Title: **ESTOP-Stop-Start for 3P Motor** Job: 20

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 for controlling a three-phase motor.
2. Student shall define the connections to a motor contactor and their terminal numbers.
3. Student shall differentiate between using a clapper relay for single-phase motor control verses using a motor contactor for three-phase motor control.

**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 |
| Outputs | | |
| *Device* | *Description* | *Symbol* |
| Green Pilot Light | Motor Running | RUNNING |
| Red Pilot Light | Motor Stopped | STOPPED |
| Eight-Pin 24VDC Relay | Light Indication | CR1 |
| 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 using the devices listed above. The circuit will also have an emergency stop. Whenever the motor is running, the green light shall illuminate, and the red light shall be off. When the motor is not running, the green light shall be off, and the red light shall illuminate. If the ESTOP is pressed, the motor, if running, shall stop, the green light shall go out and the red light shall illuminate. HINT: You shall need the control relay for the light functionality. 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 20 – name.ext.*



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