

PLC127 LAB 2.2: ALLEN BRADLEY SLC-500 FORCING INPUTS AND OUTPUTS

Student Name: _____

Student ID: _____

LAB OUTCOMES:

1. Explain the purpose of using a force command in a PLC processor
2. Explain the safety issues involved with forcing I/O on a PLC controlled machine
3. Demonstrate how to interpret the force indicator light on an SLC-500 processor
4. Demonstrate how to force an input or output on or off in a PLC processor
5. Explain how forcing affects the program, force tables and image tables in a PLC processor

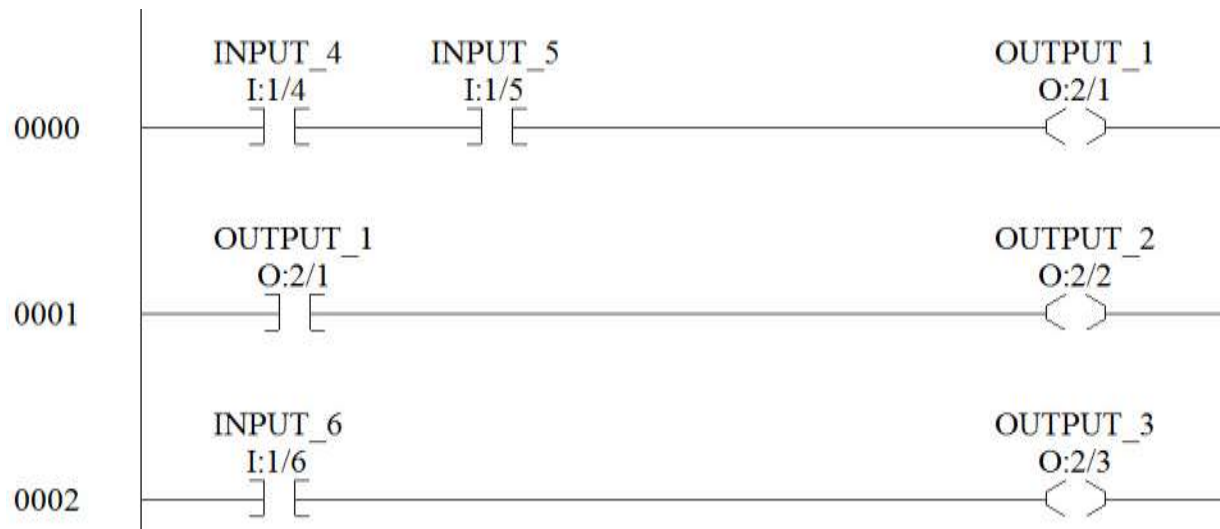
LAB PROCESS:

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.

WARNING: Forcing inputs or outputs on an actual production machine can create a potential hazard for personnel and machinery. This is due to the fact that forcing bypasses the typical operation of a program, which was designed to run a machine.

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. Turn on the **INPUT_4**, and **INPUT_5**, and **INPUT_6** to verify that all 3 outputs are functioning, then turn off all three inputs to continue with this lab.

3. Force **OUTPUT_1** on, and enable the force.

Does the coil (OTE) in the PLC program highlight? Explain.

What is the state of the "FORCE" diagnostic indicator on the front of the processor?

Does the XIC addressed as **OUTPUT_1** in rung 0001, highlight turning on **OUTPUT_2** (assuming **INPUT_4** and **INPUT_5** are off)?

4. Turn on **INPUT_4** and **INPUT_5**. This should highlight the OTE for **OUTPUT_1**
Does the XIC (normally open) addressed as OUTPUT_1 in rung 0001 highlight?

5. Remove the force on **OUTPUT_1**.

6. Force off **OUTPUT_1**, and enable the force.

7. With **INPUT_4** and **INPUT_5** still on.

Does **OUTPUT_1** turn on?

Does **OUTPUT_2** turn on?

8. Remove all forces.

9. Force on **INPUT_6**, and enable the forces.

Does **OUTPUT_3** turn on?

10. Toggle **INPUT_6** on and off.

Does it affect the status of **OUTPUT_3**?

11. Remove the force from **INPUT_3**.

12. Force off **INPUT_6**, and enable the forces.

Does **OUTPUT_3** turn on?

13. Toggle **INPUT_6** on and off.

Does it affect the status of **OUTPUT_3**?

Questions

1. What does it mean if the FORCE indicator on an SLC-500 processor is blinking?

2. What does it mean if the FORCE indicator on an SLC-500 processor is on solid?
3. The output force table will override the output image table in an SLC-500 processor. True or False?
4. In rung 0003, what value in N7:10 will turn on OUTPUT_3 when the timer reaches 7 seconds?

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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