

EET 273 Substitution Labs  
LogixPro Door and Silo

Name: \_\_\_\_\_

**Lab 1 Part 1: Using LogixPro program the Garage Door**

Note that an up/down garage door is the same as a Forward/Reverse Motor Starter

**Instructor's Signature:** \_\_\_\_\_

**Part 2: Add “flash” to the door**

Modify the Door program as follows:

If the down button is pressed while the door is going up, Stop the door, flash the down button every ½ second for 3 seconds then start the door down. Do the same if the up button is pressed while going down. If the Stop button is pressed before the door starts moving, stop the timer and leave the door in the present position.

Control the Up and Down Lights as follows:

- If the door is fully open turn on the Open light.
- If the door is opening or is going to open flash the up light every ½ second
- If the door is stopped, and is not fully open or closed, flash the Ajar Light

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**Lab 2) Part 1: Using LogixPro program the Silo simulator**

First I want you to program it on your own logically

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**Part 2: A structured Approach**

Watch the Youtube Video “Solving the LogixPro Silo Simulator using a Structured approach”

[http://www.youtube.com/watch?v=rCa\\_U6YATTA](http://www.youtube.com/watch?v=rCa_U6YATTA)

Implement the program

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**Lab 3: Batch Mixing...PLC Counters; Exercises 1-3**

**Complete the Exercises 1-3**

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**Lab 4: LogixPro Dual Compressor.**

**See the Dual Compressor Notes in my Weblocker**

Complete the exercises as described in the Help Menu with one final clarification.

Use the BCD and Display to show the amount of word done by each compressor. Use the Selector switch to go between displays:

Position A: Total run time in minutes for Motor 1

Position B: Total time in minutes for Motor 2

Position C: Total Run time in *hours* for both motors.

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### LogixPro Door and Silo

If a motor starts running at all, even if for a couple of seconds, count that as a minute. Similarly, if the motor runs for 5 minutes and 1 second, count that at 6 minutes.

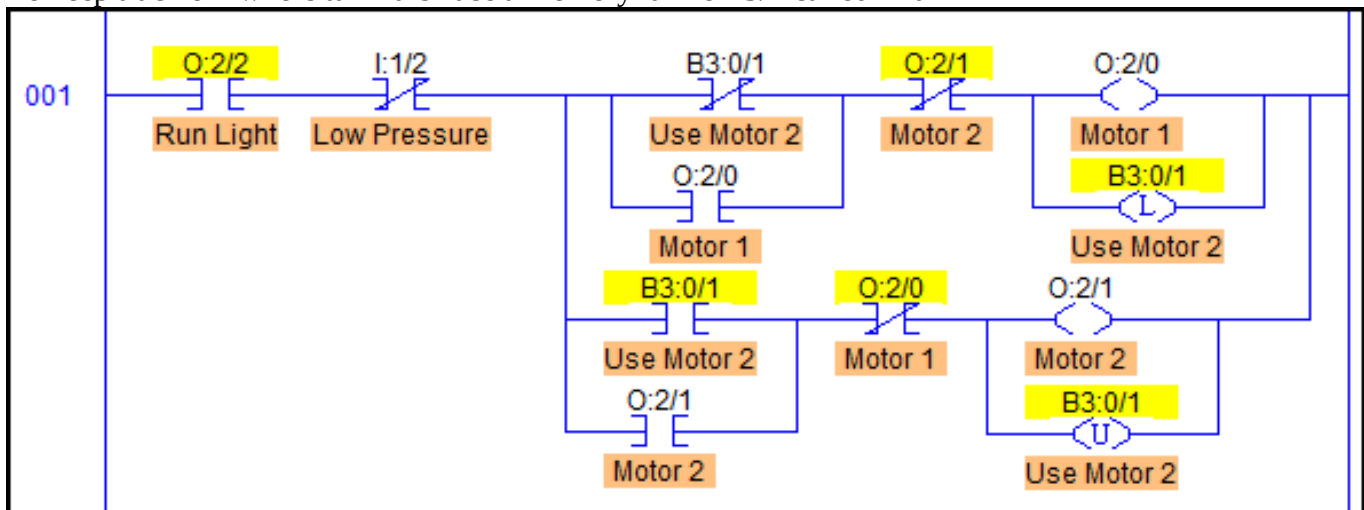
If the minutes on either motor exceed 9999 stop the compressor and alternately flash the C1 and C2 Lights every ½ second until the Stop button is pushed and held for 5 seconds. When the stop is held for 5 seconds reset all of the counters.

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#### Compressor Notes:

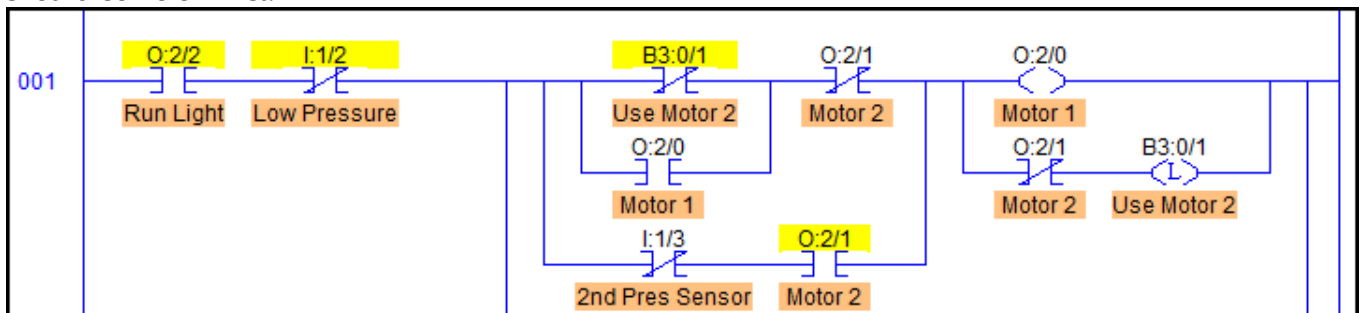
The Dual.-work problem is a classic problem in Motor controls where two motors will alternate or both pull in complete a task. The goal is to keep the motor time balanced so one does not wear out faster than the other. The key to the task is tracking which motor ran last then start the correct motor next time.

To keep track of “who’s turn it is” use a memory bit like B3/0/1 called “Run M2”



Note that I am using the Run Light to remember that the Compressor may run at any time.

If both compressors need to turn on because the load is too great, you need to run the other motor, but give credit to the motor that started first. For example if Motor 1 alone starts and the pressure continues to drop. Motor 2 will turn on to correct the pressure, but next time, when the motors re-start, Motor 2 should come on first.



Finally, the pressure sensors are a bit tricky until you figure them out. The upper number shows the pressure at which the switch will open, the lower number id the Differential to show when it will close. In this case Pressure Sensor 1 is set to open at 40 PSI and close at 42 PI. If you want the 2nd motor to assist the first turn it on at a lower pressure, say 38, and close at 41.

