Title: **Fwd-Rev using a Selector Switch for 3P Motor** Hands-On: 6

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

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

**Objectives**

1. Student shall develop a further understanding of reversing a motor three-phase motor.
2. Student shall enhance motor circuit design skills as it applies to three-phase motors.
3. Upon completion, the student shall have a more complete knowledge base for creating proficient motor control circuits.

**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* |
| Three-position Selector Switch | Forward, Off, Reverse Selection | DIRECTION |
| Normally Closed Pushbutton | Stop Motor | STOP |
| Normally Open Pushbutton | Start Motor | START |
| Outputs | | |
| *Device* | *Description* | *Symbol* |
| Green Pilot Light | Motor Running Forward | FORWARD |
| Red Pilot Light | Motor Stopped | STOPPED |
| Yellow Pilot Light | Motor Overload | OVERLOAD |
| Blue Pilot Light | Motor Running Reverse | REVERSE |
| 3-phase 24VDC Motor Starter | 3-phase Motor Starter, Forward | MS2-F |
| 3-phase 24VDC Motor Contactor | 3-phase Motor Contactor, Reverse | MS2-R |
| 208VAC/3P Motor | Three-phase AC Motor | M2 |

**Instructions**

Design a forward/reverse motor control circuit for the three-phase motor using the devices listed above. One pushbutton shall be the START button, and the other the STOP button. The selector switch shall determine if the motor is to rotate forward (CCW) or reverse (CW). If the motor is running and the selector switch is changed, the motor shall stop running. The operator shall have to press the START button to engage the motor in the newly selected direction. The green light shall indicate the motor is running FORWARD, the blue light shall indicate the motor is running REVERSE, the red light shall indicate STOPPED and the yellow light shall indicate OVERLOAD. Use the space on the opposite side of this page to design the circuit. Once complete, is not necessary to review the design with the instructor. Any instructor assistance during design shall be subject to a points deduction based on the Manual Motor Control rubric. 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 Hands-On 6 – name.ext.*

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