2500 Series®
Programmable Automation Control System

Smart Modernization of TI560/565 Control System on Heidelberg-Harris M1000B Web Printing Press

In the New England region of the United States, a commercial printing company produced a variety of products including catalogs, press-pasted booklets, free-standing inserts and self-mailers on its Heidelberg-Harris M1000 press.

Due to continued issues with maintaining its TI 560/565-based control system on its press, the company contacted Goss International, who acquired Heidelberg's web press and high-volume postpress business in August of 2004. Goss, in turn, contacted CTI regarding the possible use of our 2500 Series® processor in replacement of the TI565.

Summary

In order to upgrade the aging control system on its M1000 press at the lowest possible cost and with the least amount of downtime and reprogramming, a commercial press turned to CTI for a phased Smart Modernization plan. The results: a significantly modernized and easier-to-maintain controls system with less than 12 hours of downtime and only one small change to the original program.

Existing Control System Design

The existing control system used on the M1000 press employed a TI560/565 processor with remote I/O connection over coax to thirteen Series 500 I/O bases. Our customer felt that they could continue to maintain the Series 500 I/O systems for a while longer, but wanted an immediate replacement of the controller and upgrade of the programming software to PLC Workshop. See Figure 1 for a diagram of the original control system.
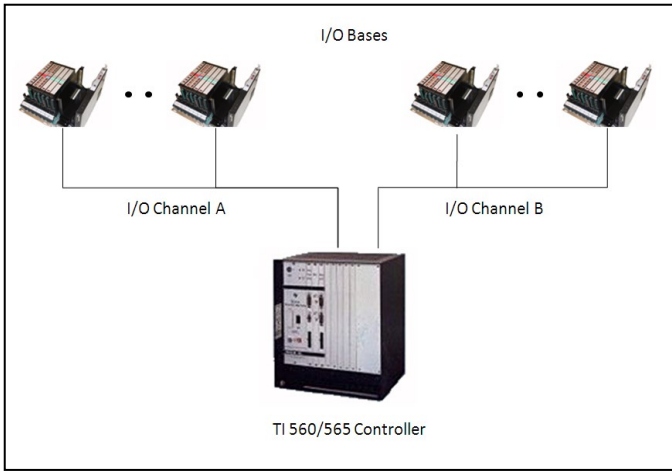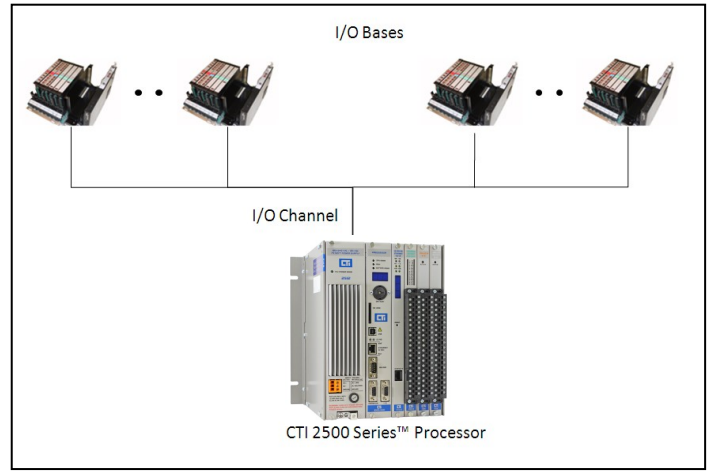
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Figure 1: Pre-Existing Control System

Figure 2: New Control System

Proposed Control System Upgrade

CTI developed a three-phase Smart Modernization plan to modernize the M1000 controls system:

For Phase 1, CTI application engineers specified a CTI 2500-C300 processor, four-slot base, CTI 2512 power supply, and 505-6860 RF I/O channel converter to drive the coaxial I/O network. Because the 2500 Series® system supports the same instruction set as the one used in the 560/565, no changes in the program logic were required. The existing PLC program was converted to Workshop, the Windows-based version of TISoft, however, because maintaining the program in the DOS-based program was becoming unmanageable. The customer also replaced a proprietary HMI system with CTC Interact communicating to the CPU's Ethernet port because the integrator had done a similar project using CTC. The total downtime for Phase 1 was less than 4 hours.

For phase 2, I/O communications were upgraded using 2500-RBC Profibus RBCs and Adapters in each 500 I/O base. Coaxial cable was rewired to Profibus. Total downtime for Phase 2 was one day.

The plan for Phase 3 was to upgrade the Series 500 I/O to 2500 Series® I/O in either the Classic or Compact size. This phase was planned but has not yet been executed.

Figure 3: M1000B Printing Press

Upgrade Result

When the upgraded system was installed, the only program change required was re-addressing of some I/O due to combining the two previous I/O networks into a single network. After resolving some issues over coax I/O reliability and Series 500 login, the press has been running without incident. The company is considering the next phase of the upgrade which includes changing out the existing Series 500 I/O bases for new CTI 2500 Series® systems.

In summary, the customer was very pleased to modernize its press with minimal cost, downtime or reprogramming. The project exemplifies CTI's commitment to our customers to provide solutions that exceed expectations, respect the value of their existing investment, are cost effective, and have minimal impact on operations.

At CTI, that's what we call Smart Modernization.™

ROCK SOLID PERFORMANCE. TIMELESS COMPATIBILITY.