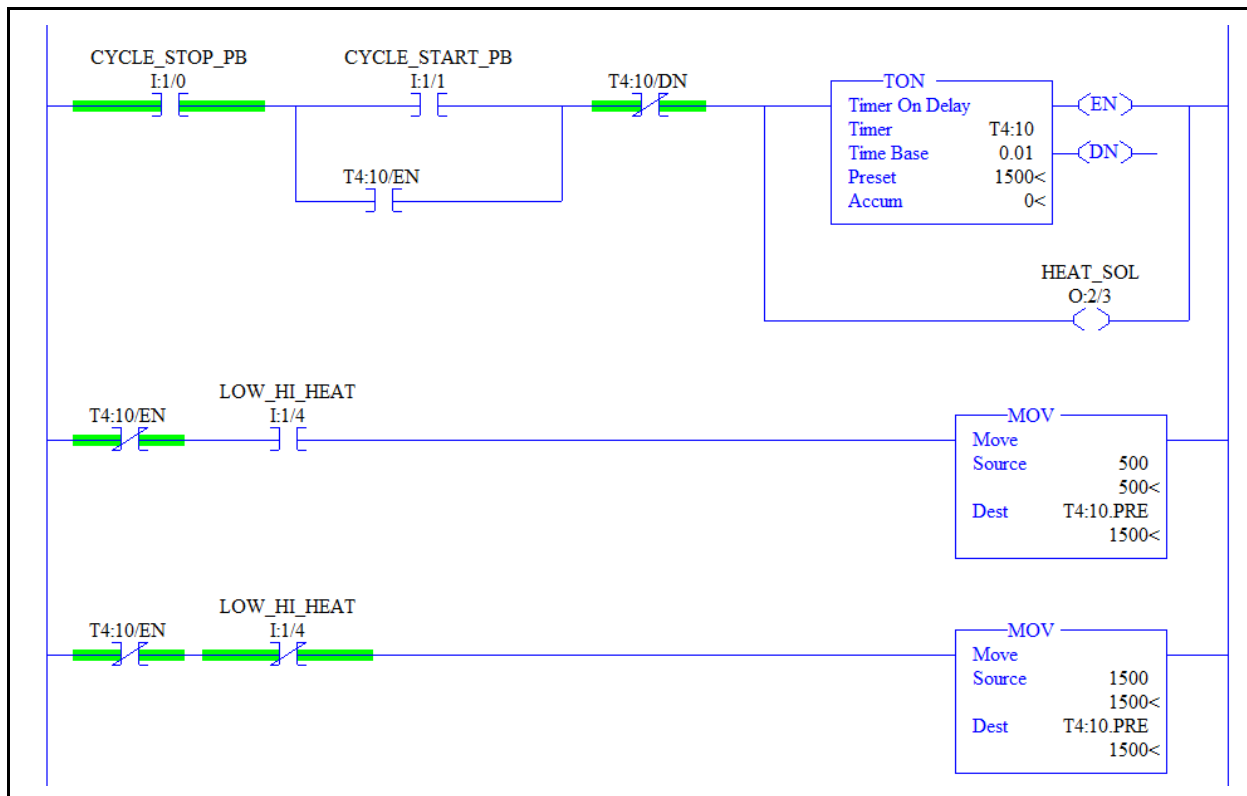


**Practice Quiz:**

1. What is the name of the address that a computer must obtain from a server, in order to access information on the internet?

- a. IP address
- b. MAC address
- c. Subnet Mask address
- d. Access address

Explanation: The IP address is obtained from a DHCP server to give a computer access to information on the internet. This address would be similar to: 172.168.92.120. To see the IP address for the computer you are on, go to the Command Prompt (under the Accessories menu). Then type IPCONFIG /ALL and it will list all the IP addresses allocated to your machine depending on the number of internet devices on the computer.



