

## Application Story

Industry: Packaging

Products: Control Systems, Inverter / Servos

# Best-In-Class Performance for Thermoformer Packaging Machine

When VC999 Packaging Systems developed their i-Series Thermoformer in 2009, a unique and innovative design concept was unveiled to deliver high performance operation. The new design would make the i-Series more flexible and easy to use for customers to manufacture a variety of plastic trays or blister packages using just one machine. For easy assembly and disassembly, the i-Series Thermoformer required standard cabling between machine segments. A comprehensive warranty also required best-in-class, reliable automation control equipment.

### **The challenge: Simple, reliable control system for modular machine design**

As the industry migrated toward modular design concepts, VC999 was quick to offer options for customers to arrange and disassemble machinery for normal operation, transportation and cleaning. The i-Series' modular design includes three main segments; form, seal, and discharge, each with its own control enclosure. The control enclosures must be easy to install, wire and customise, reducing engineering efforts for machine operators and maintenance staff. In order to meet the needs for easy interconnectivity, high-performance operation and reliable control, VC999 conducted in-depth evaluations of several industrial automation control vendors.

### **The solution: Rack-free modular PLC using Gigabit industrial Ethernet**

With the release of the MELSEC-L Series modular Programmable Logic Controller (PLC), Mitsubishi Electric offered an attractive solution to VC999. The PLC provides a versatile rack-free design to accommodate future expansion along with communication using CC-Link IE Field, the industry's first and fastest Gigabit Ethernet-based network. The standard Ethernet cabling with CC-Link IE Field is easy to use and very cost effective, allowing VC999 to implement their modular machine design.

Power Motion, Inc., a long-time strategic partner and industrial automation parts supplier to VC999, provided insight regarding the integration of the L Series PLC with Mitsubishi Electric's MR-J3 servo motors and E700 Variable Frequency Drives (VFDs). The servos are used for index control of the discharge



**"The i-Series Thermoformer runs on a very stable and proven control platform, helping to provide customers with the flexibility they need."**

Tom Fritz,  
Electrical Engineering Manager, VC999

station while the VFDs control the trim wind-up motor. Another servo motor maintains web tension at the infeed roller, simplifying the mechanics to eliminate the need for multiple trapeze rollers.

### **The result: Improved OEE and flexibility**

The i-Series Thermoformer from VC999 Packaging Systems successfully integrates Mitsubishi Electric's reliable MELSEC-L Series control system for a modular and high performance design. The CC-Link IE Field industrial Ethernet network improves the overall equipment effectiveness (OEE) of the i-Series machine through its fast network speed, and has also reduced wiring and installation time. Leveraging the quality of Mitsubishi Electric hardware, the i-Series Thermoformer ships with a comprehensive 2 million cycle warranty. This is a testament to VC999's leadership in the design of advanced packaging machines using a flexible solution from Mitsubishi Electric.