



A Rockwell Automation Company

Can Oat Milling (Manola Plant) PLC Upgrade

The Client:

Can Oat Milling, a division of Viterra, is the largest industrial supplier of oat products in the world, with production capacity of over 500 million pounds of oat product per year.

The Manola, Alberta plant near Barrhead is an organic certified oat and barley facility. The food products made at the plant are oat flakes, oats groats, steel cut oats, oat flour, oat bran and pot or pearled barley.

The Requirement:

Can Oat Milling needed to upgrade their existing GE Fanuc Series Six PLC and GE Fanuc Operator Interface Terminals (OIT) to a new control system due to a lack of replacement parts as well as expansion capability. Can Oat Milling wanted a fixed cost turnkey project with the controls integrator responsible for procurement, execution, electrical installation, testing, and commissioning. To minimize the replacement costs the existing control cabinets which house the 8 GE Series 6 PLC racks (64 input/output cards) would be reused. This would eliminate the need to run new conduit and wires from a new control panel. The program conversion needed to be as cost effective as possible for the 2600 rungs of logic. The shutdown was to be 72 hours due to

strong demand for the plant's products. To minimize shutdown time the wiring and commissioning would require day and night shifts.

The new 120VAC output cards in the PLC would have to be able to withstand the high motor contactor latching currents (20A for 1 cycle) required by up to size 2 motor starters. The motor On/Off/Auto selector switches would be duplicated in the HMI providing On/Off/Auto select as well as motor control to turn the motors on or off. When the existing field motor On/Off/Auto selector switches are used an alarm would warn the operator that some motor protection is being overridden.

The Design Solution:

Hinz was chosen by Can Oat Milling to provide a fixed cost turnkey estimate to replace the PLC and OIT's with a new and more scalable GE Fanuc Rx7i PLC and 3 GE Fanuc Cimplicity Human Machine Interface (HMI) computers. The PLC program was converted from the GE Series 6 logic to Rx7i logic via a Hinz conversion application, GE Tools. GE Tools is a Windows-based application that quickly and efficiently converts DOS based Series 6 logic to Windows-based Rx7i Proficy Machine Edition logic. Hinz converted the Series 6 logic and added the necessary motor override and alarm logic. Hinz used Proficy HMI/SCADA Cimplicity Version HMI to program a new application from the site process flow diagrams provided by Can Oat Milling. The OIT screens were implemented in the new Cimplicity application. The HMI database was partially created by exporting the database from Proficy Machine Edition to Cimplicity. The PLC and HMI programs were Factory Acceptance

Tested (FAT) in the Hinz office with input/support from Can Oat Milling. The three Dell desktop computers for the Mill, Receiving and Maintenance Office and one industrial touch screen computer for the Packout area were set up and installed at the oat milling plant by Hinz. Hinz subcontracted and supervised the six electricians during the PLC rewiring and Ethernet cable installation. The wiring from the Series 6 PLC was switched to the Rx7i PLC with re-termination sheets provided by Hinz. The rewiring, checkouts and commissioning were completed in 3½ days. The plant was started up on the fourth day with support from Hinz personnel. Additional automation is being added in phases to the oat/barley milling plant by Hinz.

