Class: 4th Stage
Subject: Control Lab
Lecturer:Dr.Essam Zuhair,Eng.Aceel Talib Hussain
E-mail: aceel.talib@mustaqbal-college.edu.iq

(Control laboratory)

Experiment No. 00(7)

(Electro pneumatic trainer (using a cylinder and Limit switch and PLC timer))

Prepared by
(Eng. Aceel Talib Hussain)

Class: 4th Stage
Subject: Control Lab
Lecturer:Dr.Essam Zuhair,Eng.Aceel Talib Hussain
E-mail: aceel.talib@mustaqbal-college.edu.iq

Exp.No.(7) Electro pneumatic trainer(using a cylinder and Limit switch and PLC timer))

Unit objective: - after completing this unit, you will be able to understand the working of single acting cylinder, double acting cylinder, PLC timers, and limit switches.

Wiring:

RLY1 NO	S1 (+)
RLY2 NO	S2 (+)
RLY3 NO	S3 (+)
RLY4 NO	S4 (+)
CDI 2	LS1 NO
CDI 3	LS2 NO
CDI 4	LS3 NO
CDP 24V	RLY1 COM
CDP 24V	RLY2 COM
CDP 24V	RLY3 COM
CDP 24V	RLY4 COM
CDO1	DEO1
CDO2	DEO2
CDO3	DEO3
CDO4	DEO4
SIMULATION EXTENTION PANNAL 24V	CDI 1
EDI 5(PUSH BUTTON)	CDP COM
S(SELENIOD) 1 (-)	CDP COM
S(SELENIOD) 2 (-)	CDP COM

S(SELENIOD) 3 (-)	CDP COM
S(SELENIOD) 4 (-)	CDP COM
LS1 C	CDP COM
LS2 C	CDP COM
LS3 C	CDP COM

PROCEDURE:-

1. Make the connection as shown in the diagram.
2. Set FRL pressure to 3 bar.
3. Connect the power supply.
4. Press the EDI 5 (push button) to start the process.
5. The C1 (cylinder) steps out.
6. The limit switch (LS1) GET PUSH DOWN.
7. The timer 1 in the PLC starts counting for 10 seconds.
8. The C2 (cylinder) steps out.
9. The limit switch (LS2) GET PUSH DOWN.
10. The timer 2 in the PLC starts counting for 10 seconds.
11. The C3 (cylinder) steps out.
12. The limit switch (LS3) GET PUSH DOWN.
13. The timer 3 in the PLC starts counting for 10 seconds.
14. The C1 and C2 steps in .
15. Because of that the C3 is a double acting cylinder , we must connect S4 + to any CDP 24v port to get it steps in.

Conclusion

In this experiment we have gone through the process of controlling three cylinders using the limit switches, and the PLC timers. It shows us how that the control of a three cylinders can be in a sequential manner .

Component required :

1. Limit switch.
2. 5/2 way valve.
3. 3/2 way valve.

Discussion:-

1. What does limit switch, PLC timer do?
2. What is the time set between any two cylinders?
3. How does cylinder (C3) act?