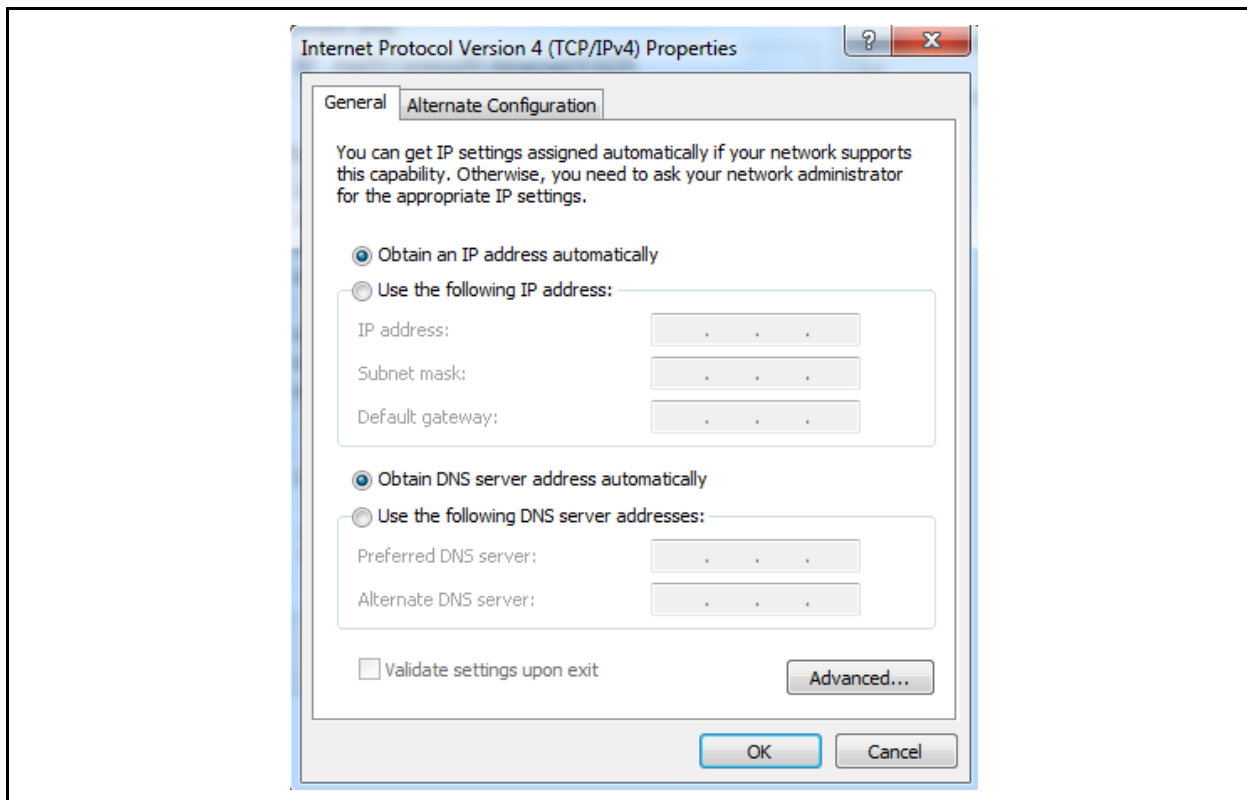
2. In this program, if the TON instruction is off, and the LOW\_HI\_HEAT input is off, how long will the HEAT\_SOL output stay on once the CYCLE\_START\_PB is pressed?

- a. 1.5 seconds
- b. 5 seconds
- c. 15 seconds
- d. 50 seconds

Explanation: If the LOW\_HI\_HEAT input is off, the XIO of that address in the last rung will be highlighted. This will energize the MOV instruction on the last rung, thus sending a value of 1500 to the timer preset. This will create a delay time of 15 seconds.

3. T F A user can plug a laptop directly to the Ethernet port on an SLC-5/05 and change the IP address of the Ethernet port.

Explanation: The Ethernet port (Channel 1) on an SLC-5/05 processor has to be configured offline, then the project must be downloaded to the processor through the serial port (Channel 0) in order to setup the Ethernet port.



4. This network configuration screen shows that the computer obtains its IP address from:
- A BOOTP server
  - A DHCP server**
  - It has a static IP address and does not need to obtain one
  - The IP address is entered by the user when they wish to go online

Explanation: Notice the radio button that is selected is: Obtain an IP address automatically. This means the computer must obtain an IP address from a DHCP server. A PLC can obtain an address from a BOOTP server, but a computer will get an IP address from a DHCP. If a static address was setup, the IP address would be shown in the IP address field.

