

PLC125 LAB1.1: WIRING AND TROUBLESHOOTING TIME DELAY CONTROL CIRCUITS

Student Name: _____

Student ID: _____

LAB OUTCOMES:

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

1. Setup the AB 700 HR electronic timer for on or off delay operation
2. Wire an On Delay timer circuit controlling a motor
3. Explain the operation of the On Delay timer circuit controlling a motor
4. Wire an Off Delay timer circuit controlling a motor
5. Explain the operation of the On Delay timer circuit controlling a motor
6. Wire and explain the operation of a cycle timer

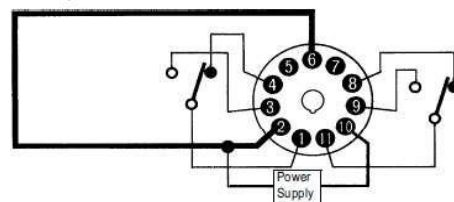
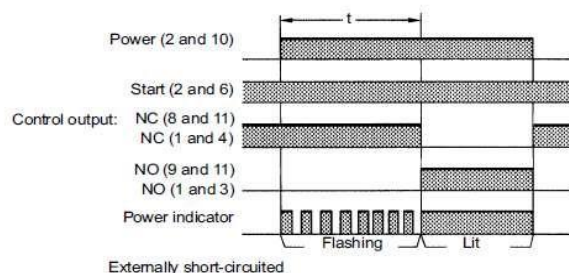
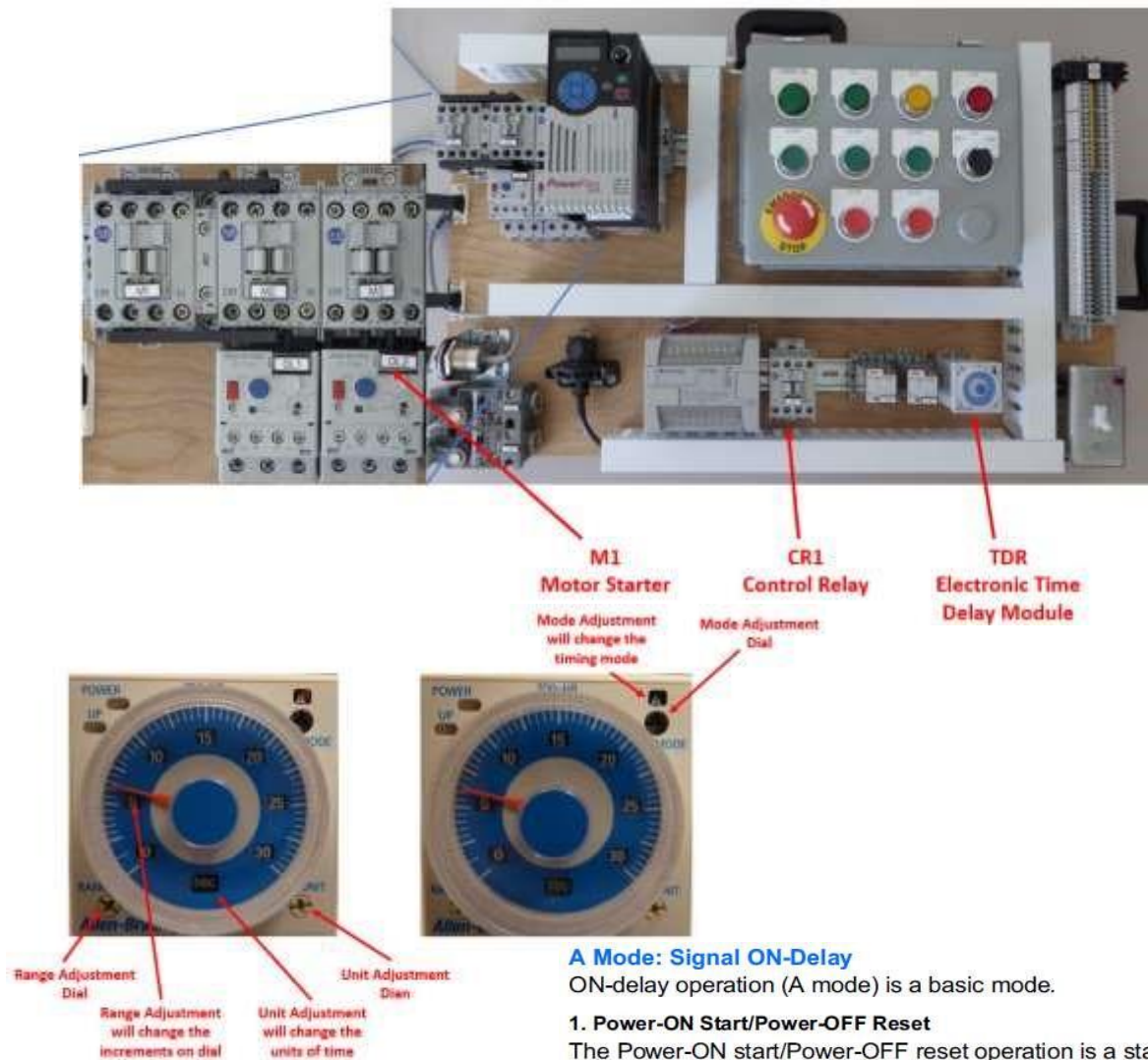
LAB PROCESS:

