



ECET 4530

Industrial Motor Control

Schematic Diagrams

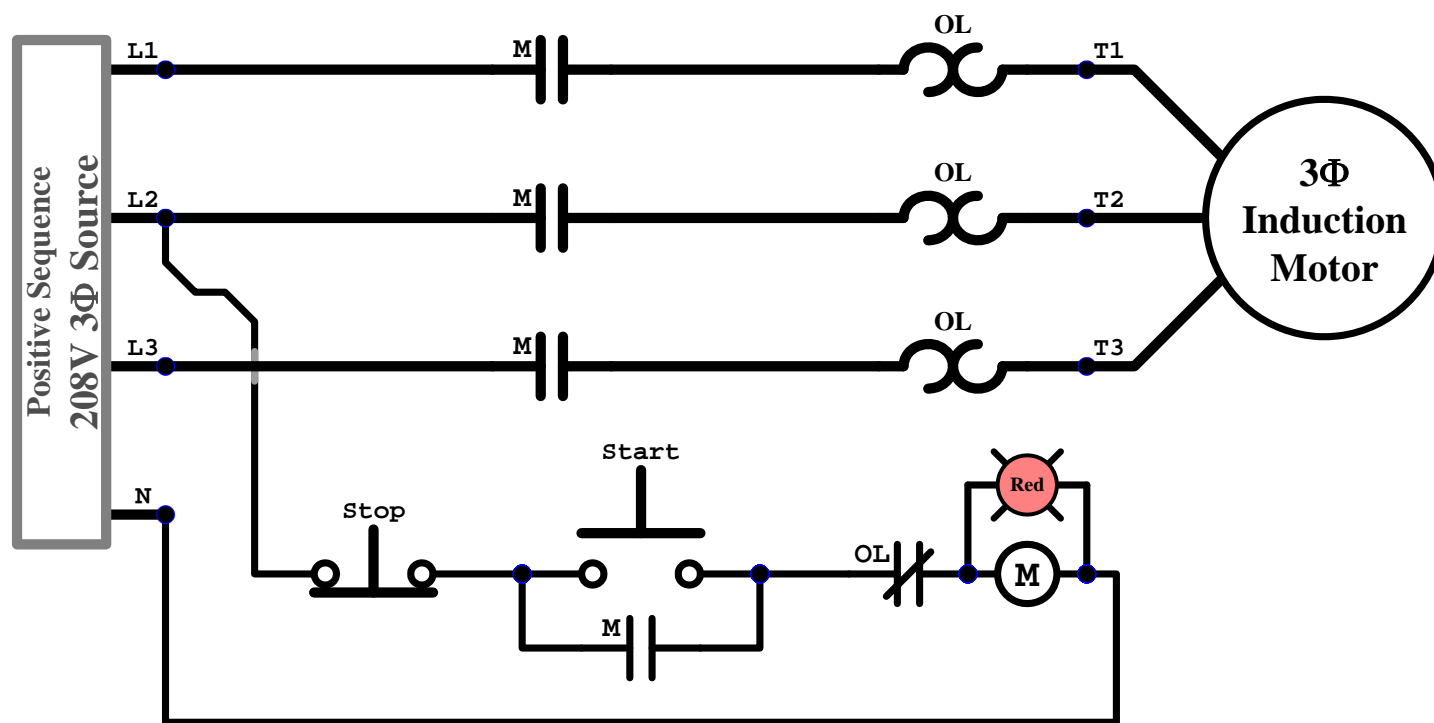
vs.