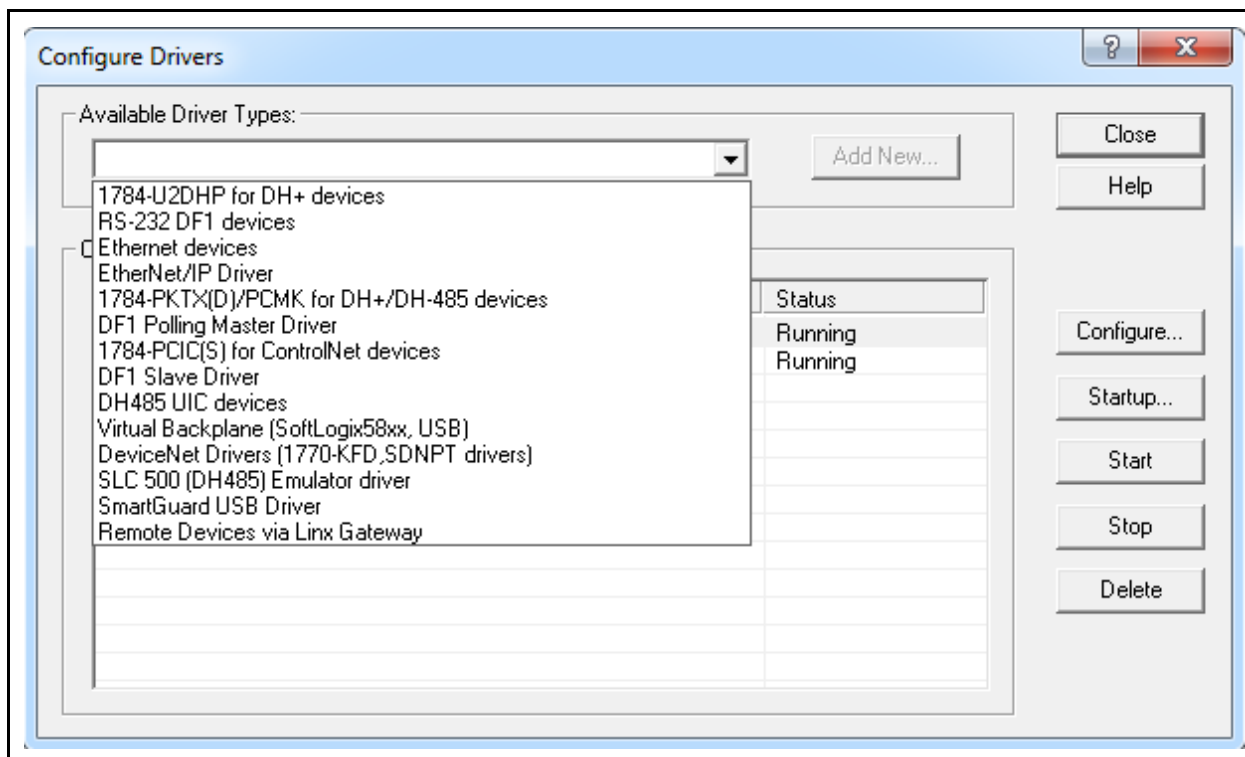
5. The network command used to verify a communication path from a computer to another computer or to a PLC processor on the same Ethernet network is:
- IPCONFIG
  - POKE
  - COMM

**d. PING**

Explanation: The PING command is used at the Command Prompt (DOS prompt) to verify communications with another network port on the same Ethernet network. The command will be PING 172.93.102.12 to verify communication with that address.

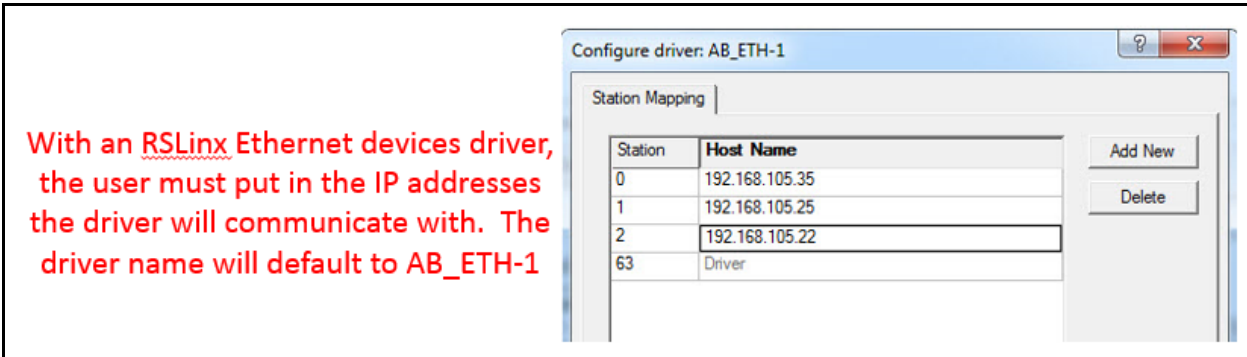
6. **T F** A MAC address on a computer internet port is a hardware (physical) address for that particular network interface port.

Explanation: The MAC address is a physical address that every network interface has. An example of a MAC address is as follows: 77:AF:19:D2:19:4C. It consists of six groups of two hexadecimal digits, separated by a colon. If a computer has a wired network port and a wireless network card, there will be a MAC address for each port.