Set up NSCC 120VAC wiring board. Setup the unit on its base, or lay flat on the work table.

Connect the power cord and turn off the power input switch to make sure the unit is not powered.

Part 1

1. Identify the components to use on the NSCC wiring boards for the timer lab. Analyze the information sheet (cut sheet) that is part of module 6 for the AB700-HR timer module. The Dial Adjustments on the AB700-HR timing module

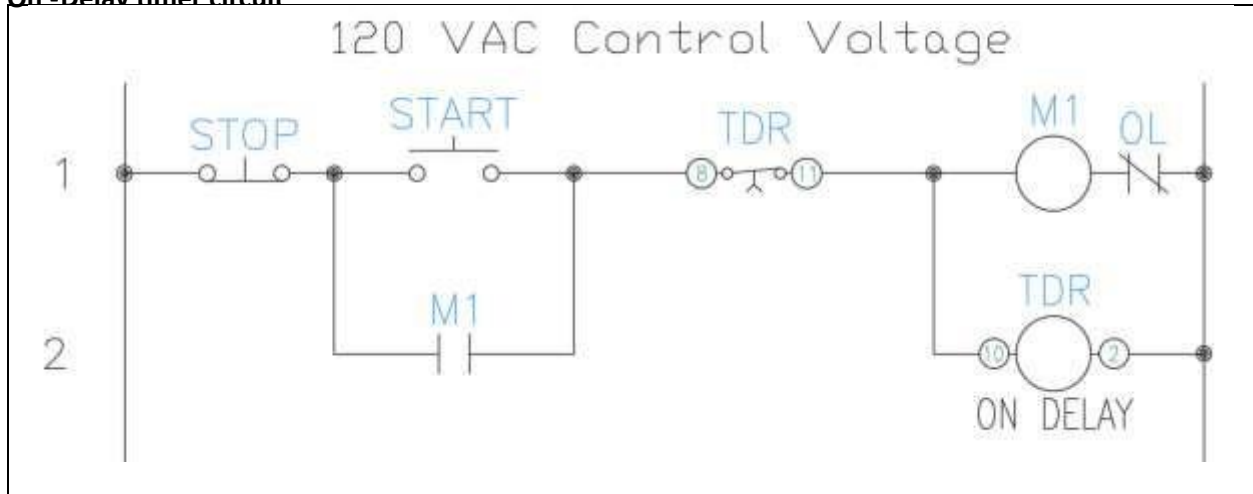


2. Important: notice the jumper that must be connected between pins 6 & 2. This must be in place to make this timer work.
3. Analyze the timing chart. Notice that for the On-Delay timer, the time cycle starts when power is applied to terminals 2 & 10. This means that terminals 2 & 10 would be considered the timer coil, if this was a conventional electro-mechanical timer.
4. Notice that this unit has DPDT type of contacts, with only timed contacts. There are no instantaneous (or relay type) of contacts on this unit.
5. Notice that the Power indicator on the timer module will be flashing during the time cycle.

