

Allen Bradley SLC-500 Training Data Comparison Instruction Lab #1

Upon completion of this lab, the student should be able to:

1. Explain the operation of an auto resetting timer program.
2. Explain the operation of the LES, GRT, LEQ and GEQ instructions.
3. Explain the data values as constants, versus data values stored in a register (N word).
4. Explain how basic comparison instructions can be used together to control an output.
5. Explain how multiple comparison instructions can be used together to control an output.

Create the following program within a new RSLogix500 project. Save it to a local drive. Download it to the SLC-500 processor, go online, and then put the processor into the Run Mode to answer the following questions within this lab exercise.

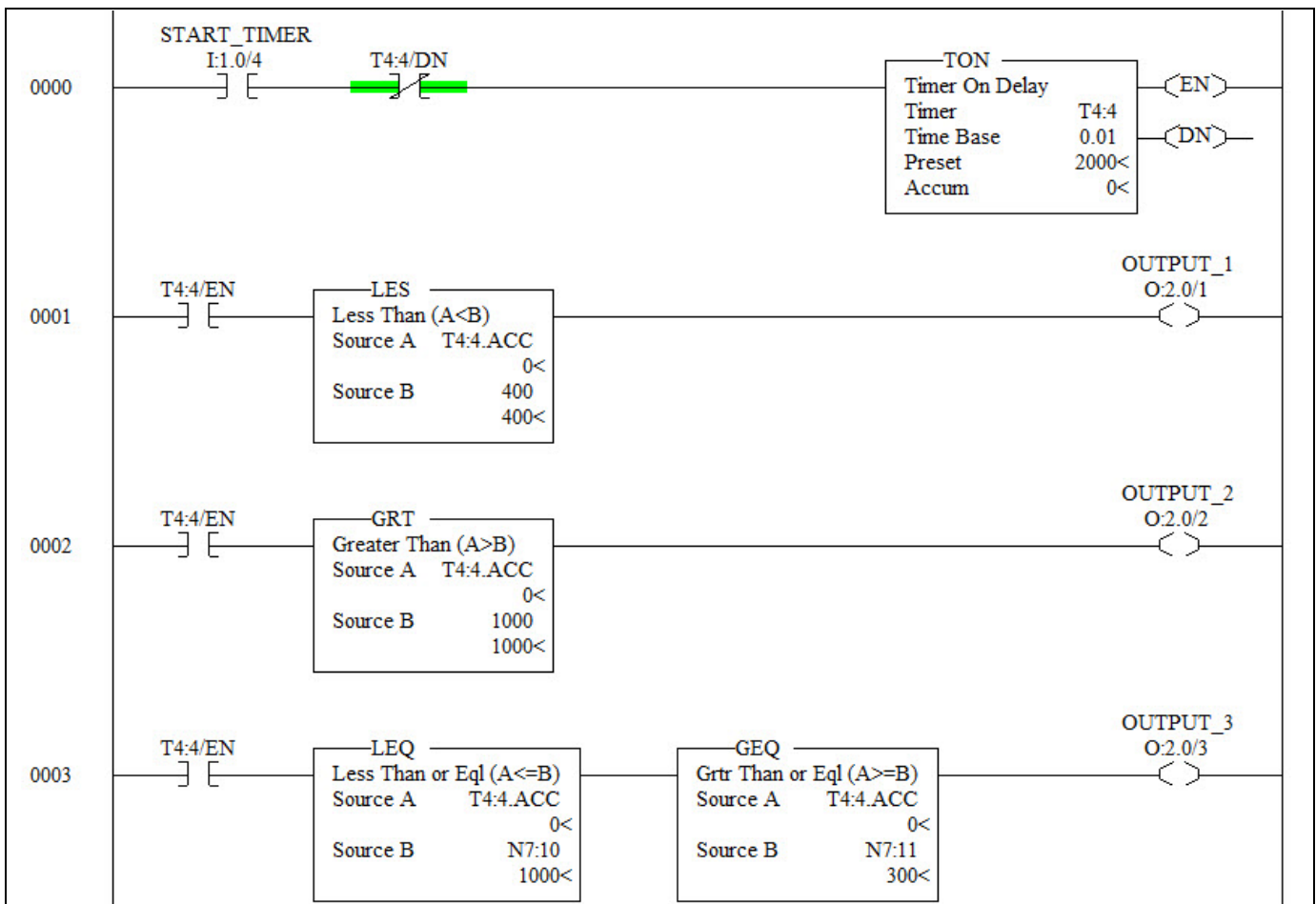


Figure 1. Ladder logic program with comparison instructions.

1. Once the input is turned on, what happens to the timer after it times out?

2. Turn on the “START_TIMER” input.
What output(s) come on immediately?
How long do the output(s) stay on?

3. When will OUTPUT_2 come on?
How long will it stay on within one time cycle?

4. When will OUTPUT_3 come on?
How long will it stay on within one time cycle?

5. Change the Timer Preset to make the timer time for 22.5 seconds.

6. What data file will the timer preset be stored in?

7. What causes the timer to continue timing, then reset and start timing again?

8. What would have to be changed in order to have “Output1” come on at 5 seconds?

9. Change the value in N7:10 to 1200. How does this change the operation of OUTPUT_3?

Questions:

1. Explain how rung 000 works in the above program?
2. What is the reason for using the XIC T4:4/EN in rungs 001, 002 and 003?
3. What is the advantage of using the value in N7:10 instead of a constant in the LEQ in rung 003?
4. Can the value in N7:11 be changed while online?
5. What value would need to be put into the TON preset for a time delay of 22.5 seconds?
6. How would OUTPUT_3 respond (within one time cycle – 20 Sec.) if a value of 700 was put into N7:10, and a value of 200 was put into N7:11?
7. If the START_TIMER input is turned off, can any outputs be on?

Explain!

8. What would the user need to do if they are online, and needed to change the Source B value in the LES in rung 001, to a value of 550?

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