

071305T4ELC

ELECTRONICS ENGINEERING LEVEL 5

ENG/OS/ET/CR/03/5/A

Install Electrical Machine Control System

March/April 2025



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION
COUNCIL (TVET CDACC)**

PRACTICAL ASSESSMENT

Time: 3 HOURS

INSTRUCTIONS TO CANDIDATE

1. You are required to perform the following tasks
 - i. **TASK 1:**
Draw the wiring diagram for the machine control represented by the block diagram in figure 1.
 - ii. **TASK 2:**
Perform wiring of the PLC controlled machine system to control the red and green lights and connect it to the motor.
 - iii. **TASK 3:**
Implement the ladder logic diagram given in figure 2 using a PLC software and upload to the PLC.
 - iv. **TASK 4:**
Test the functionality of the wired system to ensure proper operation

2. You have been provided with the following resources for the practical tasks:
 - i. Programmable Logic Controller (PLC)
 - ii. Computer installed with PLC software
 - iii. Terminal block
 - iv. Red and green indicator lights (24V DC)
 - v. 3 phase induction motor
 - vi. Push buttons (Start and Stop)
 - vii. Power supply
 - viii. Connecting Wires
 - ix. Mounting panel
 - x. Conduit and cable ties
 - xi. Multimeter

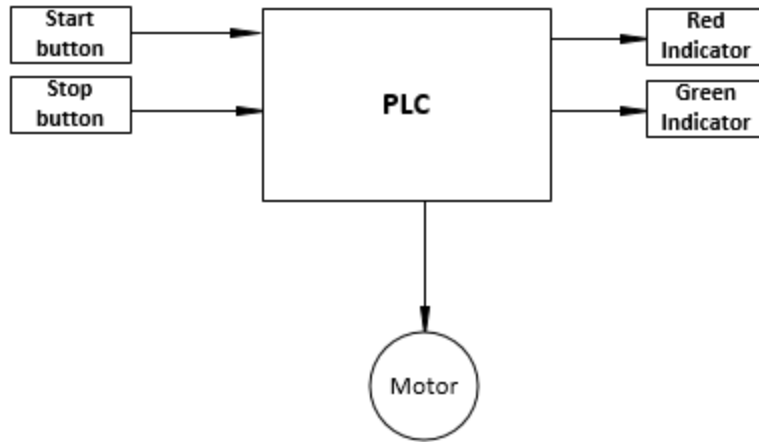


Figure 1: Block diagram of a machine system

Table 1: Plc Input/output Specifications

Inputs	Address	Outputs	Address
Start push button (NO)	I0.0	Motor starter	Q0.0
Stop button (NC)	I0.1	Run indicator	Q0.1
Overload Relay(OL)	I0.2	Stop indicator	Q0.2
Selector switch (LS1)	I0.3		

CPU Program

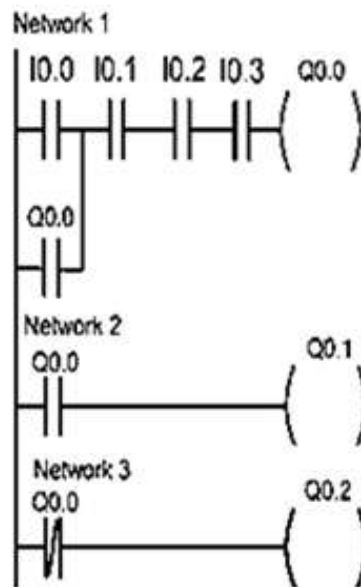


Figure 2: Ladder Logic program

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