



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

**Qualification Code : 071606T4MCT**  
**Qualification : Mechatronic Technician Level 6**  
**Unit Code : ENG/OS/MC/CR/02/6/A**  
**Unit of Competency : Install Mechatronic Systems**

**PRACTICAL ASSESSMENT**

**INSTRUCTIONS TO CANDIDATE**

1. You are allocated **3 HOURS** to complete the practical task.
2. The assessor will record your performance at critical points using audio-visual means

*This paper consists of FIVE (5) printed pages  
Candidates should check the question paper to ascertain that all the pages are printed  
as indicated and that no questions are missing.*

**Requirement:**

- Use relay and PLC module separately to control 5/3 double solenoid valve to complete double-acting cylinder's continuous reciprocating movement.

**Relay control**

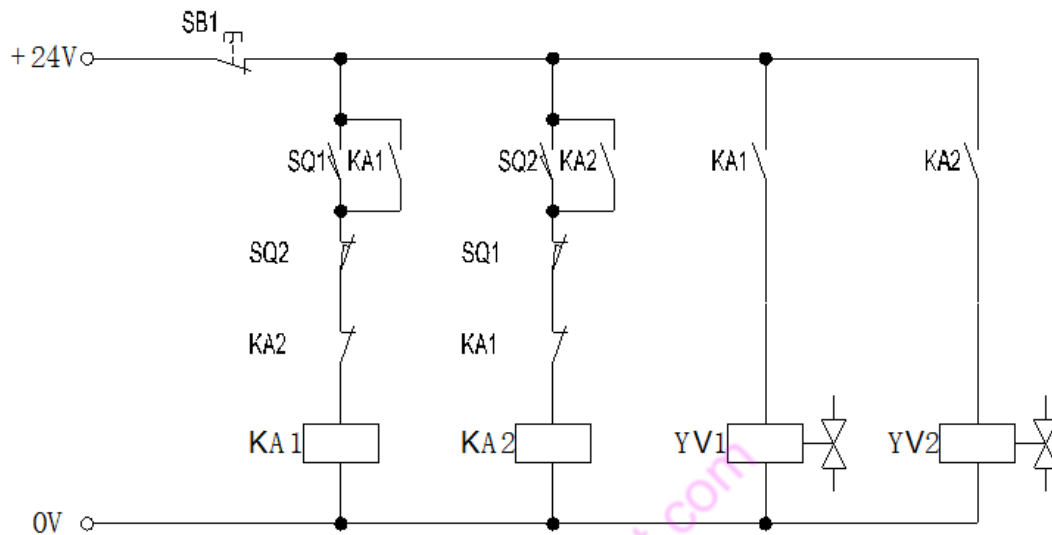


Figure 1: Electrical schematic

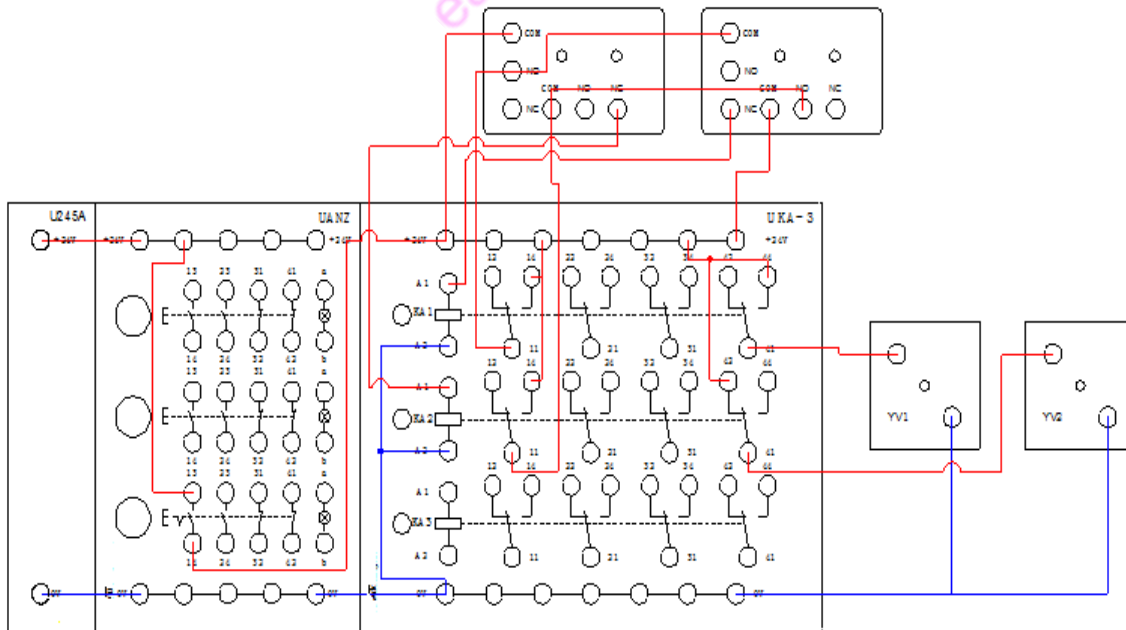


Figure 2: wiring schematics

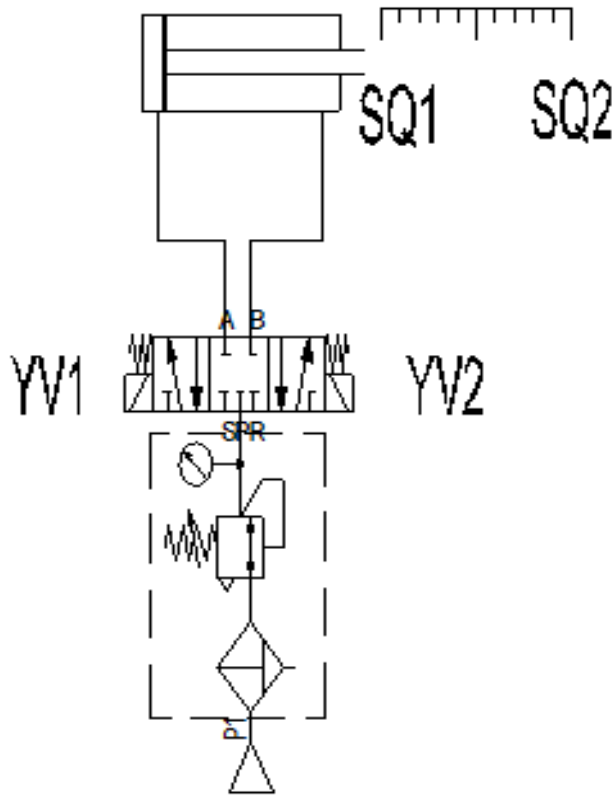


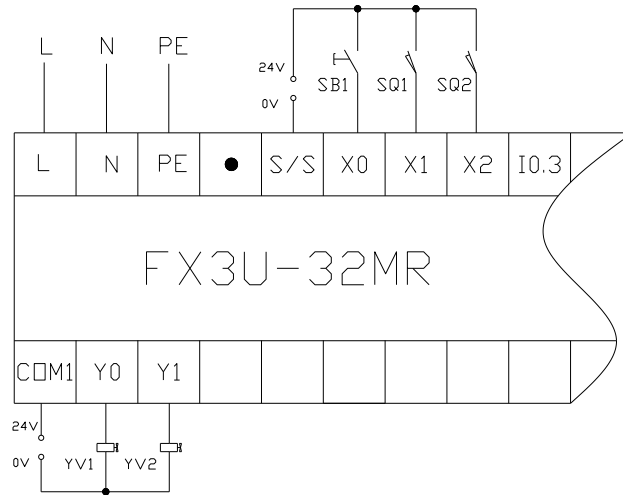
Figure 3: Pneumatic schematics

### PLC control

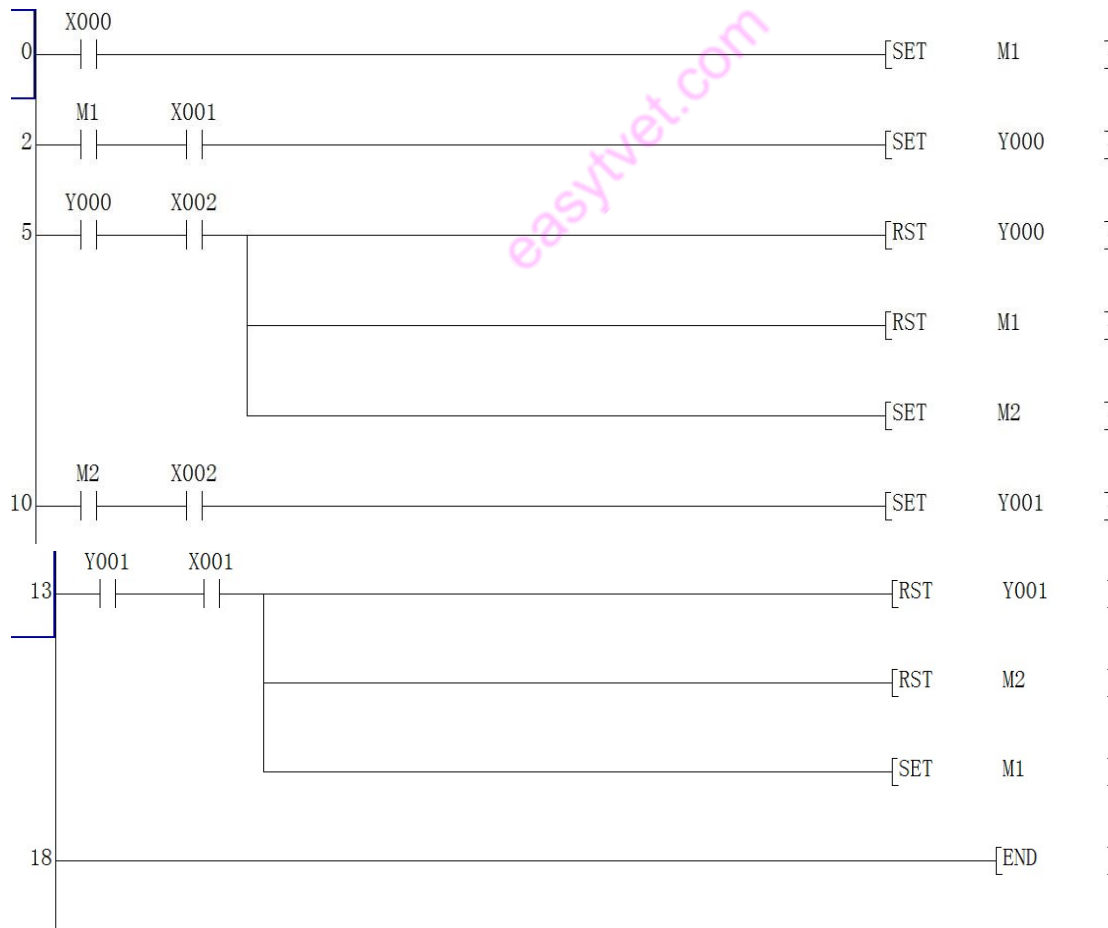
#### 1) I/O Distribution sheet

DI wiring	SB1	X0
	SQ1	X1
	SQ2	X2
	S/S	0V
DO wiring	YV1	Y0
	YV2	Y1
	COM1	24V

PLC wiring schematics:



PLC Program



**Procedure:**

- i. Understand each electrical contact, function and symbolic structure;
- ii. Connect cable according to the electrical schematics;
- iii. Build pneumatic circuit according to the pneumatic schematics;
- iv. Enter the PLC program and download to the module
- v. Debug and check equipment;
- vi. Test;
- vii. Turn off the power after finishing practical
- viii. Remove the elements and place neatly.

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