A Rockwell Automation Company

Robin Hood Multifoods Inc.
Flour Mill Scale Automation

The Client:

Robin Hood Multifoods is a Canadian subsidiary of International Multifoods Inc. of Minneapolis, MN. The mill in Saskatoon produces a full line of standard milled grain products such as wheat flour and rolled oats.

Robin Hood has embarked on an automation program to prepare the mill for the future.

The Requirement:

PLC control and new Man Machine Interface displays were to be added to each of two flour mills consisting of a cleaned wheat dump hopper scale and three ISCA continuous flow hopper scales.

The cleaned wheat hopper scales were controlled by an Allen-Bradley MINI-PLC 2 which had been in place for over ten years and was becoming unreliable resulting in increased maintenance costs. The six ISCA scales were controlled by the original manufacturer supplied equipment which used individual controllers that did not allow for easy modification and made expansion costly.

In order to provide overall mill flow calculations and total mill control as desired, it was necessary to integrate all scales into a single control system. Hinz was retained to work with Robin Hood to complete this automation project.

The Design Solution:

An Allen-Bradley PLC 5/15 was selected to interface to the eight scales and two Allen-Bradley ControlView (300 tag versions) which were used for the operator interfaces.

The load cell at each scale hopper was interfaced to the PLC via an Omega loadcell to mA converter (4-20 mA) to minimize the length of load cell millivolt wiring. The milliamp signals were then brought into analog input cards. Scale control was via 120VAC I/O from the PLC.

From the weight determined by each scale, an individual flow rate could be calculated and displayed on the MMI. To do a complete yield calculation, theoretical flow rates were included for small dump hopper scales that were not wired into this system.

With individual flow rates and overall mill yield, the millers can see in real time how well the mill is producing. ControlView Graphics pages display the schematic of the mill and the flow rates at each scale. Data is archived for future analysis.

One ControlView is located in a common control room for the mill, with the second near the milling equipment where tuning of mill production can be made.

Hinz was responsible for all PLC and ControlView programming as well as commissioning and ongoing support of the installation.

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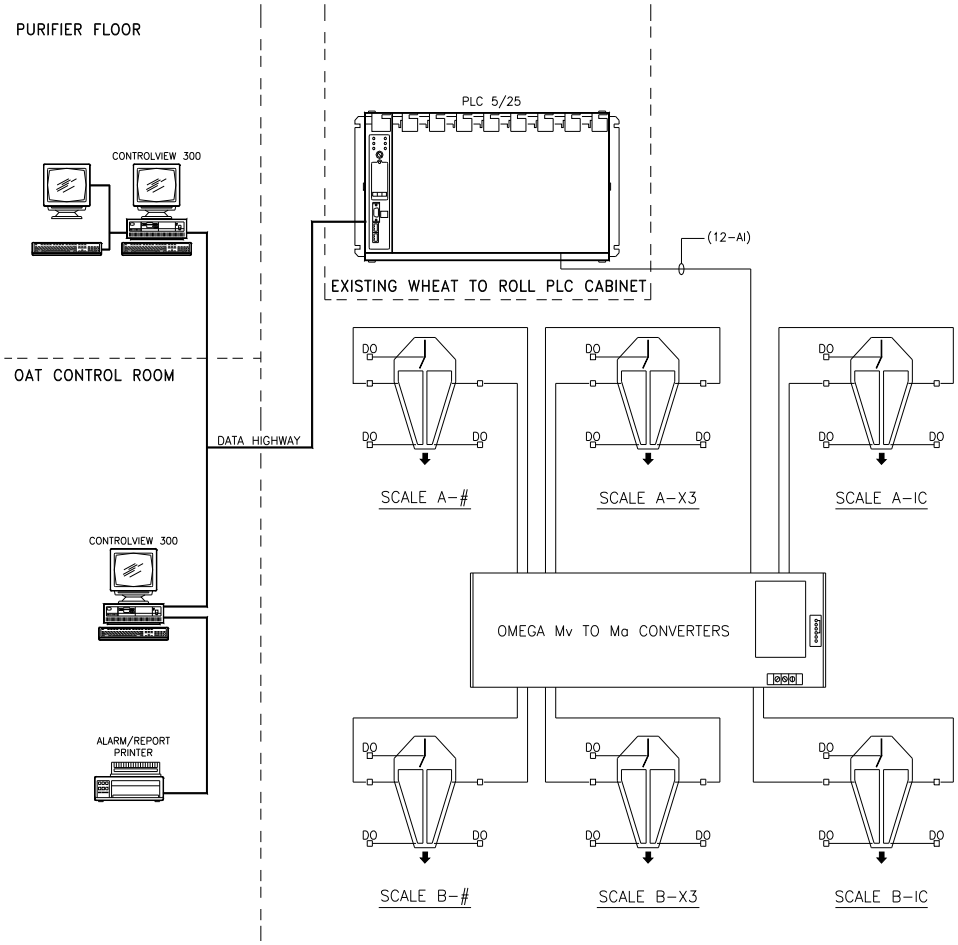

System Specifications:

- 1 Allen-Bradley PLC5/15 Processor
- 2 Allen-Bradley 300 tag ControlViews
- 25 Digital Outputs
- 14 Analog Inputs
- 14 Omega Load Cell to 4-20mA Converters

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

www.hinz.com