Part 2:

1. Review the diagram for an On-Delay timer circuit.

On -Delay timer circuit

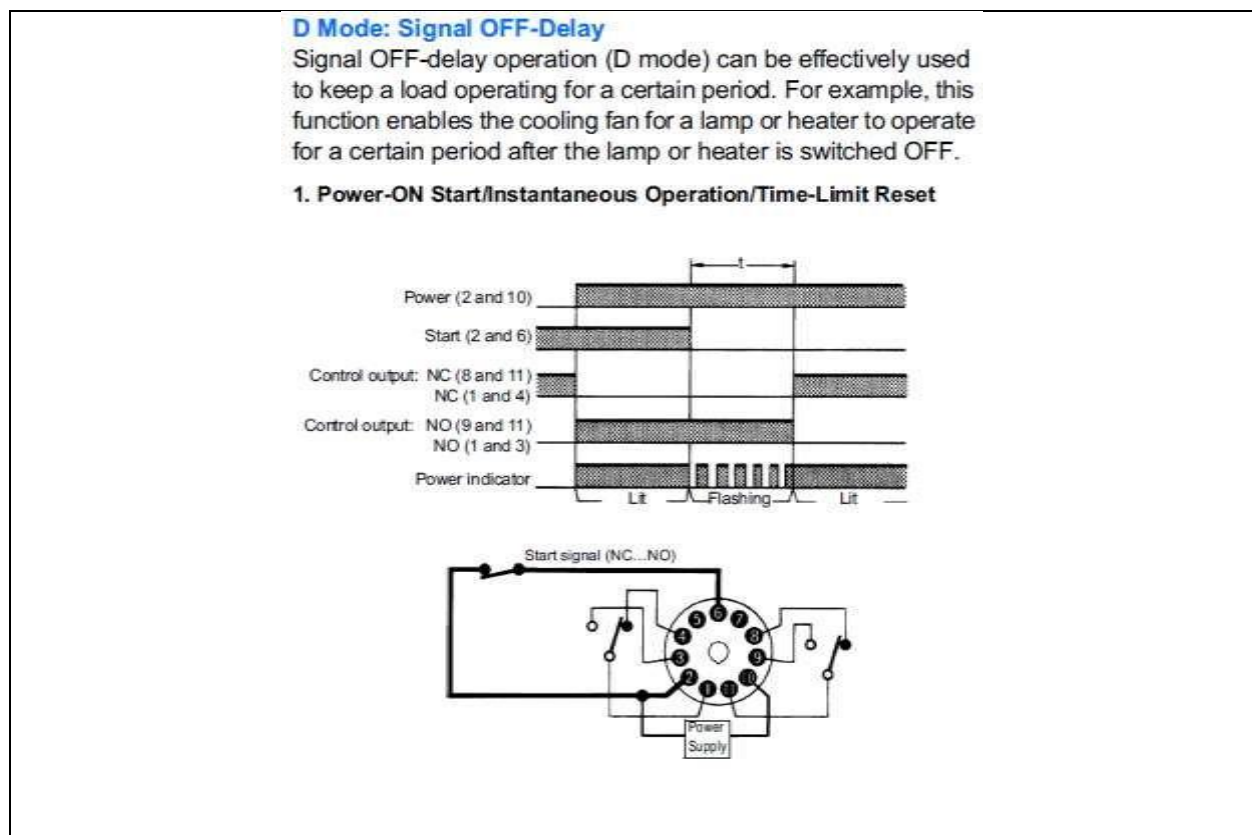


- a. What are the terminal numbers for the TDR coil?
- b. What are the terminal numbers for the N.C. TDR timed contact?

