



- New Zealand

- Fonterra

- SI – Tamaki Controls

- Food and Beverages/Dairy

- Products

Modicon Quantum

- Objectives

Upgrade existing Cheese Plant
Control system

Replace 984LL with IEC languages

Reduce plant downtime and losses



Introduction

Fonterra is New Zealand's largest company with sales exceeding 6 Billion Euros across 26 sites in NZ and has 12 joint ventures overseas. They account for 40% of the world dairy commodities supply.

Application

Fonterra's extensive Hautapu Dairy Factory contains a cheese plant that has been in existence since the 1980s. In 1996, the original hardware system (proprietary - Alert) was replaced by Modicon hardware.

A contractor implemented the migration largely on a verbatim basis from the old system to 984LL, as per the instruction of the Plant Manager, who wanted everything to operate on the same line as before the upgrade.

The result was a plant that functioned, but with significantly diminished reliability. When problems did occur, fault finding was difficult, often requiring plant automation engineers to make modifications to the Ladder logic. Whilst the reliability of the PLC hardware remained high, the overall plant efficiency was low and often the problems resulted in loss of expensive product.



Solution

In late 2003 it became evident that a re-engineering was needed if the plant was ever going to reach the quality and efficiency targets required.

After considering Concept for the upgrade, the decision was taken to use Unity Pro in order to take advantage of its advanced features.

The existing installation consisted of 2 Quantum CPU's controlling a variety of Quantum and 800 Series I/O over Remote I/O (S908) and Modbus Plus, with over 1800 digital and 150+ analog I/O.

The two CPUs were replaced with one Quantum 140CPU65150 with embedded Ethernet. Most of the remaining hardware was retained without the any need for changes. The racks connected via Modbus Plus were modified to make them remote I/O drops, but this was a customer preference rather than a necessity.

The Quantum Ethernet ports are connected to a third party SCADA via OFS data server, providing the update of several thousand "tags" every half a second.

The Systems Integrator Tamaki Controls has made extensive use of SFC and ST programming throughout the applications and has nothing but praise for the Unity Pro programming environment and its IEC languages.

After initial commissioning with Unity V2.0 the plant has had a very impressive record during the last full six months of operation. During this time it has produced award-winning cheeses and plant efficiency has been at an unprecedented level due in no small part to Unity Pro.

Benefits

- Improved product quality
- Ease of maintenance
- Improved reliability
- Advanced IEC languages

For more information, contact:
simon.rowland@nz.schneider-electric.com

For your automation solutions

Unity

Come with us into the new
world of automation