Title: **Stop-Start-Jog using Selector Switch for 1P Motor** Hands-On: 2

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

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

**Objectives**

1. Student shall design a motor control circuit that has a jog function for a single-phase motor.
2. Student shall develop motor control circuit design skills.
3. Student shall construct a single-phase 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 Manual Motor Control rubric.

**Devices**

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| Inputs | | |
| *Device* | *Description* | *Symbol* |
| Mushroom Head Pushbutton | Emergency Stop | ESTOP |
| Two-position Selector Switch | Jog or Run Mode | JOG\_RUN |
| Normally Closed Pushbutton | Stop Button | STOP |
| Normally Open Pushbutton | Start Button | START\_JOG |
| Outputs | | |
| *Device* | *Description* | *Symbol* |
| Green Pilot Light | Motor Running | RUNNING |
| Yellow Pilot Light | Jog Control | JOG |
| Red Pilot Light | Motor Stopped | STOPPED |
| Eight-Pin 24VDC Relay | Motor Control | MC1 |
| 120VAC Motor | Motor | M1 |

**Instructions**

Design a stop/start/jog motor control circuit using the components listed above. The entire circuit shall be protected through the ESTOP. With the selector switch in “RUN” mode, whenever the START button is depressed, the motor shall start and remain running even when the START button is no longer depressed. Whenever the stop pushbutton is depressed, the motor shall stop. With the selector switch in “JOG” mode, whenever the start button is depressed, the motor shall start and run only while the button is being depressed. When the START button is released the motor shall 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. Whenever the JOG mode is selected, the yellow light shall illuminate together. Use the space on the opposite side of this page to design the circuit. Once complete, you may review the design with the instructor, but it is not necessary. Any instructor help shall be a points deduction based on the Manual Motor Controls rubric. You may wire the circuit ensuring to label all wires with the appropriate wire numbers. Have the instructor review all wiring before energizing the circuit.

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