

PLC126 LAB 3.4: ALLEN BRADLEY SLC-500 OFF-DELAY TIMER

Student Name: _____

Student ID: _____

LAB OUTCOMES:

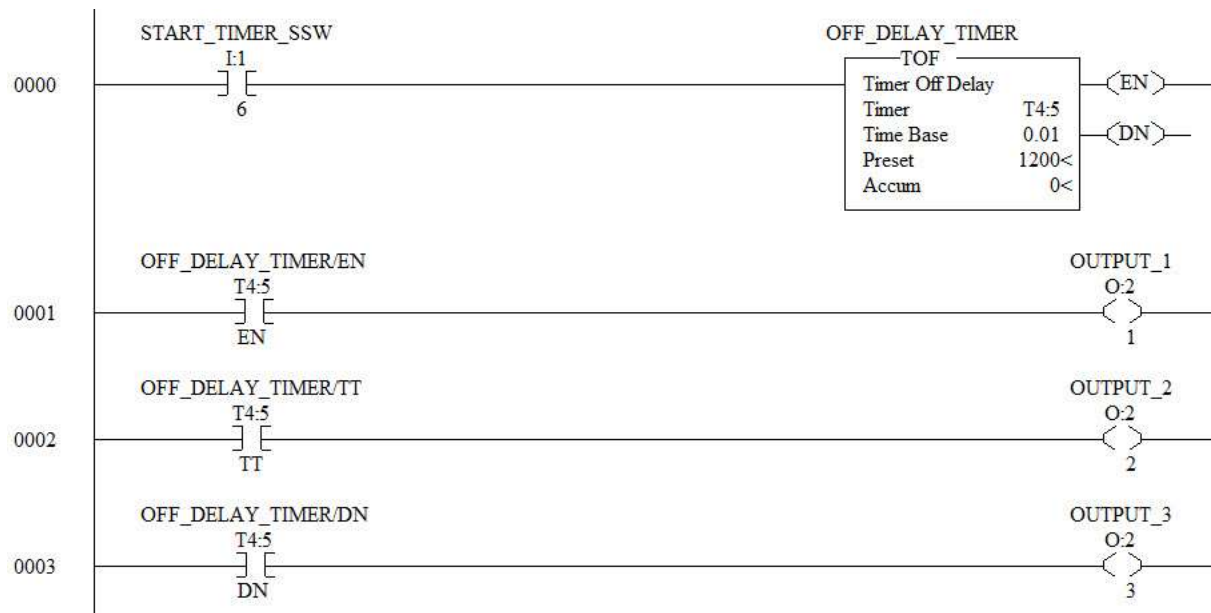
1. Explain the operation of a TOF timer instruction
2. Explain how the timer status bits work with a TOF instruction
3. Demonstrate how to change the timer preset values from the data files
4. Explain how a TON and TOF can be used to control a conveyor motor

LAB PROCESS:

Write the program as shown in part 1 and then save it to the hard drive of the computer. You will then download the program to the SLC-500 processor. Once that it is complete you will go online with the SLC-500 and place the processor in RUN mode. In part two you will key in a program that will control the motor starter coil of a motor that is running a conveyor. This program will have a delay after the start button is pushed, before the motor will start up, and will have another delay after the stop button is pushed, before the motor stops.

Part 1

1. Key in the following program and save it to the hard drive. Name the project something you will be able to easily remember.



2. Go online to the processor and make sure the unit is in Run Mode.
3. When the PLC is put into Run Mode, what happens to the Accumulated value of the timer?
4. Turn on the **START_TIMER_SW** input.

What outputs turn on in the program?

Does the timer start timing?