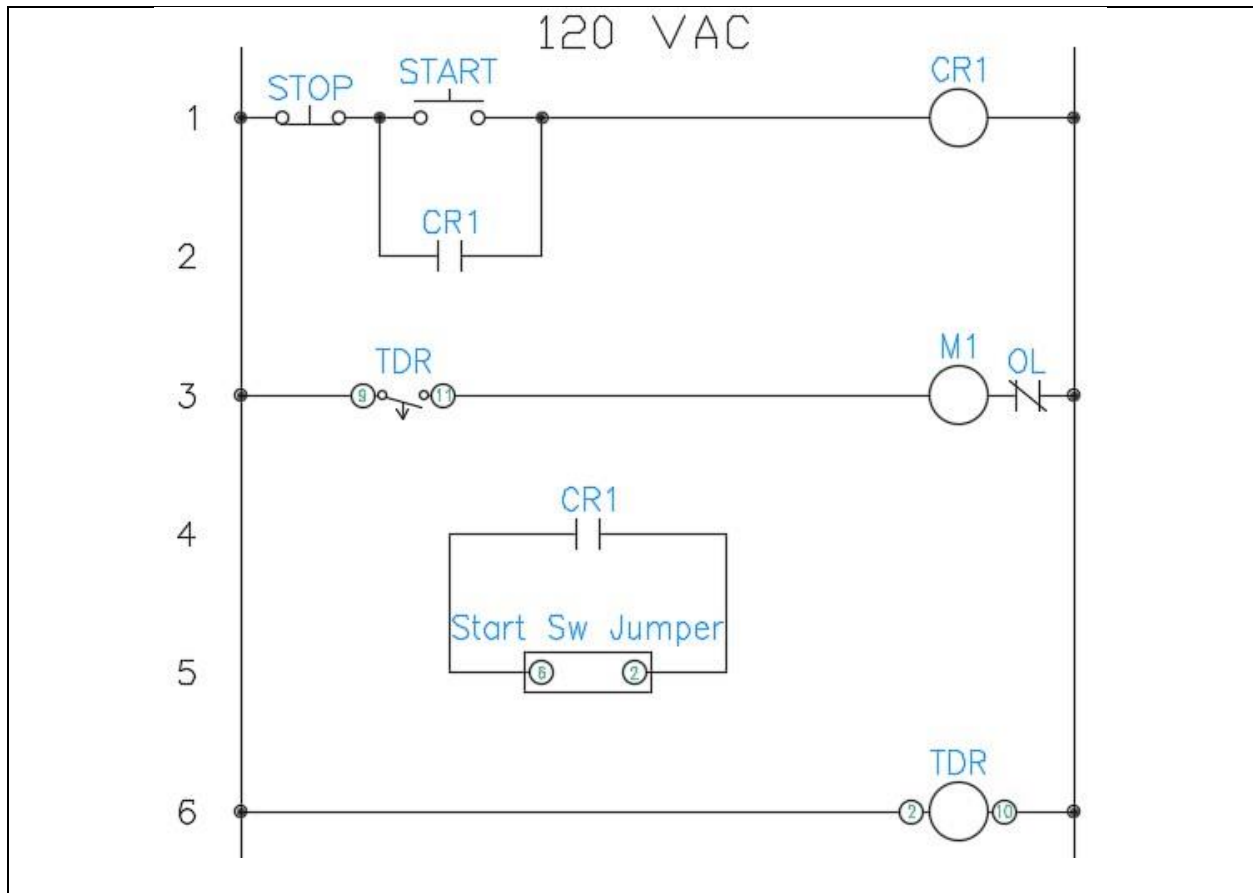
2. Set the timer for 25 seconds.
3. Explain how the circuit operated once the START button is momentarily pushed.

Part 3:

1. Analyze the information sheet for the Off-Delay operation of the AB700-HR module. Notice on this configuration, Terminals 2 & 10 must receive power (120VAC) all the time. There is a switch wired in for the start signal between terminals 6 & 2.



2. Does the time cycle start when the Start signal switch has continuity, or when it loses continuity?
3. Wire the following Off-Delay timer circuit. Notice that a N.O. CR1 contact is used to replace the Start signal switch.



4. Explain how the circuit responds when the START button is pushed.

Does the time cycle start?

