Title: **ESTOP/Stop/Start of a Single-Phase Motor Circuit** Hands On: 1

Course: Introduction to Automation Unit: Introduction of PLC

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Station \_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objectives**

1. Student shall demonstrate their knowledge of a stop/start motor control circuit.
2. Student shall develop a motor control circuit from a written description.
3. Student shall apply the program design to a motor control circuit.

**Assessment**

Students shall demonstrate a comprehension of the objectives listed above by scoring a minimum of 75% on this Hands On. Grading shall be based on the Introduction to PLC rubric.

**Devices**

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| Inputs | | |
| *Device* | *Description* | *Symbol* |
| Mushroom Head Pushbutton | Emergency Stop | ESTOP |
| Normally Closed Pushbutton | Stop Motor | STOP |
| Dual Action Pushbutton | Start Motor | START |
| Outputs | | |
| *Device* | *Description* | *Symbol* |
| Green Pilot Light | Motor Running | RUNNING |
| Red Pilot Light | Motor Stopped | STOPPED |
| Eight-Pin Relay | Motor Control | CR1 |
| 120VAC Motor | Motor | M1 |

**Instructions**

Design a stop/start motor control circuit using two momentary pushbuttons. The circuit will also utilize a latching mushroom head pushbutton to act as an “ESTOP” as well. 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 shall stop and not be able to be restarted until the “ESTOP” is disengaged. When the “ESTOP” is pressed, the yellow light shall illuminate indicating an emergency situation. No two lights shall be on at any one time. Use the space on the opposite side of this page to design the circuit. Have the instructor to look over the hand-drawn program. The instructor will identify if the student should proceed or the design has at least one issue. Any instructor help shall be subject to a points deduction based on the Introduction of PLC rubric. Once gaining approval, you may enter the program into RSLogix 500. Ensure the program has appropriate descriptions and symbols. Also, complete any wiring necessary to the final control element. Once you are ready for a grade, have the instructor review the program and circuit wiring before downloading and energizing the system.

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1. Have instructor review the program before downloading. Initials \_\_\_\_\_\_\_
2. Review running program with instructor. Initials \_\_\_\_\_\_\_
3. Wire motor into circuit. Have instructor review wiring. Initials \_\_\_\_\_\_\_
4. Final test of motor reviewed by instructor. Initials \_\_\_\_\_\_\_