5. Turn off the **START_TIMER_SW** input.

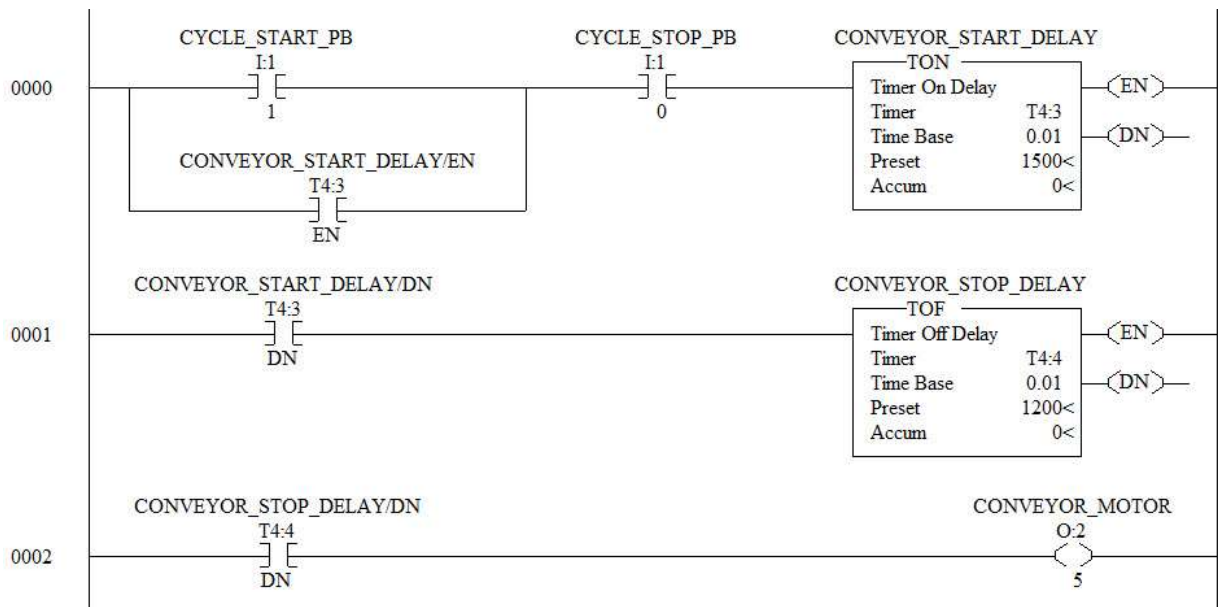
What happens to the timer?

Which outputs are on?

6. When is the **T4:5/DN** bit on in this program?
7. Once the timer in this program starts timing, how long until it times out?
8. Change the preset value to make the delay 8.5 seconds

Part 2

1. Key in the following program and save it to the hard drive. Name the project something you will be able to easily remember.



2. Download to the processor and go online making sure the unit is placed back into Run Mode
3. Does the **CYCLE_STOP_PB** instruction in rung 0 have highlight? Explain.
4. Momentarily push the **CYCLE_START_PB** input. Does the **CONVEYOR_MOTOR** output come on right away? Explain.
5. Does the TON instruction start timing when this input is actuated, or does the TOF instruction start timing?
6. Press the **CYCLE_STOP_PB** input. Does the **CONVEYOR_MOTOR** output turn off right away?

What timer instruction starts timing?

When does the CONVEYOR_MOTOR output shut off?

7. Change the preset value of the TON so the timer times for 16.5 seconds
8. Change the preset value of the TOF so the timer times for 14.5 seconds
9. Modify the program so that output **O:2/7** will indicate the time after the **CYCLE_STOP_PB** is pushed and the motor starter drops out.

Questions

1. When does the TON done bit come on?
2. When does the TOF done bit come on?
3. When a TOF instruction receives power, what happens to the accumulated value of the timer?
4. Why is it that when the processor goes into Run Mode, the accumulated value of the TOF timer is changed to equal the preset value?
5. How would the user change the value in the preset of the TON timer in the program in part two of the lab?
6. How does the user turn off the symbols when viewing the ladder logic?

7. What values must the presets of the TON and TOF timers be in order to have a 9 second delay for the motor to start, and then a 17.5 second delay for the motor to shut off once the stop button is pushed in the second program?

The outcomes of this exercise (listed on page 1) specifies the skills that the Student must demonstrate to the Instructor. Once the Instructor is satisfied with the demonstration of Knowledge & Skills by the individual student, they will sign this document (for the student), then enter a 100% into the Hands-On Lab grade in Sakai.

I verify that this student has completed all of the requirements of this Hands-On Assessment:

Student Name: _____

Faculty Signature: _____ Date: _____

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