

PLC WorkShop Suite for CTI 2500 Series

Case Study: Enhanced Instructions

An internationally recognized food and beverage manufacturer, located in the Midwestern United States, automates its packaging facilities with PLC WorkShop Suite™ programming software by FasTrak SoftWorks, Inc and CTI 2500 Series™ processors by Control Technology, Inc. Consistent product quality and reliable performance are of the highest importance, and these solution providers dependably contribute to this goal.

Desiring a more robust programming environment, the customer approached FasTrak in 2011 to collaborate on a set of enhanced instructions. Long standing partners FasTrak and CTI subsequently went to work to enhance both the programming software and the processors. Support for these instructions is available exclusively through the PLC WorkShop Suite beginning with V4.60. Designed as a drop-in replacement for the original Siemens 505® PLCs, the CTI 2500 Series processors fully support the Simatic® 505 ladder logic language. These new instructions upgrade the original language in the CTI 2500 Series processors to better support the capabilities that modern manufacturing demands.

Now available, FasTrak and CTI present:

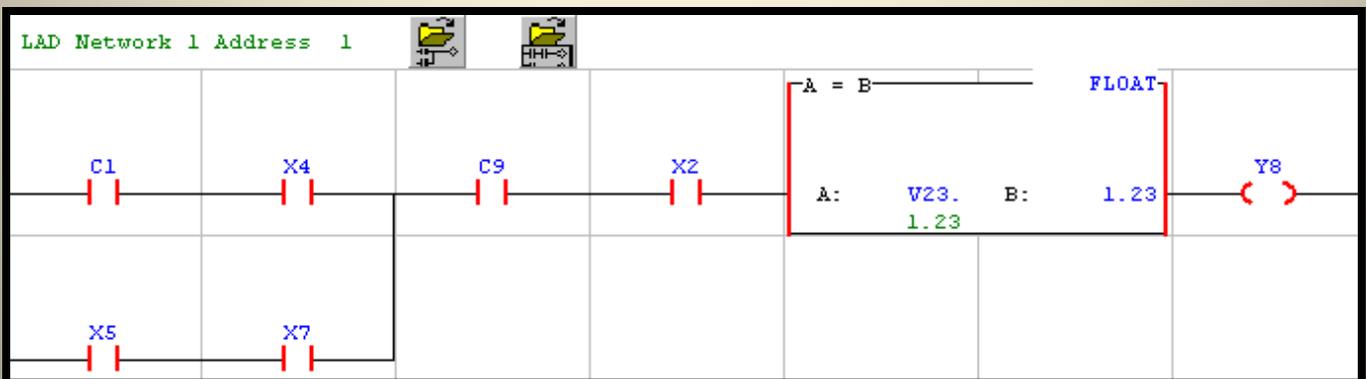


Photo courtesy of Lee Industries © 2011

Floating Point Comparison

The customer monitors critical manufacturing temperatures, in which variations of more than half of a degree can ruin entire batches. The original Simatic 505 comparison ladder logic instructions supported integer numbers only. This required extra logic to multiply values by 10 or 100 or more, depending upon the required accuracy, before they were compared.

To provide convenient comparisons of real values within ladder logic, FasTrak created six new Floating Point Comparison ladder instructions (Equal To, Not Equal To, Less Than, Less Than or Equal To, Greater Than, Greater Than or Equal To). These instructions compare real values in a single rung of logic.