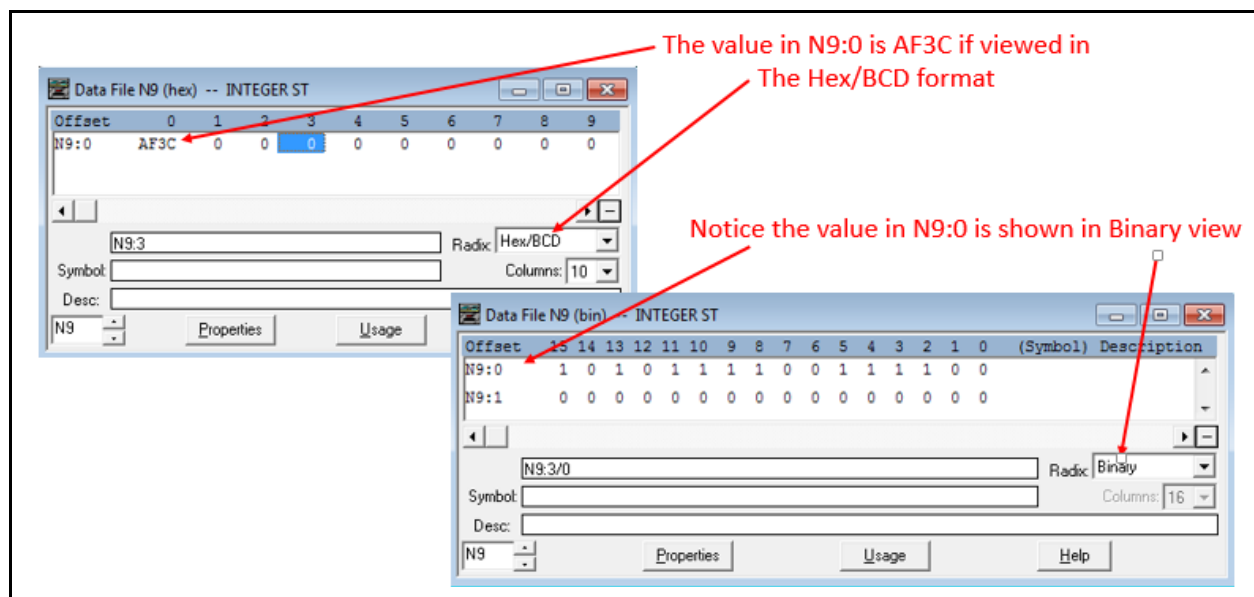
7. Which driver from this list within RSLinx would the user select to have RSLinx automatically detect the Ethernet processor that is on the same Ethernet network as the computer?

- a. Ethernet device
- b. Ethernet/IP Driver**
- c. DF1 Slave Driver
- d. Remote Devices via Linx Gateway



Explanation: The Ethernet/IP driver in RSLinx will bond the driver to the Network Interface Connector on the computer. This will allow the driver to detect any IP addresses that are used on Allen Bradley processor or other Allen Bradley Ethernet devices. If the “Ethernet device” driver was chosen, the user would have to manually add the ethernet addresses of the devices they would want the driver to communicate with.

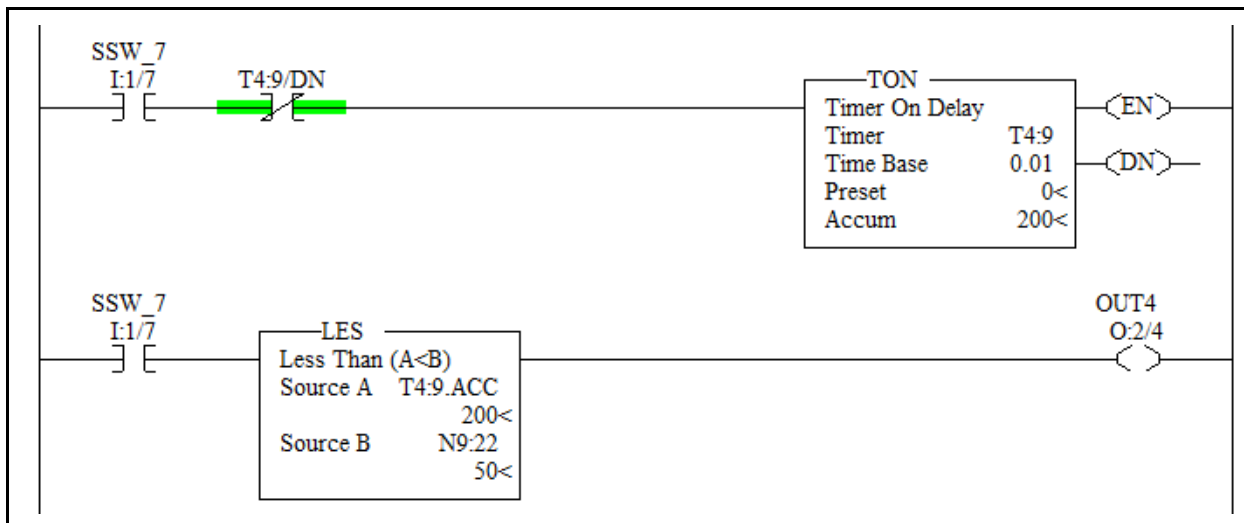
8. Which one of the following data values would need to be stored in a floating point type of data file?
- 892
  - AF3C
  - 32000
  - 16.45**



Explanation: A floating point data file is used to store real numbers. Real numbers would be a number with a decimal point, or possibly scientific notation. Of the options listed, -892 could be stored in an Integer file (N file, such as N8:1). The 32000 will be stored in an N file. The 16.45 will be stored in a floating point file. AF3C would be a hexadecimal number, which is 4 digits (range 0-9, A, B, C, D, E, F). This graphic shows how the Radix view of the data value can be changed to look at the data in different formats.

