International University of Ecuador
Faculty of Technical Sciences

School of Mecatronics engineering

Industrial Automatization

Lab's Preparatory No 2:

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Lab's preparatory No. 2*

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1 Instructions

Design the control circuit that performs the operating sequence of three three-phase motors (M1, M2 and M3). The components are the following:

- switch to activate the control circuit.
- Two Normally Open push buttons S1 and S2.
- Two Normally Closed push buttons S01 and S02.
- Three contactors KM1, KM2 and KM3 for the control of motors M1, M2 and M3.
- Two contactors KA1 and KA2 to control two lamps H1 and H2, respectively.

1.1 Operating sequence

The operating sequence of the circuit is as follows:

- Pressing button (S1) activates motor M1.
- Pressing button (S2) activates motor M2 and M3.
- Pressing button (S01) causes the general system shutdown (all components are deactivated).
- Pressing button momentarily (S02) deactivates motor M3, that is, as long as the button is kept pressed. Operating sequence of lamp H1 (KA1), it is activated in the following cases:
- When motor M1 (with S1) and motors M2 and M3 (with S2) are activated. Operating sequence of lamp H2 (KA2), it is activated in the following cases:
- When motor M2 and M3 are activated (with S2) and if motor M1 is OFF.
- When motor M1 is ON (with S1) and motors M2 and M3 are OFF.
- If motor M3 is ON, when S02 button is kept pressed, motor M3 turns OFF. If S02 button is released, the M3 motor continues to be activated.

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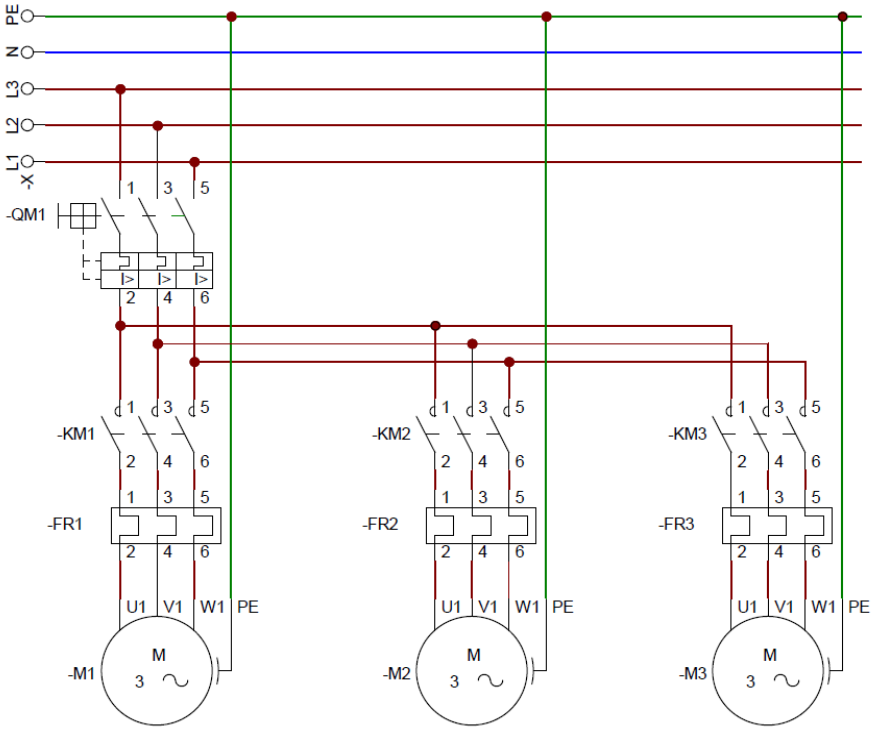
2 Circuit diagram

Considering all the needs of the circuit, the following diagram is proposed:

2.1 Power circuit

Fig. 1. Power circuit, used to control the motors



2.2 Control circuit

Fig. 2. Insert caption