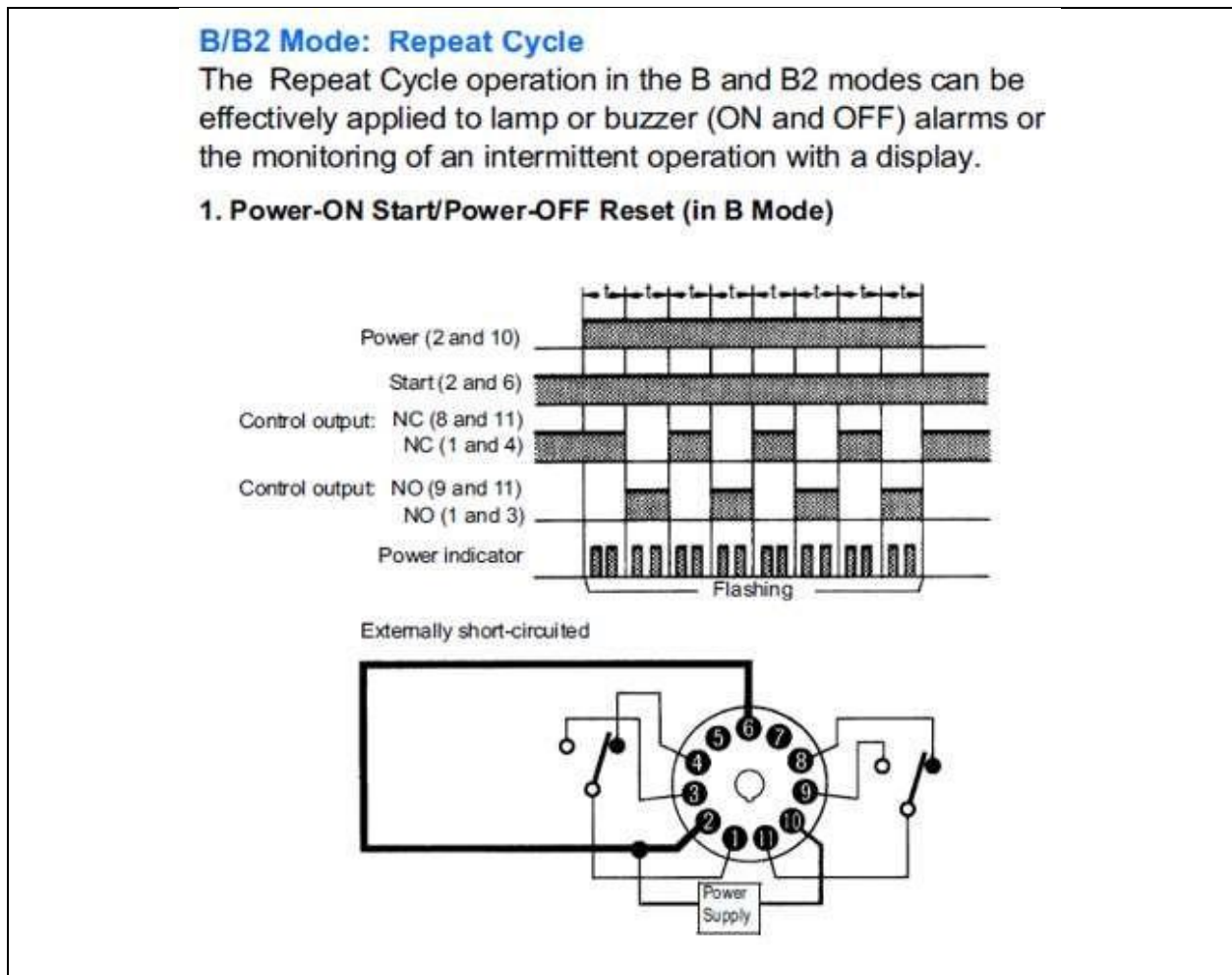
5. Explain how the circuit responds when the STOP button is pushed.

Does the time cycle start?

Part 4:

1. Analyze the following information sheet on using the AB700-HR timer module as a cycle timer. Notice that when 120V is applied to terminals 2 & 10, the time cycles start.

Cycle Timer Information (from Mfg. cut sheet)



2. Wire the following cycle timer circuit.



3. Set the timer up for a 1.5 second cycle time.
4. Turn the SS1 to the FWD position, which should send power to the timer.
5. Explain the operation of the circuit after the SS1 is turned on.

Questions:

1. True or False? The AB700-HR timer module has both relay and timed contacts.
2. True or False? The AB700-HR timer module can be configured for only seconds and minutes.

3. When does the time cycle start, with an On-Delay timer?
4. True or False? When the AB700-HR timer module is setup as a cycle timer, the on & off cycle times must be equal.
5. What mode must the AB700-HR timer module be in, to be an Off-Delay timer?
 - a. A
 - b. B
 - c. C
 - d. D

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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