Offset	0	1	2	3	4	5	6	7	8	9
N9:0	-20676	0	0	0	0	0	0	0	0	0
N9:10	0	0	0	0	0	0	0	0	0	0
N9:20	0	0	0	0	0	0	0	0	0	0
N9:30	0	0	0	0	0	0	0	0	0	0
N9:40	0	0	0	0	0	0	0	0	0	0
N9:50	0	0	0	0	0	0	0	0	0	0
N9:60	0	0	0	0	0	0	0	0	0	0
N9:70	0	0	0	0	0	0	0	0	0	0
N9:80	0	0	0	0	0	0	0	0	0	0
N9:90	0	0	0	0	0	0	0	0	0	0

9. In the following N9 data file, select the address for the word the blue focus is on.
- N9:20
  - N9:24
  - N9:25**
  - N9:26

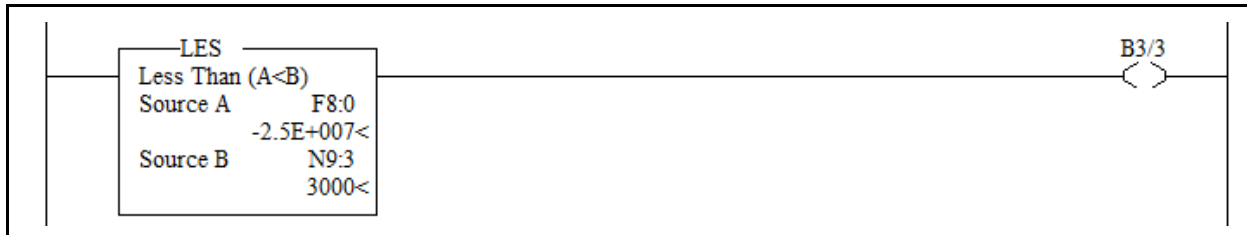


10. In this program, how does OUT4 output respond, if SSW\_7 is turned on?
- OUT4 comes on after 2 seconds and remains on
  - OUT4 never comes on
  - OUT4 comes on for 0.5 seconds, then off for 1.5 seconds and repeats until SSW\_7 is turned off**

- d. OUT4 comes on for 0.5 seconds, then off for 0.5 seconds and repeats until SSW\_4 is turned off

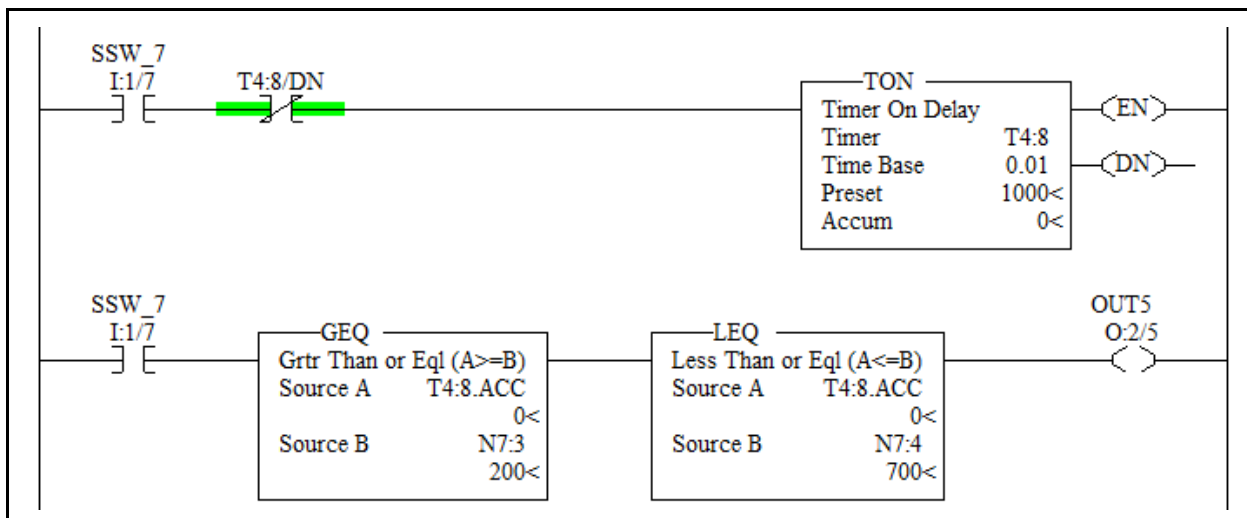
Explanation: The delay time of the timer is 2 seconds ( $200 * 0.01$ ). The first rung is an automatic resetting timer circuit, so it times out, then resets itself, then repeats this continuously. The LES instruction turns on the output for 0.5 seconds ( $50 * 0.01$ ), and off for 1.5 seconds, then repeats this continually, until SSW\_7 is shut off.