Wiring Diagrams



Schematic Diagram – I

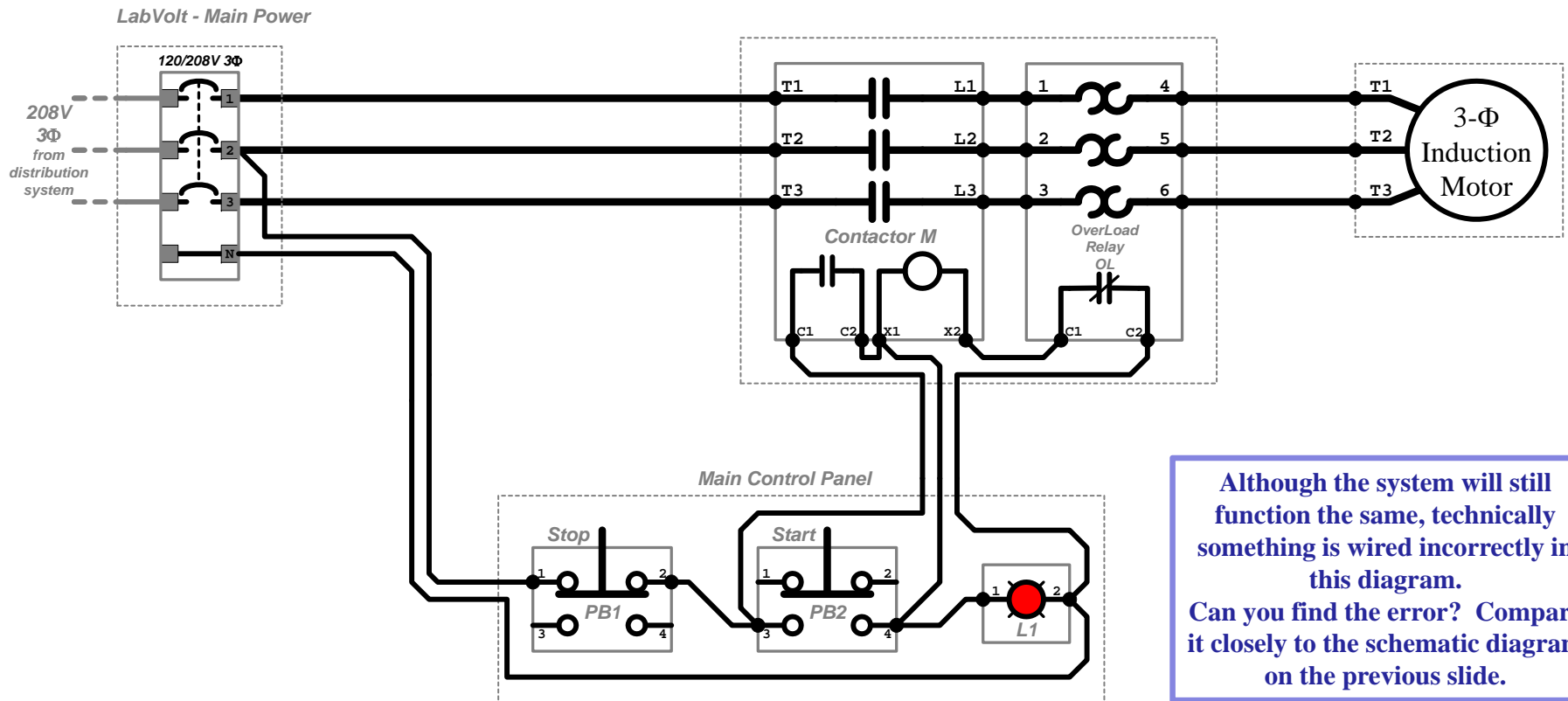
Simple Stop/Start Controller with Overload Protection and an Indicator Lamp.





Wiring Diagram – I

Simple Stop/Start Controller with Overload Protection and an Indicator Lamp.



Although the system will still function the same, technically something is wired incorrectly in this diagram. Can you find the error? Compare it closely to the schematic diagram on the previous slide.



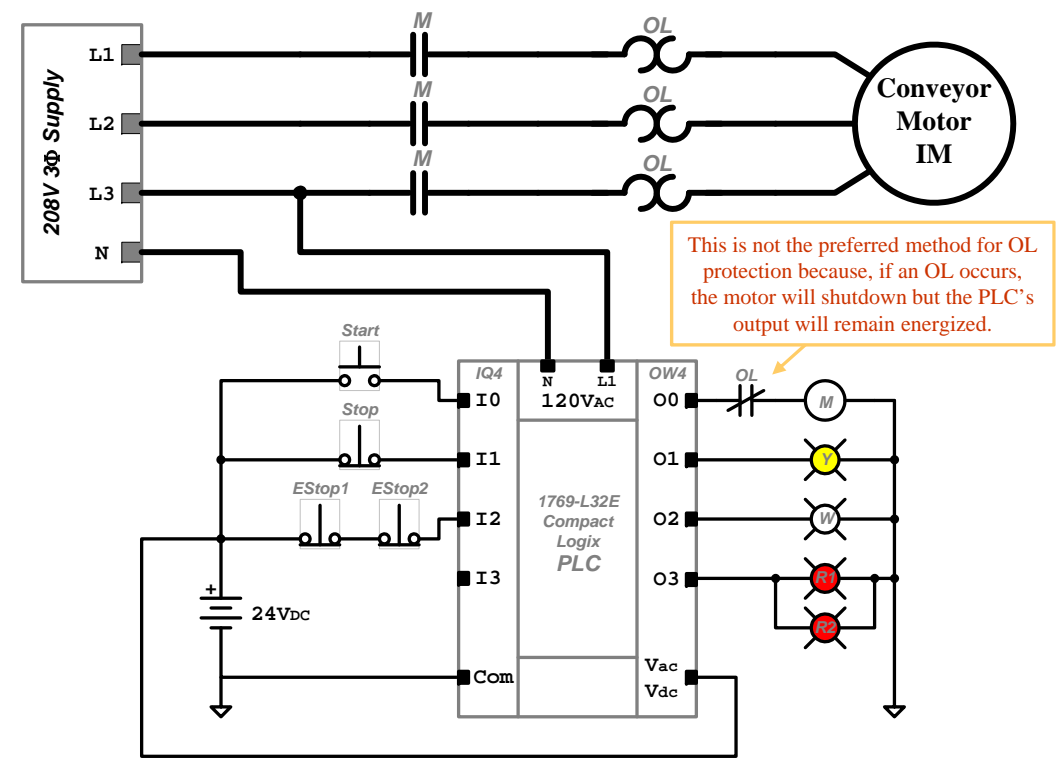
Schematic Diagram – IIa

PLC-based Stop/Start Controller with Overload Protection.

