



The Automation Electronics Experts

CASE STUDY

Manufacturing equipment retrofit to replace STD Bus controller and its hard-wired I/O interface with an off-the-shelf PLC and Ethernet I/O Adapter saves time and money while improving long-term supportability

The Client

A major manufacturer with factories in the United States and Singapore wanted to migrate their manufacturing palletizing equipment from an in-house developed STD Bus control system to a commercial off-the-shelf PLC in order to assure long-term support for the hardware and software operating the machines.

The Need

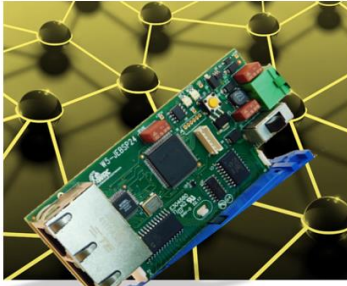
As part of their migration/retrofit project strategy, two of their overarching goals were to:

1. Migrate from custom written software to PLC programs that could be easily understood and maintained by factory personnel
2. Minimize the retrofit program cost by keeping their existing I/O structure and field wiring in place.

The WRC Solution

To meet their first objective, the decision was made to recreate the existing STD Bus system control strategies using a Rockwell Automation CompactLogix PLC and one of the IEC 1131 standard programming languages. This would provide a commercial off-the-shelf hardware source while also implementing the control strategies in a “sustainable” programming language that could be easily moved to another PLC if the need arose in the future.

Use of the IEC 1131 programming standard also mitigated the need for corporate Software Engineering personnel to support legacy factory equipment as the machines were now programmed in a language familiar to the factory's support personnel.



W5-JEBSP24 EtherNet/IP Interface Module

To meet the manufacturer's second objective of leaving the I/O system and field wiring in place, the decision was made to replace the hard-wired connections to the STD Bus I/O modules using a W5-JEBSP24 EtherNet/IP Adapter from Western Reserve Controls. Use of an EtherNet/IP Adapter from WRC allowed the manufacturer to keep their existing Gordos mounting boards and I/O in place while providing easy integration into a new Rockwell Automation ControlLogix system.

Additionally, because the W5-JEBSP24 EtherNet/IP Adapter module provides a +5Vdc power source for the I/O and a built in Ethernet switch allowing the daisy-chaining of multiple EtherNet/IP Adapters, the need to install a new +5Vdc power source plus an Ethernet switch was eliminated saving both control cabinet space and material cost of the system retrofit.

Performance Targets.

Lastly, in order to assure the new EtherNet/IP system could perform as fast as the hard-wired I/O, extensive pre-retrofit system testing was performed verifying that up to seven EtherNet/IP I/O racks could be scanned and updated within a maximum round-trip time of 8mS. With a 1mS scan time per rack, WRC's W5-JEBSP24 EtherNet/IP Adapters easily met this performance requirement.

The Results

For this major U.S. manufacturer, replacing their STD Bus controllers with a commercial off-the-shelf PLC and WRC's EtherNet/IP I/O Adapters, while leaving the existing I/O and field wiring in place, was an ideal way to leverage their existing I/O investment while bringing their machines' controllers into today's connected Internet of Things.

To learn more about upgrading Crydom, Gordos or Opto 22 I/O systems using WRC's W5-JEBSP24 EtherNet/IP Adapters, contact your local WRC sales rep or visit www.WRCakron.com/ethernet-io