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11. What is the value stored in F8:0?
- 25000
  - 250000
  - 2500000
  - 25000000**

Explanation: An important aspect about this rung is that in the LES instruction, F8:0, a floating point data value is being compared to N9:3, an integer data value. This works just fine in the SLC-500 processors. Notice that the value in F8:0 is a negative number with scientific notation (thus the “E” after the number, which means it is a value of -2.5 times 10 to the 7th power, so move the decimal point to the right 7 places to get a value of 25000000).



12. In this program logic, explain how OUT5 output responds when SSW\_7 is turned on.
- OUT5 comes on after 10 seconds
  - OUT5 is off for 2 sec., then on for 5 sec., then continually cycles for 5 sec. off, then 5 sec. on, until SSW\_7 opens**

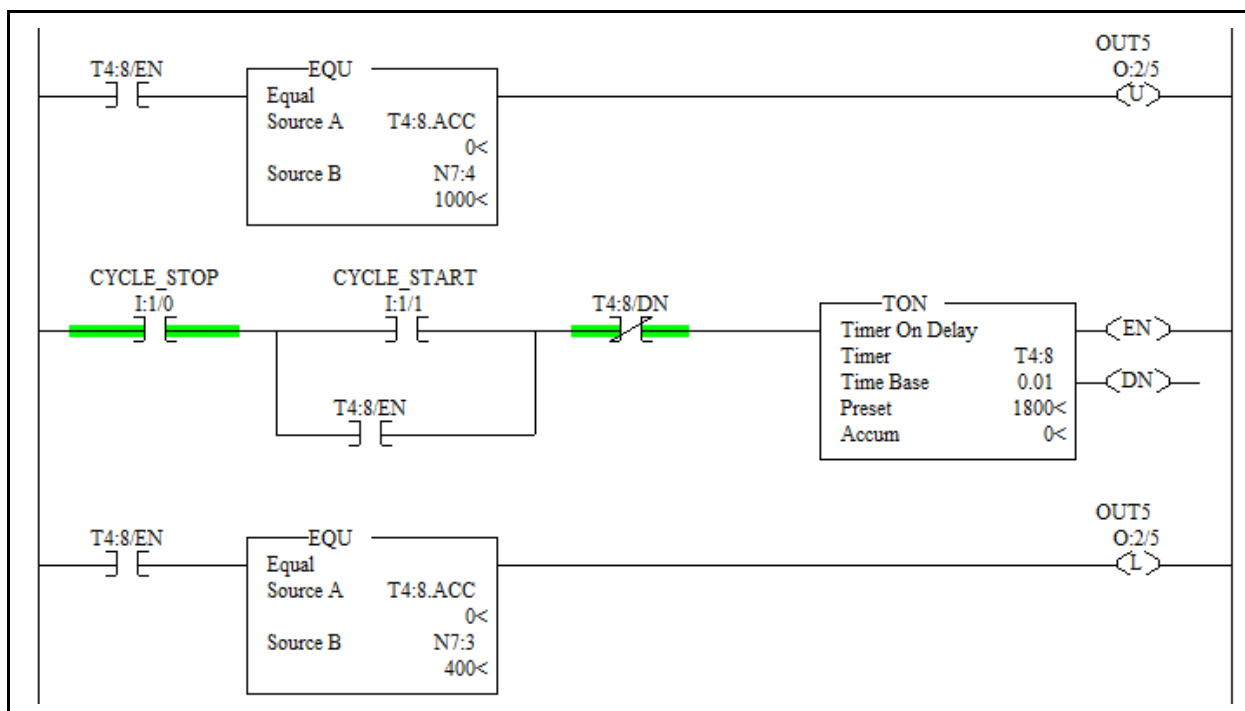
- c. OUT5 comes on immediately and stays on for 10 seconds
- d. OUT5 is off for 5 sec., then on for 5 sec., then continually repeats this until SSW\_7 opens

Explanation: When input SSW\_7 is turned on the timer starts timing. It is an automatic resetting timer circuit so it will time out, reset, time out, and reset continually until SSW\_7 is shut off. An XIC of SSW\_7 enables the second rung. When the timer gets up to 200 (2 seconds) the GEQ goes true, and the LEQ goes true (since 200 is less than 700-the value in N7:4). This turns on OUT5. When the timer accumulated value reaches 701, the GEQ is true, but the LEQ is not, so OUT 5 shuts off until the timer resets and goes up to 200, which will again make the GEQ and LEQ both true, then just repeats this cycle until input SSW\_7 shuts off.

13. The mnemonic for a “Greater Than or Equal To” instruction is:

- a. GET
- b. EGT
- c. GRT
- d. **GEQ**

Explanation: GEQ is Greater Than or Equal To, GRT is Greater Than, LES is Less Than, LEQ is Less Than or Equal To, NEQ is Not Equal To, EQU is Equal To, LIM is the Limit Test. These are the most popular comparison instructions.

