Title: **ESTOP-Stop-Start using Auxiliary Contacts for 3P Motor** Job: 21

Course: Intro to Automation Unit: Manual Motor Control CLO: 1, 2

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Grade \_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objectives**

1. Student shall establish the use of a motor contactor and controlling a three-phase motor.
2. Student shall define the connections to a motor contactor and auxiliary contacts and their terminal numbers.
3. Student shall differentiate between needing to use a clapper relay for indicator lights verses adding a set of auxiliary contacts to a motor contactor.

**Assessment**

Students shall demonstrate a comprehension of the objectives listed above by scoring a minimum of 75% on this Job. Grading shall be based on the Manual Motor Control rubric.

**Devices**

|  |  |  |
| --- | --- | --- |
| Inputs | | |
| *Device* | *Description* | *Symbol* |
| Mushroom-head Pushbutton | Emergency Stop | ESTOP |
| Normally Closed Pushbutton | Stop Motor | STOP |
| Normally Open Pushbutton | Start Motor | START |
| Auxiliary Contacts | 1 NO and 1 NC Set of Contacts | AUX |
| Outputs | | |
| *Device* | *Description* | *Symbol* |
| Green Pilot Light | Motor Running | RUNNING |
| Red Pilot Light | Motor Stopped | STOPPED |
| Three-phase 24VDC Contactor | Three-phase Motor Contactor | MC1 |
| 208VAC/3P Motor | Three-phase AC Motor | M1 |

**Instructions**

Design a stop/start motor control circuit to control a three-phase motor using the devices listed above. Whenever the motor is running, the green light shall illuminate, and the red light shall be off. Whenever the motor is not running, the green light shall be off, and the red light shall illuminate (even if stop button is pressed). The entire circuit shall be protected by an emergency stop button. Use the space on the opposite side of this page to design the circuit. Once complete, review the design with the instructor. After obtaining approval, wire the circuit ensuring to label all wires with the appropriate wire numbers. Have the instructor review all wiring before energizing the circuit. Render the schematic using a CAD type software package. Post the schematic to the *student share* folder using filename *MMC Job 21 – name.ext.*



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Discussed design \_\_\_\_\_\_\_\_ Checked wiring \_\_\_\_\_\_\_\_ Energized Test \_\_\_\_\_\_\_\_