor starters at conveyor’s end.

service. The material handling system is substantial with the conveyors stretching several hundred feet long. There are two 40-foot conveyors per sorting machine. Incoming mail pieces travel on five conveyor lines. After machine sorting, the control system decides whether each tray needs a second pass through the machines.

### Distributed Control

For the controls, PowerPick decided to use two embedded Windows CE controllers running Live (WinPLCs® from *Automationdirect.com*). WinPLCs are preloaded with Windows CE and Live! and are capable of running flowcharts independently. While this system uses distributed control, PowerPick’s design approach accomplishes even

more. The WinPLCs remain on-line whenever the HMI is off-line (for development, etc.). The modular design also makes it easy to expand the system in the future. In addition, this approach creates a cost-effective alternative to intelligent I/O network devices and cables typical in conveyor applications. Each WinPLC-controlled rack of *Automationdirect.com* DL205 I/O is dedicated to specific conveyor system tasks. The task assignments are:

### WinPLC and I/O base #1:

- Product handling on the line
- Solenoid valves
- Photoelectric eyes
- Conveyor control inputs

### WinPLC and I/O base #2:

- Motor starter control
- Emergency stop button
- Pull-cords
- Audible alarm
- Indicator lights

Live!’s ScreenView is perfect for touchscreen HMI design, but Goodwin decided to use the existing PowerPick HMI design in Visual Basic. However, this required the VB HMI program in the PC to communicate with the WinPLCs. PowerPick used the OCX supplied by Live! to pass tagname values to and from the VB program.

The NT PC has an external Ethernet hub that connects to the WinPLCs. Live!’s I/O View (I/O configuration tool) was used to configure IP addresses on the WinPLCs. The Ermanco conveyors all use low-voltage motor starters, controlled from the DL205 bases. The motor starters, touchscreen HMI, and Ethernet hub are all on one 4’ by 5’ control panel.

During the project development, Goodwin got an opportunity to use the flowchart programming in Live!. The WinPLCs operate independently so they can be coordinated with only a couple of flags. Goodwin found that Live! was so easy to use that he didn’t require much technical support.

Currently, PowerPick has three system designs using WinPLCs and one system design with a PC/NT running Live!.