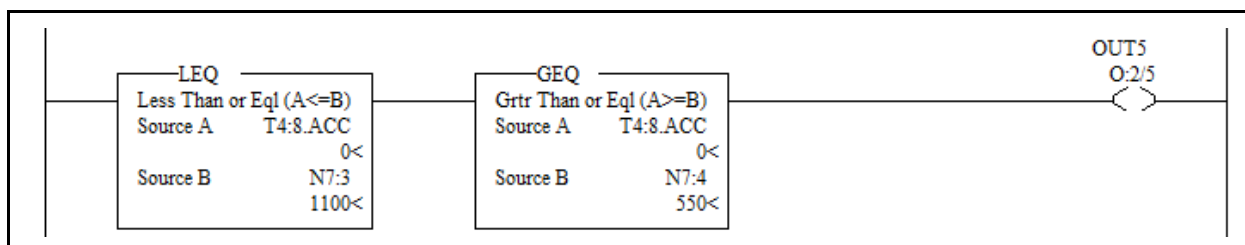


14. How does OUT5 respond in this program logic once the CYCLE\_START is pushed?

- a. OUT5 comes on for 18 seconds, then shuts off

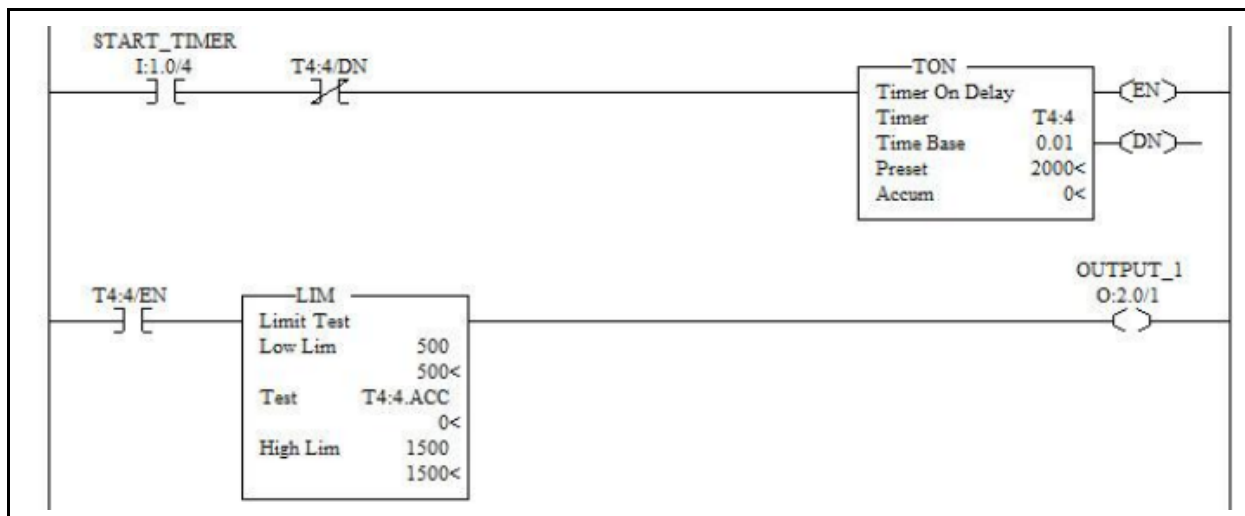
- b. OUT5 comes on after 18 seconds and stays on until the CYCLE\_STOP is pushed.
- c. OUT5 comes on after 10 seconds and stays on for 4 seconds
- d. OUT5 comes on after 4 seconds, then shuts off 6 seconds later**

Explanation: When the CYCLE\_START is pushed the timer is energized and latches up through the XIC enable bit, then after it times out, the timer is reset due the XIO done bit in the middle rung. Once the timer starts timing, when the accumulated gets to 400 (4 seconds) the EQU in the last rung is true, which turns on OUT5 with the latch coil. OUT5 will remain on until the Unlatch coil of the same address (first rung) is true. In this case when the timer accumulated value reaches 1000 (10 seconds) the OTU in the first rung is energized, which will shut off OUT5. Realize that you will not see the OTU highlight in rung 0. The coils only highlight if they are on, and since the OTU turns off OUT5, it will not highlight.



15. What value will shut off OUT5 in this rung of logic?
- a. 450
  - b. 550
  - c. 1000
  - d. 1099

Explanation: The way the logic is programmed, the window for the data to turn on OUT5 is 550 to 1100. Any number outside of this will cause OUT5 to shut off. The logic is if T4:8.ACC is less than or equal to 1100, and (in series) the value in T4:8.ACC is greater than or equal to 550, then the output will turn on.

