Diploma, Anna University-UG, PG., HSC & SSLC

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33075- PROGRAMMABLE LOGIC CONTROLLER PRACTICAL

DETAILED SYLLABUS

OBJECTIVES

On completion of this practical subject the students will be able to

- Develop ladder logic for different types of starters.
- Develop ladder logic for EB to Generator changeover.
- Develop ladder logic for Automatic load transfer.
- Develop ladder logic for sequential control process like water filling, fire
- alarm and conveyor sorting etc.,
- To program PLCs for controlling Heater and motors.

LIST OF EXPERIMENTS

1. Interfacing of Limit switch, Reed switch and Proximity switch with PLC.
2. DOL starter with single phase prevention.
3. EB to Generator Change over switch implementation with interlocking
4. Star Delta starter
   a. Single phasing prevention
   b. Adjustable star-delta transfer time
   c. Pre-settable overload trip time
5. Automatic load transfer
   a. Transfers load from one phase to another when one phase in a three phase system fails
   b. Automatically restores when power is resumed
   c. Time delays are effected to prevent action during short time failure
6. Fill the water in water tank and maintain the water level.
   a. When water level comes below lower level switch ON the pump
   b. When water level reaches the high level switch OFF the pump
   c. Include manual switch to operate the pump at any level of water.
7. Fire alarm
   a. Multiple alarms
   b. Sound alarm
   c. If not acknowledged, Sound alarms 1 and 2
   d. Similarly go up to 4 alarm conveyor belt sorting

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8. Three floor Lift control

9. Traffic light control

10. Automatic operation of double acting pneumatic cylinder – Multi cycle

11. Sequential operation of two Double Acting Cylinders for the sequence A+, B+, B-,A-.

12. Analog input to PLC as a set of valve for a comparator function block

    a. The input is multilevel illumination control. The input is setting is by means of a potentiometer in an analog input to the PLC. The outputs turn on several groups of lamps to obtain desired level illumination.

13. Heater control with PID function of the PLC

    a. A 1000 W water heater is controlled using the PID function of the PLC. The temperature transducer is a temperature transmitter with 4 to 20 mA output and Pt 100 Probe.

14. Round table liquid filling system

    a. Dropping of Reagents into test tubes. The feedback is from potentiometer. The program must ensure that the end limits of the pot are never reached by carefully balancing the clockwise and anticlockwise revolution.

15. Slow speed motor control using PWM function of the PLC

    a. Slow speed 12V DC 18W permanent magnet motor with fly wheel is controlled with the PWM output and feedback from a low resolution encoder.