Example use of Equal To Compare instruction for floating point values

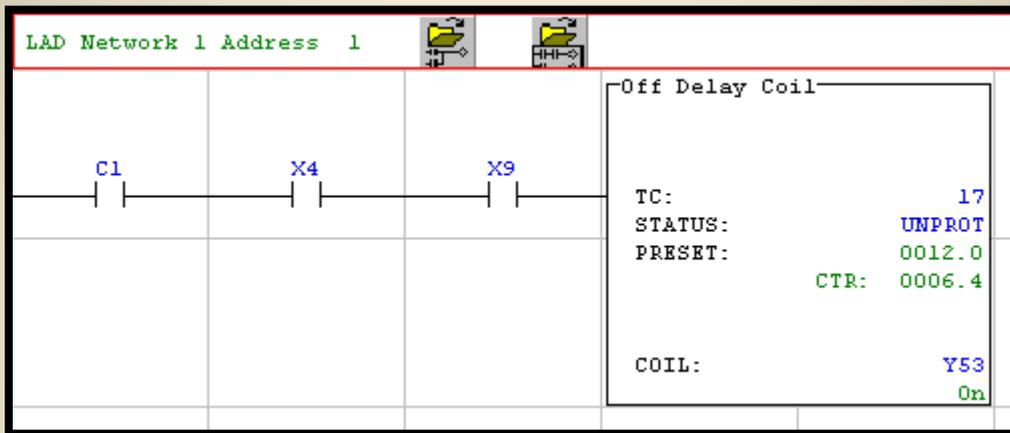
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On Delay Coil and Off Delay Coil

During its manufacturing process, the customer monitors fluid levels in kettles and tanks. Signals from fluid level sensors can oscillate rapidly as the vessels fill and empty. De-bouncing these signals required several rungs of logic that used multiple timers and convoluted negation logic. This cumbersome programming had to work around the two-input limitation of the existing timer instructions.

FasTrak created new On Delay Coil and Off Delay Coil instructions, which dampen these oscillating sensor values with a single instruction. And since these coils are the right-most instructions in the rung, the two-input limitation of timer instructions is eliminated.



Example use of an Off Delay Coil instruction

MegaEDRUM Event Drum

The customer employs the time-saving practice of Cleaning In Place (CIP) to ensure the sanitary condition of its equipment. Event drum instructions control valves and pumps that regulate the direction and timing of cleansing fluids as they flow through the closed vessels. The original drum instruction supported a maximum of 15 coils and 16 steps. Because the CIP processes of the customer control many more coils and steps, several drum instructions were chained together in multiple rungs of tangled logic.

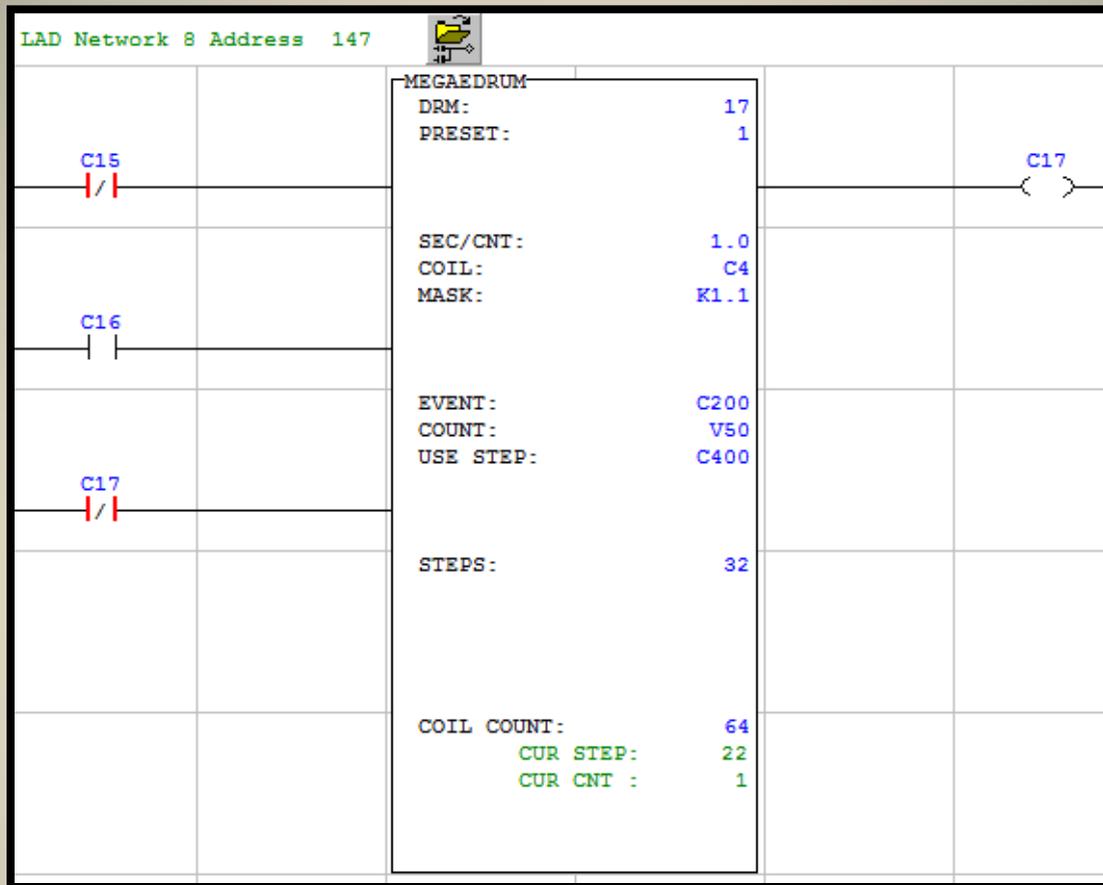
FasTrak created a new MegaEDRUM instruction that supports up to 128 coils and 128 steps. The number of coils and steps are independently scalable. For example, the MegaEDRUM can be customized to control 48 coils over 96 steps.