Includes two control panels:

Main Panel: Start (Pb)
Stop (Pb)
EStop (Pb)
Yellow (Lamp)
White (Lamp)
Red (Lamp)

Remote Panel: EStop (Pb)
Red (Lamp)



Note that, although this diagram conveys to overall operation of the system, including the fact that both the inputs of the PLC and all of the loads connected to the PLC (i.e. – the field coil and indicator lamps) are rated for 24V_{DC}, the diagram does not accurately depict the voltage sources that will be utilized. In reality, the 24V_{DC} source provided by the PLC's power supply will be used to signal the PLC's inputs, while a separate (external) 24V_{DC} source will be connected to the common terminal of the 1769-OW4 Relay Output Module in order to supply the power required by the connected loads.

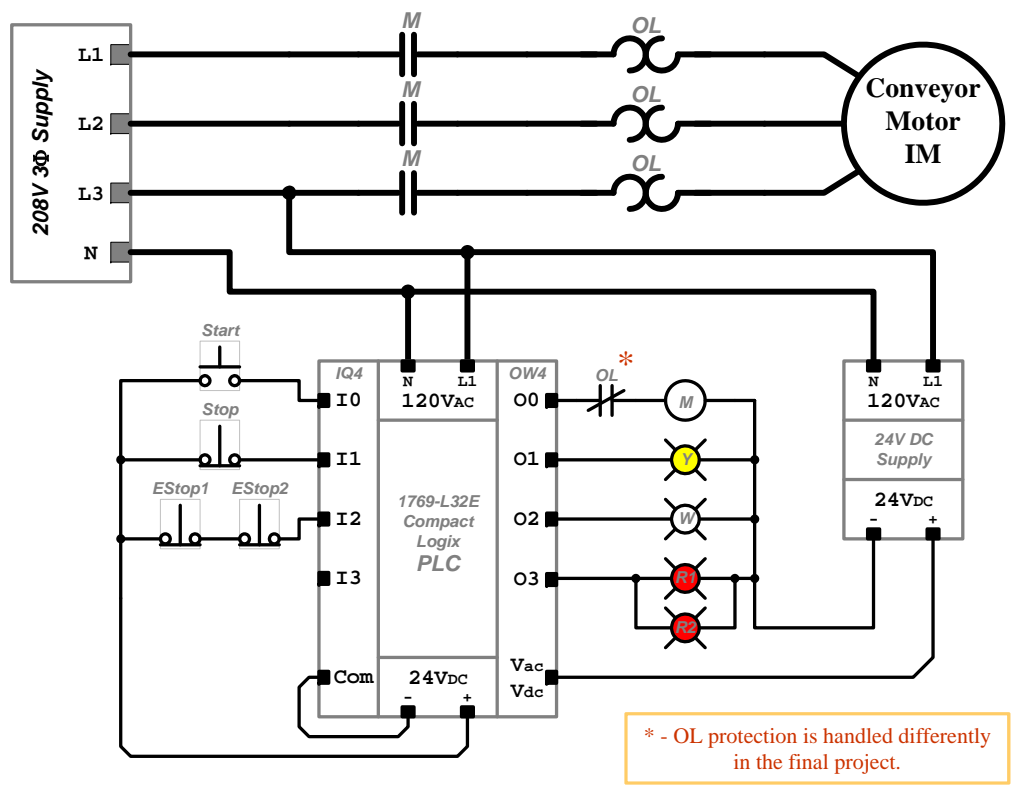


Schematic Diagram – IIb

PLC-based Stop/Start Controller with Overload Protection and separate 24V_{DC} power supplies.

Includes two control panels:

- Main Panel:** Start (Pb)
- Stop (Pb)
- EStop (Pb)
- Yellow (Lamp)
- White (Lamp)
- Red (Lamp)
- Remote Panel:** EStop (Pb)
- Red (Lamp)



* - OL protection is handled differently in the final project.

This diagram correctly depicts the 24V_{DC} source provided by the PLC's power supply being used to signal the PLC's inputs and a separate (external) 24V_{DC} source connected to the common terminal of the 1769-OW4 Relay Output Module in order to supply the power required by the connected loads. This is preferable because the external source should appear on the equipment schedule and could easily be forgotten based on the previous diagram.



Wiring Diagram – II

