



A Rockwell Automation Company

## Canpar Industries Line #1 PLC Upgrade

### The Client:

Canpar Industries is a particleboard manufacturer with production facilities located in Grand Forks, BC. Canpar Industries has specialized in door core production and provides fire rated door cores for architectural, commercial and residential applications.

The company has embarked on an upgrade program to improve quality and efficiency of their operation. To accomplish this goal, one of the two production lines was cited to undergo a complete controls modernization.

### The Requirement:

Canpar's production facility produces approximately 120 million square feet of door core per year over two production lines. The initial state of Production Line One consisted of a mixture of twenty-six year old relay logic, and both Modicon 984 and Toshiba controllers. This system was to be replaced by a unified PLC control system which could incorporate the existing 800 series I/O and be tied into the existing Modbus Plus network used for Production Line Two.

In addition to the control upgrade, Canpar implemented a mechanical upgrade to replace the original pre-press with a modern unit, as well as new trim saws, diagonal saw, conveyors and fiber reject system.

Hinz was retained to provide an overall control strategy and detailed design which would allow for easy expansion and configuration.

### The Design Solution:

A Modicon Quantum 213-04 CPU utilizing Remote I/O drops and Modbus Plus capability was used for overall control of Production Line One. The 213 was selected for its expansion abilities to allow for future upgrades. Programming of the PLC was carried out using Taylor Proworks NxT with Wonderware being utilized on a 21" touch screen monitor for operator interface control of the production line. Operating in a Windows '95 environment provided quick and easy access to the various control screens from the main production line overview.

To provide local manual control, two 5" color QuickPanel's and one 9" color Modicon Panel Mate were installed in the field. The local panels utilized touch screen control of virtual buttons and communicated over the Modbus Plus network.

Three new PLC cabinets were designed and installed. Two cabinets, including the CPU enclosure, were dedicated to field device I/O, while the third cabinet was utilized for motor control. A remote I/O network was then installed to tie the three cabinets together with the existing 984's I/O. In all, approximately 660

discrete and 25 analog tags are utilized in the control of the production line. In addition, a new hard-wired emergency stop control system was implemented to provide safe operation of the production line.

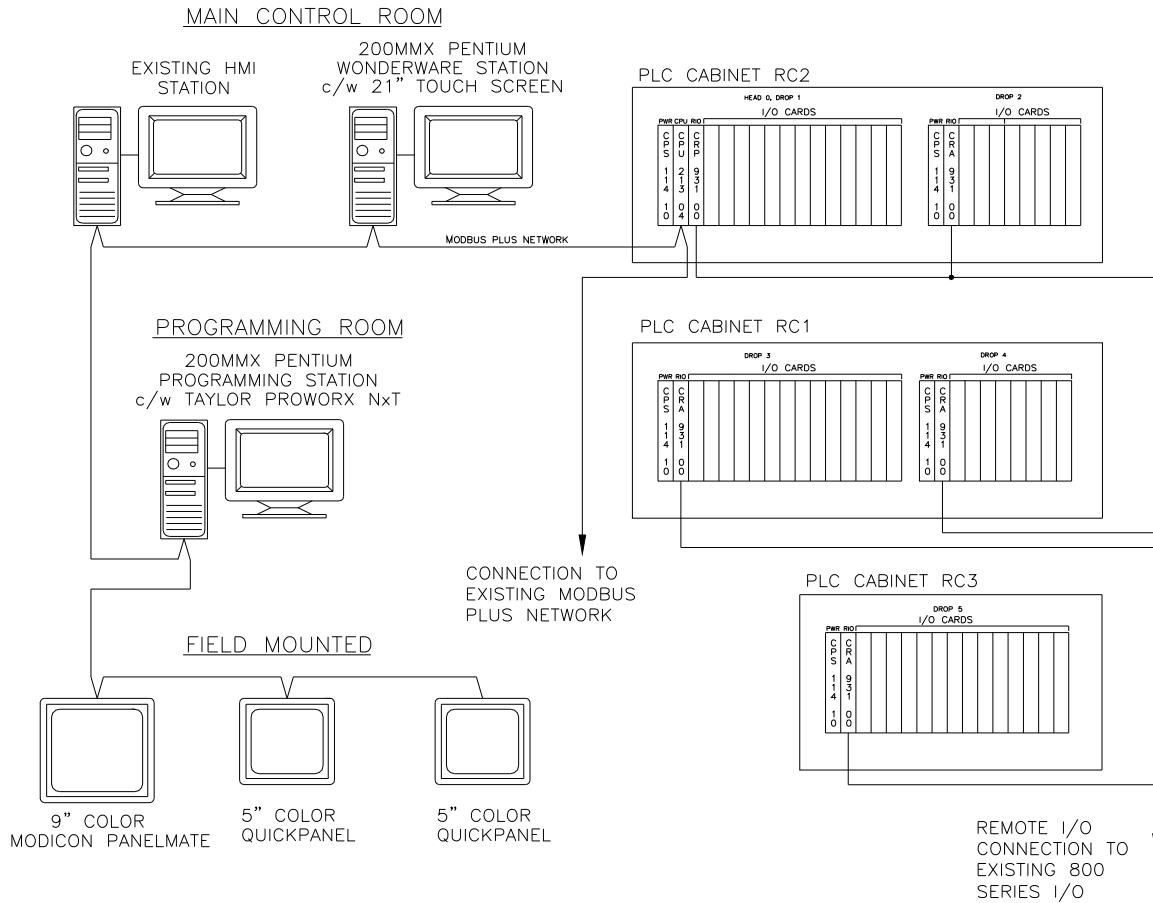
The original control room for Line One was replaced with a modern control room adding one new HMI to the existing unit to cover all production operation, thus eliminating all hardwired buttons, switches and indicating lights. The new control room provides a cleaner and quieter environment for the operators to work in. A new MCC room was also added with all new equipment for control of the production line. All existing wiring to motors, instruments and devices was to be replaced with TECK cabling, in most cases reusing the existing devices.

To minimize production losses, the final changeover from the old system was limited to a scheduled two week shut down with commissioning and start up carried out in the second week. To accomplish this, all equipment had to be preinstalled or on-site ready for immediate installation at the beginning of the shut down.



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## System Specifications:

- Modicon Quantum 140 CPU 213 04 processor
- 21" Elographics Accutouch Touch Screen c/w Wonderware V5.6B
- Taylor Proworx NxT Programming Station
- Two 5" Color QuickPanel Touch Screens
- 9" Color Modicon PanelMate Touch Screen
- New Control Room
- Extension of Existing Modbus Plus Network
- Remote I/O network
- 650 Discrete I/O
- 25 Analog I/O
- 80 Motors (including 13 VFDs)

For further information or to contact a Hinz office near you, please check our website at:

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