The MegaEDRUM parameters use implied addresses, in which the first address is specified, and the drum instruction uses the appropriate number of subsequent addresses.

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In the example below, the COIL COUNT parameter specifies that this instruction controls 64 coils. The COIL parameter specifies that C4 is the first of the 64 total coil addresses, C4 and implied addresses C5 through C67.



Example use of the MegaEDRUM instruction

FasTrak SoftWorks, Inc. and Control Technology, Inc. are committed to maintaining a strong partnership to assure that Simatic 505 legacy PLC users have answers for today's manufacturing challenges and a clear migration path to effective hardware and software solutions for years to come.

Watch for more new instructions, features, hardware, and capabilities from both FasTrak and CTI in the future.

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FasTrak SoftWorks, Inc. is a leading provider of industrial software solutions for PLC programming, file change management, and asset and maintenance management. Focused on solving the issues that are unique to manufacturers, FasTrak has been helping to automate industrial companies for over 30 years. FasTrak software is developed by an experienced team of computer software and electrical engineers, and is used by more than 20,000 customers worldwide. Located outside Milwaukee, Wisconsin, FasTrak provides a variety of support and service options for their automation and productivity software to maximize return on investment.

FasTrak is committed to the long-term development, service, and support of programming software for CTI, Siemens, Modicon, and Square D processors. These new instructions are the first in a series of enhanced capabilities to the PLC WorkShop Suite line.



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Control Technology, Inc. designs and manufactures advanced control, communications and I/O products for process control. CTI's 2500 Series PLC system is a compatible replacement for the former Simatic 505 PLC system, and includes state-of-the-art enhancements in functionality and performance. Products in the family include controllers, power supplies, bases, remote base controllers, analog and digital I/O, ethernet TCP/IP, Modbus, DeviceNet networking modules and specialty I/O modules. CTI 2500 Series products are installed in the plants of major industrial companies throughout the world.

CTI is continuing a heavy development investment in this system, with plans for enhancements in the instruction set, programming tools, network connectivity, and I/O system. A micro-PLC family based on the same technology, and a line of compatible networked I/O are included in their long-term product roadmap.

The enhanced CTI instructions described in this case study are fully supported by the PLC WorkShop Suite programming software by FasTrak SoftWorks, Inc. and the CTI 2500 Series PLCs from Control Technology, Inc.

Contact each respective company for additional information.