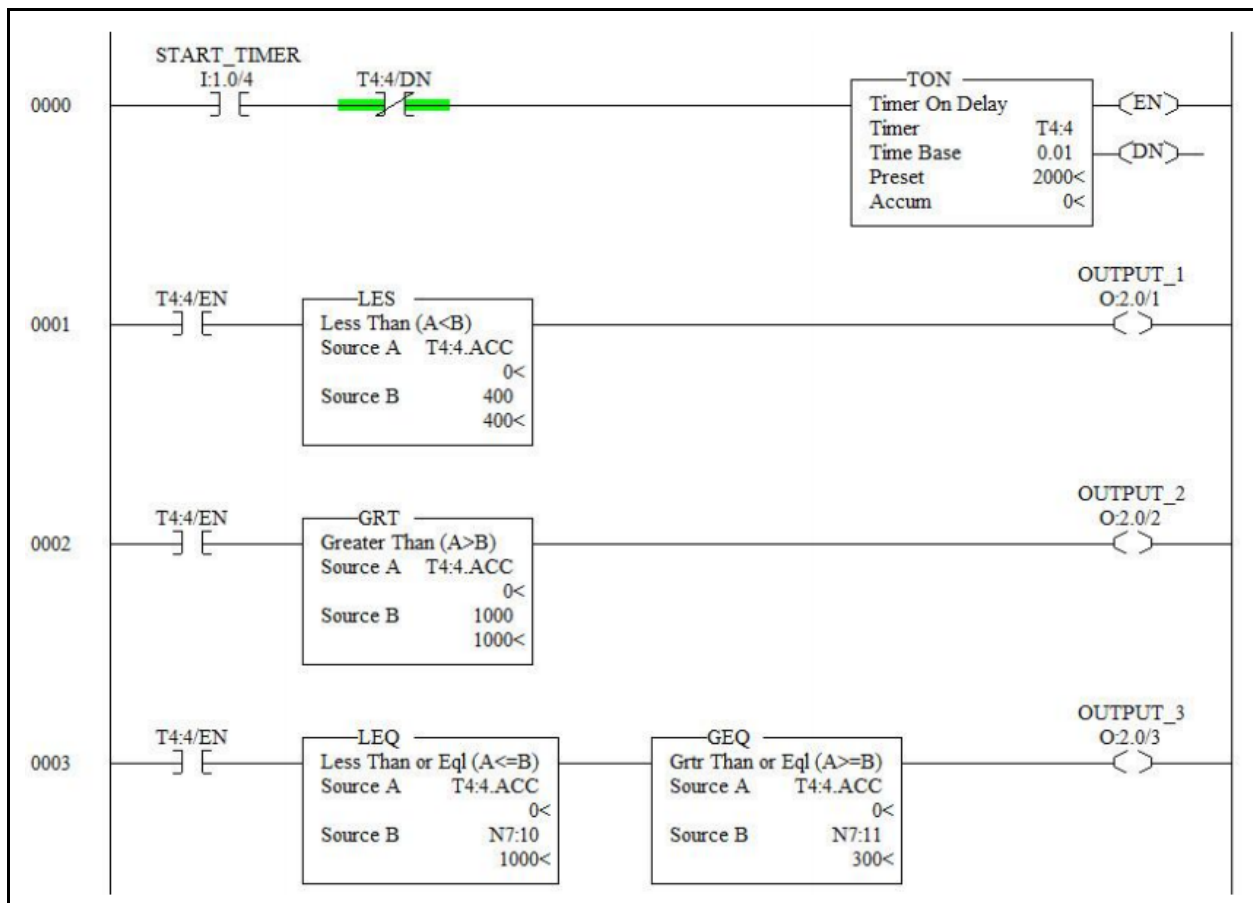




16. What value in the timer accumulated value will allow OUTPUT\_1 to come on, if the timer is timing?

- a. 400
- b. 501**
- c. 1501
- d. 1700

Explanation: If the data value in the Test word within the LIM is equal to or between the two limits, the LIM will be true, and turn on the output.



17. How does OUTPUT\_1 respond in this program when the START\_TIMER input is turned on?
- a. It comes on immediately and stays on until the START\_TIMER input is turned off
  - b. It comes on after 4 seconds and stays on until the START\_TIMER input is turned off
  - c. It comes on for 4 seconds, then shuts off for 16 seconds, then repeats this until the START\_TIMER input is turned off**
  - d. It is off for 4 seconds, then turns on for 16 seconds, then repeats this until the START\_TIMER input is turned off

Explanation: OUTPUT\_1 comes on when the START\_TIMER input is turned on due to the LES being true if the accumulated value of the timer is less than 400 (4 seconds), then shuts off for 16 seconds, or until the timer times out and resets, then it starts over. OUTPUT\_2 will come on after 10 seconds of the time cycle, and stay on until the timer times out (about 10 seconds) then repeats this continually until the input is shut off. OUTPUT\_3 comes on at 3 seconds, and stays on until 10 seconds, staying on for 7 seconds, then it is off for 13 seconds and repeats this until the input is shut off.

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